

THE VASCULUM

APRIL 1988

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Edited by:

**T. C. DUNN, M.B.E., M.Sc.,
The Poplars, Chester-le-Street, Co. Durham**

BY THE WAY

Secretaries of Societies and other contributors to the Vasculum should send their notes to the Editor before 15th June. 1988.

FIELD OUTINGS FOR 1988

1. Saturday 4th June, Tyne Riverside, near Prudhoe, Northumberland
Leader: Nick Cook.
2. Saturday 9th July, Teesmouth, Cleveland.
Leader: Russell McAndrew.
3. Saturday 10th September, Annfield Plain Heath.
Leader: Lance Moore.
4. Saturday, 22nd October, Newton-by-the-Sea and Hawksley.
Leaders; Peter Davis and Mike Freeman.

NOTES FOR THE VASCULUM

We would like to increase the "notes" section of this journal. Interesting observations, in the field, of animal behaviour, unusual distribution of any species of plant or animal, abnormal forms or rare variations, or unusual abundance at special times of the year are all useful topics for discussion and comment. The Editor will be only too pleased to publish such contributions.

INVENTORIES OF ANCIENT WOODLAND

We have recently been privileged to see copies of the county registers of Ancient Woodland for Cleveland, Durham and Tyne and Wear, compiled in draft form by the Nature Conservancy Council. These are extremely important documents, particularly as guides to future land-use planning and to the conservation bodies. We quote the following paragraphs from the General Introduction:—

"Ancient woods are a living record of the biological effects of traditional management practices such as coppicing and more rarely, wood pasture. Recent decline in such management has resulted in a deterioration of the quality of much of the remaining woodland.

The existing natural vegetation of ancient woods, the associated contribution to local history and landscape, all comprise an irreplaceable asset of great importance to nature conservation, which once destroyed can never be recreated. It is essential that as much as possible of the remaining ancient woodland is protected and managed sympathetically to restore some of the structural diversity lost through neglect'.

The definition given of Ancient Woodland is of woods which have had continuous woodland cover since at least 1600 AD to the present. They are important because:—

- (a) the majority are believed to be PRIMARY, that is surviving fragments of our primeval forests
- (b) the characteristics of ancient but not primary woods (Ancient Secondary Woods) are likely to resemble primary woods
- (c) they have had a long time to acquire species and are therefore likely to possess rich stable floral and faunal communities
- (d) their soils have remained largely undisturbed.

It is obvious to all thinking naturalists that such fragments of ancient woodland should be cherished as part of our national heritage. Every effort should be made to see that they are not harmed in any way, not clear felled, polluted or vandalised. The register provides a guide to all planning authorities as to what is most important to treasure in our countryside. We hope they will take careful note.

THE SOCIETIES

NORTHERN NATURALISTS' UNION

The 64th Annual Meeting was held in the Hancock Museum, Newcastle upon Tyne, on March 26th 1988, by the kind invitation of the Natural History Society of Northumbria.

After a welcome from the President, Professor F. G. T. Holliday, there followed a few minutes silence in memory of George Evans, who at one time was very active in the Consett and Vale of Derwent Naturalists' Field Club and wrote several papers for the Vasculum on the coal-mining geology of the Derwent Valley.

After a short business meeting during which the officers for the ensuing year were elected, Mr. Peter Davis took the Chair to introduce Professor Holliday's Presidential Address, 'The Naturalist and the National Heritage'.

Immediately the National Heritage Memorial Fund was introduced to the audience, very few of whom had heard of it before. This was set up after the last war with a capital of £12 million, from the sale of surplus armaments. Its object was to save important parts of our national heritage that had been fought for during 1939- 45.

The money was invested by the trustees and due to inflation quickly accumulated so that in recent years the fund has been able to spend some £900 million on a wide range of deserving projects. Some of these are concerned with wildlife but others are of a more historical nature. In the latter field the largest amounts of money have been required. Examples were shown by photographs projected on the screen. The most expensive have been stately homes and works of art. Most of these are managed by the National Trust. Others such as special medals for gallantry, historical artefacts of some importance due to their uniqueness or quality of preservation have been donated to museums. Part of the expense of raising the Marie Rose was borne by the fund, and such special pieces of former armaments as a 1918 tank, a destroyer, a submarine and a Wellington bomber are maintained in various parts of the country.

Regarding wildlife projects, the largest British colony of the Greater Horseshoe Bat was saved from destruction and is now more healthy than ever in a roof of Bryanston College. Large tracts of high quality wildlife wilderness have been purchased for the nation. Examples are a large part of Ben Lomond, Ben Lawers, Kinder Scout, part of South Uist machair, the Wood of Cree, cliffs on Orkney, the Somerset Levels, parts of the Flow Country, parts of the great Caledonian Forest in the Cairngorms and many small woodland and meadow sites, all S.S.S.I's have all been bought for the nation. Lastly a rather unique project has been funded by replanting Wimpole Avenue, a famous marker for the R.A.F. bombers returning from raids during the last war. It was an avenue of elms which led directly to an aerodrome runway and which was destroyed in recent years by Dutch Elm Disease.

During question time there was much approval of the work that has been done and this was followed by the presentation of a book to Professor Holliday by Dr. E. Turnbull, in recognition of the lecturer having given so much of his valuable time for our enjoyment.

Tea, provided by Mrs. Hall, was then taken in an adjoining part of the museum. At the same time exhibits arranged by various members were inspected and discussed. Lance Moore showed some of his beautiful slides on a portable projector/viewer and sold trays of plants, as did Michael Mann. Mrs. J. Beedle put out some Puss Moth cocoons, James Milligan exhibited a copy of the new Durham Flora by Rev. G. G. Graham and Mr. Dunn showed several other recent important wildlife publications.

DARLINGTON AND TEESDALE NATURALISTS' FIELD CLUB

The new format for the Annual document than in previous years and was well supported during the year, field meetings. Report for 1987 is a much more sophisticated has much to commend it. This thriving society was well supported during the year showing an increase in numbers attending the field meetings.

Archaeology. (L. Woodhouse). Hadrian's Wall and Vindolanda were visited. The Scots Dyke was saved from damage by a member's complaint at Richmond.

Botany. (H. Peacock). Auckland Castle Park was the first outing where trees were studied. Barningham Circular Walk and Upper Teesdale were both successful during early spring visits. Fine hay meadows were seen on the Keld and Gunnerside outing, and many limestone plants were found on the Cuswick Scar and Scout Scar, Cumbria, outing. These included common and hoary rockrose, dropwort and lesser meadow rue. On a visit to Lunedale in July, 188 plants were identified including 23 species of grass.

Entomology. (J. M. Jackson). A honey bee was seen at Coniscliffe in February and butterfly sightings were recorded for an area within ten miles radius of Durham.

Mammals. (D. I. Griss). Various mammals recorded included moles, grey squirrels, roe deer penetrating into the town, hares and large numbers of rabbits. Bats identified included pipistrelles, a noctule at High Coniscliffe and a dead long-eared bat.

Geology. (M. Birtle). Work has continued on the Knuckton Shell Bed at Winston and the outing to Saitburn yielded many Lower Liassic fossils on the foreshore.

Freshwater Life. (C. Birkbeck). The disappearance of large numbers of stock fish was noted as well as high sediment level and dark colouration of the River Tees. Fish returns were poor, but kingfishers and dippers had a good year.

Ornithology. (D. I. Griss). Sand martin numbers appeared to be up and sedge warblers were more common. Siskins and smew were also reported. Swans, duck and cormorants wintered at Bolton and 35 waxwings were seen at Thornaby and a male red-footed falcon at Uria Nook.

The Cockermouth weekend was well attended with visits to Clints Quarry near Egremont, St. Bees RSPB reserve and the Priory Church, Ennerdale and the Whinlatter Forestry Centre. Details of shorter day outings are also included in the report.

NOTES AND RECORDS

NOTES

A Wildlife Garden. For several weeks now a few members of Durham County Conservation Trust have been constructing a Wildlife Garden at Lambton Park Garden Centre, Bournmoor.

An official opening will be staged at 11 a.m. on April 26th with cameras clicking at the short ceremony. Afterwards it is hoped to see the public flocking into the centre to learn about wildlife gardening and look at the plants and animals on show. It is hoped to have at least one member of the Trust at the kiosk at all times to give out information and enroll new members. Tell your friends and persuade them to come along. There may be wild plants for sale at certain times and some form of wildlife exhibition in the kiosk, which will change with the seasons throughout the year.

Discovery of a fossil in the Single Post Limestone. During a geological survey of the Moor House National Nature Reserve, just south of Cross Fell, Cumbria, in 1954 to 1960, no corals were recorded in the Lower Carboniferous, Brigantian, Single Post Limestone. (Johnson and Dunham, 1963). Since the survey. Trout Beck, one of the early tributaries of the River Tees, has

cut back its bank on a curve in the stream and exposed the lower part of the limestone beneath glacial drift. On one bedding-plane of the limestone the compound rugose coral *Orionastraea garwoodi* group Hudson has been found as a thin sheet 1—2mm thick without evidence of the development of more normal tabular corals 10 to 20mm thick. *Orionastraea garwoodi* is known from the Single Post Limestone of Maize Beck to the south of the Moor House Reserve and at the same horizon in the Vale of Eden to the west. Further south it forms the main element of the coral band at the base of the Middle Limestone of Wensleydale, again at the same stratigraphical horizon. *Orionastraea* is not known in the Single Post Limestone in the Pennines north of Cross Fell and it is absent at this horizon in Northumberland. The occurrence of the coral as thin sheets in the Single Post Limestone just south of Cross Fell suggests stunted growth, perhaps near to the northern limit of its geographical range in Northern England.

HUDSON, R.G.S. 1929. On the Lower Carboniferous Corals *Orionastraea* and its distribution in the North of England. *Proc. Leeds Phil. Soc.* 1, 440-457.

JOHNSON, G.A.L. and DUNHAM, K.C. 1963. *The Geology of Moor House*. Nature Conservancy Monograph No. 2, H.M.S.O., London, xviii—182pp.

G. A. L. Johnson.

Varied Behaviour in Collared Doves. A single nestling moved only one metre along a bough from its nest in a *Prunus* on 14th September 1987, and so it fledged. The next day it flew to the adjacent apple tree in the afternoon, was fed by the parent and then flew off elsewhere. Two days after this, it misjudged its landing on a branch and fell down into a shallow pond. It managed to extricate itself but was unable to walk properly. After two minutes it struggled in flight back into the apple tree where it was fed. Eventually the male parent called it back to the *Prunus* where it received its feed at the 'roosting' or nest site. The next day it did not venture out of the *Prunus* but the following day it was fed in the apple tree and elsewhere, returning only in the evening. This routine continued, being called out of the *Prunus* to be fed in the apple tree in the morning, then elsewhere during the day until the evening feed back in the *Prunus*. The female seemed to have disappeared but was actually nesting nearby. On the 22nd September, the young bird followed the male parent to the bird table and sampled a little grain before being fed. When the adult flew off, the juvenile followed. This continued until the end of the month, with the adult male feeding on the grain, having a drink of water before feeding the juvenile, which also learnt to pick up some grain. October 2nd was the last time the juvenile was seen to obtain food from the parent and only for a short time before the male flew off. After this the young bird was chased away from the garden.

One month later, on November 2nd, the adult pair were together in the apple tree, when a small juvenile joined them very unsteadily. It had just fledged from a nearby conifer. It was fed by both adults and by 6th November it was picking up some grain as well as being fed at the bird table. It was fed by the parents several times a day until the 14th. After this date the parents evaded feeding the bird by flying away when it begged for food. However, they did allow it to feed on grain alongside them so long as it did not ask to be fed, when they promptly departed. By the 19th December, the juvenile was still feeding alongside the parents at the bird table but both showed a tendency to peck at it making it fly away. This also happened when perched on the apple tree, the male suddenly flying at the young bird. The young bird still tended to stay near but on 7th January, the male flew at the juvenile, landed on top of it and pecked at the back of its head. The juvenile flew off and after this was seen less frequently in the garden and was chased off when it did appear, although it was tolerated much more by the female.

The very different periods of toleration (21/2 weeks and 8 weeks) of parents to the young birds is probably due to the fact that the second nest was already in operation while the first juvenile was being fed by the male only.

H. M. Johnson.

Notes from Allerwash, Tyne Valley. Some time ago Mr. P. L. Tennant let me see three unusual moth specimens taken at light in his garden.

1. A typical specimen of the September Thorn, *Ennomos erosaria* D. & S. about which there is no doubt. Brought for confirmation since it is so rare in our counties. In fact this is the first confirmed specimen in recent times. (See Dunn & Parrack, *Moths and Butterflies of Northumberland and Durham*, p. 103). Caught at light 16th September 1985.
2. An unusual variety of the Feathered Thorn, *Colotois pennaria* L. This is a female which has a pale lemon background, instead of the usual deep orange-red, with thick almost black cross lines. The contrast is very striking. Caught in moth trap 19th October 1987.

3. A pale greyish-buff specimen of the Common Quaker, *Orthosia stabilis* D. & S. This is so unlike our usual north-east forms that it was some time before its identity was realised. Jim Parrack tells me that he has had similar specimens from a Rothamsted trap operating in the far North West of Scotland. Caught 28th April 1987.

T.C.D.

RECORDS

	DRAGONFLIES - ODONATA	
<i>Coenagrion puella</i> L. Azure Damselfly		66
Along the Malton railway line, 4 July 1987. (GR NZ 1746-1845).		
	DIPTERA - FLIES	
<i>Volucella bombylans</i> L.		66
Malton railway line, 4th July 1987.		
<i>Syrphus ribesii</i> L.		66
Malton railway line.. 4th July 1987.		
	BUMBLEBEES - HYMENOPTERA	
<i>Bombus pasquorum</i> L.		66
<i>B. pratorum</i> L.		66
<i>B. terrestris</i> L.		66
<i>B. lucorum</i> L.		66
<i>B. muscorum</i> L.		66
<i>B. lapidarius</i> L.		66
<i>B. jonellus</i> Kirby		66
All the above bees seen on the Malton railway line, 4th July 1987		
	BUTTERFLIES AND MOTHS – LEPIDOPTERA	N. Jackson.
<i>Apamea eponidion</i> Haw. Clouded Brindle		66
Castle Eden Dene NNR 'Newt Pond', at light 27-7-87. New to tetrad NZ.427401.		
<i>Alcis repandata</i> L. Mottled Beauty		66
The banded form at light as above.		
<i>Mythimna ferrago</i> Fabr. The Clay		66
As above.		
<i>Cosmia trapezina</i> L. The Dun-bar.		66
As above on 28-8-87.		
<i>Noctua janthina</i> D. & S. Lesser Broad-bordered Yellow Underwing		66
As above 28-8-87.		
<i>Atethmia centrago</i> Haw. Centre-barred Sallow		66
As above, 28-8-87.		
<i>Noctua comes</i> Hb. Lesser Yellow Underwing		66
As above, 28-8-87..		
<i>Noctua pronuba</i> L. Large Yellow Underwing		66
As above, 28-8-87.		
<i>Apamea secalis</i> L. Common Rustic		66
As above, 28-8-87.		
<i>Hydriomena furcata</i> Thunb. July Highflyer		66
As above, 28-8-87.		
<i>Campiogramma bilineata</i> L. Yellow Shell		66
As above, 28-8-87.		
<i>Empithecia pusillata</i> D. & S. Juniper Pug		66
Del. A. Riley. Several caught in Rothamsted trap, 27-7-87 — 16-7-87. Adrian Riley confirms that the larvae will feed on <i>Levlandii</i> and other imported conifers, and this must be the case here.		
<i>Omphaloscelis lunosa</i> Haw. Lunar Underwing		66
This scarce Durham species continues to appear regularly at Oakerside Dene Lodge, 1st —24th September, 1987.		

<i>Pyrrhia umbra</i> Hufn. Bordered Sallow		66
Still found at Castle Eden Denemouth, at light 6-7-87	C. Gardiner.	
<i>Aphantopus hyperantus</i> L. The Ringlet		68
Swarming at Ford Moss 7-7-87.		
<i>Boloria selene</i> D. & S. Small Pearl-bordered Fritillary		68
A few on Ford Moss 7-7-87.	R. Lowe.	
<i>Chloroclysta citrata</i> L. Dark Marbled Carpet		66
New at the Shildon light trap, 5-9-87.		
<i>Thera juniperata</i> L. Juniper Carpet		66
Four specimens during November 1987. New at the Shildon trap.		
<i>Lomographa temerata</i> D. & S. Clouded Silver		66
New at the Shildon trap, 4-7-87.		
<i>Colostygia pectinataria</i> Knoch. Green Carpet		66
New at Shildon 12-7-87.		
<i>Anticlea derivata</i> D. & S. The Streamer.		66
New at Shildon, 6-5-87.		
<i>Aporophylla nigra</i> Haw. Black Rustic		66
New at Shildon, September 10-16, 1987.		

CECIDIA - GALLS

D. Kipling

<i>Pontania proxima</i> (Sawfly) on <i>Salix fragilis</i>		66
Very common especially alongside Greatham Beck in the Fens area.		
<i>Pontania viminatis</i> (Sawfly) on <i>Salix</i> sp.		66
Along the Hart/Haswell railway.		
<i>Pontania vesicator</i> (Sawfly) on <i>Salix</i> sp.		66
Along the Hart/Haswell railway.		
<i>Rhabdophaga rosaria</i> (Midge) on <i>Salix</i> sp.		66
Along the Hart/Haswell railway.		
<i>Corynebacterium fascians</i> (Bacterium) on <i>Forsythia</i>		66
On several plants in the West Park area.		
<i>Eriophyes fraxinivorus</i> (Mite) on ash		66
On several trees in Hartlepool.		
<i>Psyllopsis fraxini</i> (Psyllid) on Ash.		66
Very common this year (1986). Most ash trees affected.		
<i>Dasyneura fraxini</i> (Midge) on ash.		66
Commonly seen late in the year.		
<i>Jaapiella veronicae</i> (Midge) on <i>Veronica chamaedrys</i>		66
Often seen in various areas of Hartlepool.		
<i>Dasyneura glechomae</i> (Midge) on <i>Glechoma hederacea</i>		66
Not so often seen as in 1985. Along the Hart/Haswell railway.		
<i>Diitylenchus (Anguillulina) dipsaci</i> (Nematode) on Ribwort		66
Very common.		
<i>Eriophyes galii</i> (Mite) on <i>Galium aparine</i>		66
Very common throughout Hartlepool.		
<i>Puccinia lagenophorae</i> (Rust fungus) on groundsel		66
Common.		
<i>Witches Brooms</i> on Ulmus and Aesculus		66
In Ward Jackson Park, Hartlepool.	S. Robbins	

FLOWERING PLANTS AND FERNS

The following species have been found at Seaton Carrs, Hartlepool, since the list reported in Vasculum Vol. 72, No. 3, of October 1987.

<i>Pteridium aquilinum</i> (L.) Kuhn. Bracken		66
On the far west side, on a steep bank near the Stell.		

<i>Fumaria officinalis</i> L. Common Fumitory	66
Common on disturbed ground on east side.	
<i>Brassica oleracea</i> L. Cabbage.	66
One plant near garden rubbish.	
<i>Armoracia rusticana</i> P. Gaertn., B. Meyer & Scherb. Horse radish	66
One plant near the fence on the southern boundary.	
<i>Arabisidopsis thaliana</i> (L.) Heyhn. Thale Cress	66
Several plants near broom on the west side.	
<i>Descurainaea sophia</i> (L.) Pranti. Flixweed.	66
Numerous plants on disturbed areas.	
<i>Viola tricolor</i> x <i>V. arvensis</i> Hybrid Violet.	66
One plant in the centre of the site. Det. I. C. Lawrence.	
<i>Sagina apetala</i> Ard. Annual Pearlwort.	66
On bare areas.	
<i>Herniaria glabra</i> L. Rupture-wort	66
By the end of summer, four areas on the site on bare or disturbed ground. In one group at least 100 plants present.	
<i>Melilotus indica</i> (L.) All. Small-flowered Melilot	66
On two stations in the disturbed area on the east side.	
<i>Epilobium ciliatum</i> Raf. American Willowherb	66
Several plants.	
<i>Chaerophyllum temulentum</i> L. Rough Chervil	66
One plant in the centre of the area.	
<i>Aethusa cynapium</i> L. Fool's Parsley	66
On waste ground on the south side.	
<i>Mercurialis annua</i> L. Annual Mercury	66
In a deep excavated area on the western side of the site. About 50 plants.	
<i>Euphorbia helioscopia</i> L. Sun Spurge	66
Several plants on disturbed areas on the northern and eastern sides.	
<i>Polygonum persicaria</i> L. Persicaria	66
On bare areas on the north side.	
<i>Polygonum convolvulus</i> L. Black Bindweed	66
A few plants on bare areas	
<i>Anagallis arvensis</i> L. Scarlet Pimpernel.	66
On a cleared area on the east side.	
<i>Solanum nigrum</i> L. Black Nightshade.	66
One plant in a deep excavation.	
<i>Veronica persica</i> Poir. Large Field Speedwell	66
Several plants on bare areas.	
<i>Mentha longifolia</i> (L.) Hudson. Horse-mint	66
One plant near garden rubbish on the south side.	
<i>Anaphalis margaritacea</i> (L.) Benth. Pearly everlasting.	66
One plant amongst <i>Cytisus</i> on the west side.	
<i>Hieracium pilosella</i> L. Mouse-eared Hawkweed.	66
Several plants on the east side.	
<i>Juncus bufonius</i> L. Toad Rush	66
One plant in the centre of the site.	
<i>Lucula campestris</i> (L.) D.C. Field Woodrush	66
One plant in the centre.	
CECIDIA - PLANT GALLS	
<i>Eriophyes macrorhynchus</i> (Mite) on <i>Acer pseudoplatanus</i>	66
Common around Hartlepool on cultivated as well as wild forms	
<i>Aceria pseudoplatani</i> (Mite) on <i>Acer pseudoplatanus</i>	66
Also common with the above.	
<i>Puccinia aegopodii</i> (Fungus) on <i>Aegopodium</i>	66
West Park, Burn Valley, Hartlepool.	
<i>Eriophyes laevis inangulis</i> (Mite) Nail gall on Alder	66

S. Robbins, 1987 records

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**T. C. DUNN, M.B.E., M.Sc.,
The Poplars, Chester-le-Street, Co. Durham**

BY THE WAY

Secretaries of Societies and other contributors to the Vasculum should send their notes to the Editor before 15th November 1988

VOLUNTEER REQUIRED

For 18 years Mrs. Eggleston has been helping the Editor by addressing envelopes for the despatch of the Vasculum to the Libraries, Institutes and similar bodies. She has done this most regularly and promptly and for this she has our sincere thanks. At last she has expressed her wish to resign. The present total of these envelopes is 37. Anyone willing to take on this unpaid, voluntary job should write to the Editor as soon as possible. He will supply the list, the envelopes and the dates by which each batch is required (four times a year). The next lot of envelopes will be required by September 15th for the October edition.

THE FLORA AND VEGETATION OF COUNTY DURHAM

In Vol. 70, No. 2, of this journal we gave some pre-publication details about the impending issue of a new Flora of County Durham by Rev. G. G. Graham. The book is now on sale and can be purchased from the Hancock Museum, Newcastle upon Tyne or from Mrs. M. Burnip, 38 Langholm Crescent, Darlington. The purchase price is £30 plus postage, and what a bargain it is at that! It is folio size, with two colour plates by Derek Hall and many distribution maps, hard-backed, 526 pages, and at present day prices worth every penny of £60. Copies are readily available.

TEES BANK VEGETATION

We have a recent note from Mrs. Sykes, who asks if this is an opportune time to ask for comments on the changes affecting the River Tees since the building of Cow Green Reservoir. She has records dated June 1962 written when looking over the

bridge between Eggleston and Romaldkirk. At that time, at the river's edge were several species of sedge, including *Carex acutiformis*, *C. paniculata*, *C. panicea*, and *C. flacca*, also *Crepis paludosa* and occasional plants of *Trollius eurpoeus*. Looking over the bridge now there are bands of bare shingle on both sides of the river. Have other naturalists any observations to make on other areas of the Tees? What are the reasons for the change?

We think that these comments and questions could well form the beginnings of a very interesting botanical survey of the present position. Comparisons with Mrs. Sykes' notes or Dr. Nigel Holmes' survey might give some answers concerning the destruction of natural habitats by industrial projects.

OBITUARY ROBERT BOYNE

It is with deep regret that we report the death of Bob Boyne, the Museums Officer (Natural Sciences), Tyne and Wear Museums Service at Sunderland Museum at the early age of 40.

Bob was primarily an invertebrate zoologist, gaining wide experience on both sides of the Atlantic, including teaching posts at Clemson University, South Carolina and Miami University, Ohio and more recently a temporary assistant at Perth Museum and Art Gallery.

Whilst at Sunderland, he devoted much of his time to the entomological collection. In particular the storage and documentation of specimens collected as part of the 1981—1982 Durham County Conservation Trust Survey.

Bob was a perfectionist, devoted to his work and collections. He was extremely popular with all his colleagues for his professionalism and sense of humour. He will be sadly missed by friends and colleagues alike at Sunderland and our sympathy goes out to his mother, Marie.

Alec Coles.

THE SOCIETIES

NORTHERN NATURALISTS' UNION

The 180th Field Meeting took place at Prudhoe, at the Tyne Riverside Country Park's car park, on 4th June 1988. Mr. N. Cook led a party of about 50 members and friends along the river bank to the lime spoil heap, a left over of the 1939—45 war.

The river bank itself was covered with a rich mixture of riverside and grassland flowers. On the riverside and at the base of the lime heap, plants of hedge bedstraw, *Galium mollugo*, were found in large numbers and in some variety. Those along the base of the lime heap were particularly large with strong, erect stems, as in subspecies *erectum* Syme. Seldom have we seen such a fine display of ox-eye daisy, *Chrysanthemum leucanthemum*. Alders had been planted along one side of the heap, obviously an introduced species which eventually turned out to be *Ainus cordata*, Italian alder. On the top of the heap and the sides near the top, quantities of columbines, *Aquilegia sp.* in an extensive range of colour forms were growing, apparently planted by the park authorities.

The entomologists produced an extensive list of insects. Butterflies listed were orange-tip, (*Anthracis cardamines*), small white, (*Pieris rapae*), large white (*Pieris brassicae*), large skipper (*Ochlodes venata*), dingy skipper (*Erynnis tages*), small heath

(*Coenonympha pamphilus*), small copper (*Lycaena phlaeas*), green-veined white (*Pieris napi*), and wall brown (*Lasiommata megera*). Of the larger moths the carpets were particularly common, the full list being quite extensive:— silver-ground carpet (*Xanthorhoe montanata*), garden carpet (*Xanthorhoe fluctuata*), common carpet (*Epirrhoe alternata*), treble bar (*Anaitis plagiata*), latticed heath (*Chiasmia clathrata*), grass rivulet (*Perizoma albufata*), clouded border (*Lomaspilis marginata*), ruby tiger *Phragmatobia fuliginosa* and a single specimen of the broad-barred white (*Hecatera bicolorata*) was seen by Peter Tennant sitting on a fence post. Microlepidoptera were most common in the tall herb vegetation, for example, *Cydia succedana* was swarming on gorse, *Aphelia paleana*, *Crambus nemorella*, *Glyphiterix simpliciella* was flying in huge numbers round cocksfoot grass and feeding in swarms in the flowers of the ox-eye daisies, *Syndemis musculana*, *Scoparia ambigua*, *Olethreutes lacunana*, *Platyptilia pallidactyla*, *Nymphula nymphaea*, and possibly *Dichrorampha aeratana* on ox-eye daisy (confirmation is awaited after a genitalia check).

The few birds listed were meadow pipit, skylark, swift, sand martin, swallow and mallard.

Beautiful sunny weather, added to the natural pleasures to give a very enjoyable afternoon.

NOTES AND RECORDS

NOTES

Breeding Buzzards. It can now be revealed that a pair of Buzzards nested and reared young in the Hermitage Wood at Chester-le-Street, from 1983 to 1986. They did not return to nest in 1987 and have not been seen since. I first became aware of them in July 1986 and had a very enjoyable afternoon on 14 August of that year when I watched the two parents and two juveniles flying from the edge of a group of pines over the glen towards Hermitage Hall and back to the same perch repeatedly. The parent birds seemed to be teaching the youngsters a few flying tricks and with much mewling they seemed to be having a great time. Later I mentioned this to the head gardener at the Hall who informed me that they had bred there for four or five years.

T.C.D.

False Morrell, a first Co. Durham record? As the 'wildlife expert' at Greencroft Comprehensive, Anfield Plain, I am often asked to examine specimens brought in by both staff and pupils. I was particularly intrigued when asked to look at a 'brain fungus' found on the playing field of the Lower School on 13th April, 1988. This proved to be a False Morrell, *Gyrometra esculenta* (Pers.) Fr.

Further investigation revealed three specimens growing towards the edge of the close-mown grass, about 10m from a hedge of alder. According to Phillips (1981), *Gyrometra esculenta* is 'associated with conifers, especially pines, usually on sandy soil'. Its occurrence at Greencroft Lower School, removed from any conifers and on a substrate of colliery shale, can perhaps be explained by Watling (1973) who remarks that it is 'also found on railway embankments'.

G. esculenta is not a common fungus and as a spring fungus, it fruits at a time when few mycologists are active. As far as I am able to ascertain, it has not been previously recorded in v.c. 66.

False Morrell is also known as Lorel and Elephant's Ears. Eaten raw it is deadly poisonous, though one is supposed to be able to remove the toxin by boiling then discarding the water. However, the authorities are by no means certain and I have not been tempted to carry out any culinary experiments with the Anfield Plain specimens, one of which is being dried in order that it may be lodged with the herbarium of Sunderland Museum.

References

- Phillips, R. (1981) Mushrooms and other fungi of Great Britain and Europe. Pan.
Watling, R. (1973). Identification of the Larger Fungi. Hulton.

Noel Jackson.

Bird Notes. On February 25th we saw a flock of approximately 150 grey lag geese on Grindon Lough near the Stanegate, about 110 on the water and the rest grazing nearby. On Sunday February 28th there were none on the water but a large flock was seen, about 5 p.m., grazing near Grindon road ends north of Haydon Bridge.

On March 17th, for the second year running we saw a pair of goosanders on the River Derwent between Shotley Bridge and Allensford.

Mr. & Mrs. Houchin.

More on Grey Lag Geese. After talking to Mrs. Houchin, I am sure the following report of a sighting of grey lag geese will add some further interest. These were seen on 20th February 1988 at the southern shore-line, near the dam wall of Derwent Reservoir, apparently feeding. Independently, my son-in-law and I estimated 300 in number.

R. Hall.

An unusual place for a dipper. On 4th April 1988 I was surprised to see a dipper on the South Burn in the Hermitage Woods at Chester-le-Street. The stream was even more polluted than usual with sewage from Sacriston sewage beds. It must have learnt its lesson for it has never been seen there again. The only explanation is that is must have been lost!

T.C.D.

A Cleveland Diatom new to Britain. The role played by algae in the colonisation of local mineral spoil heaps has not been remarked upon recently. I was therefore very pleased when this subject was raised by Mr. J. R. Carter in connection with my work on the flora of ironstone waste in Cleveland (Colonisation and Flora of Ironstone Waste in Cleveland by Pickersgill, Evans and Richardson; *Vasculum* Vol. 72, No. 3, 1987).

In response to his request, I collected samples of surface water from some of these heaps and sent them to Mr. Carter for identification purposes. To my great surprise, he identified some very rare species of diatom, including *Caloneis aerophila* Bock, which had never been recorded in Britain before. Another surprise was the presence of species normally associated with estuaries and other brackish places. These included *Nitzschia disputata* Carter, only its fifth record in Britain, and *Navicula genustriata* Hustedt, which is seldom reported. It may be that the amount of dissolved minerals in these slag heap puddles accounts for the presence of the brackish species.

All these diatoms were living in water having a pH of 5.8 in a tiny pool 1.5m square in area and just 10 cm deep on top of a shale heap at North Skelton in Cleveland. It may be that different heaps have different flora depending on the chemical nature of the spoil, so more samples are now being looked at in the hope of finding more of these interesting organisms.

B. Pickersgill.

Globe Flowers in Cassop Vale. During a recent visit to Cassop Vale, on 13 June 1988, several clumps of about half a dozen blooms of *Trollius europaeus*, were found on the lower slopes of the limestone grassland near the sewage farm entrance. I have never seen them before below the fence. In such discreet clumps that are all well separated it would appear that they have been planted. Could any member offer any explanation?

T.C.D.

RECORDS

CECIDIA - PLANT GALLS

<i>Enophye saxillare</i> (Mite) on Alder Seaton Park in Hartlepool.	66
<i>Eriophyes brevitarsus</i> (Mite) on Alder On lay-by on A19.	66
<i>Dasyneura aini</i> (Midge) on Alder Rossmere Park, Hartlepool.	66
<i>Puccinia malvacearum</i> (Rust Fungus) on Hollyhock Common in gardens in the town.	66
<i>Hayhurstiaatriplexis</i> (Aphis) on Orache Common in waste, places.	66

<i>Dasyneura berberidis</i> (Midge) on Berberis On bought plants, Tanfield Road, Hartlepool.	66
<i>Taphrina turgida</i> (Fungus) on Silver Birch Rossmere Park, West Park, Burn Valley, Hartlepool.	66
<i>Taphrina betulina</i> (Fungus) on <i>Betula pubescens</i> Hart railway line.	66
<i>Psylla buxi</i> (Psyllid) on box 66 Common.	
<i>Aceria centaurea</i> (Mite) on <i>Centaurea</i> In the Hart Warren area.	66
<i>Dasyneura crataegi</i> (Midge) Common at the tips of twigs of hawthorn all around Hartlepool.	66
<i>Eriophyes gonothorax typicus</i> (Mite) Also common on hawthorn, galling the edges of leaves.	66
<i>Mikiola fagi</i> (midge) on beech Hart railway line.	66
<i>Eriophyes stenaspis</i> (Mite) on leaf margins of leaves of beech At 11 Manor Close, Ward Jackson Park, Hartlepool.	66
<i>Dasyneura pustulans</i> (Midge) on leaves of Meadow Sweet Hart Station railway line.	66
<i>Dasyneura ulmariae</i> (Midge) on leaves of Meadow Sweet Hart Warren; A19 lay-by; Hart Station railway line.	66
<i>Dasyneura fraxini</i> (Midge) on petioles of Ash Briarfields, West Park, Hartlepool.	66
<i>Psyllopsis fraxini</i> (Psyllid) on leaves of ash Common about Hartlepool.	66
<i>Aceria fraxinivora</i> (Mite) on inflorescence of ash 9 Egerton Road, Dalton Piercy; Greatham Beck; Parlands Way, Hartlepool.	66
<i>Eriophyes galli</i> (Mite) on <i>Galium aparine</i> Common, all round Hartlepool.	66
<i>Trioza velutina</i> (Psyllid) on <i>Galium aparine</i> Forming a small mop-head. Aerial Road; Elwick Road; Greatham Back Road.	66
<i>Aulacidea hieracii</i> (Wasp) on <i>Hieracium</i> sp. Forming a stem swelling. Seaton Carrs, Hartlepool.	66
<i>Phanacis hypochoeridis</i> (Wasp) on <i>Hypochaeris radicata</i> Seaton Carrs.	66
<i>Phytomyza ilicis</i> (Agromyzid fly) on leaves of holly Common on silver and gold forms as well as wild forms in gardens in Hartlepool.	66
<i>Acerina erinea</i> (Mite) on walnut leaves Ward Jackson Park, Hartlepool.	66
<i>Eriophyes xylostei</i> (Mite) on honeysuckle In gardens in Elwick Road.	66
<i>Eriosoma lamigerum</i> (Aphid) on apple Not seen by me but on an apple reported to the office. The owner asked for advice on clearing up the pest. Hartlepool.	66
<i>Puccinea menthae</i> (Fungus) on Mint Elwick Road, Hartlepool.	66
<i>Adelges abietis</i> (Homopteron) on <i>Picea</i> twig tips Elwick Road, Hartlepool.	66
<i>Ditylenchus dipsaci</i> (Nematode worm) on plantains Common round Hartlepool.	66
<i>Mycoplasma</i> (Bacterium) on flower heads of ribwort Common round Hartlepool.	66
<i>Aspidaphis adjuvans</i> (Aphid) on <i>Polygonum aviculare</i> Elwick Road; Southbrooke Farm; Seaton Carew.	66
<i>Taphrina populina</i> (Fungus) Honey Leaf on Poplars Common round Hartlepool.	66
<i>Pemphigus bursarius</i> (Aphid) on leaf-petioles of poplars. Stranton near Hartlepool.	66

<i>Pemphigus spirothecae</i> (Aphid) on poplars	66
Stranton; Victory Square; Police Station, Hartlepool.	
<i>Xestophanes brevitarsus</i> (Wasp) on <i>Potentilla</i> petioles	66
Only one specimen seen, Catecote Road/Elwick Road, Hartlepool.	
<i>Taphrina deformans</i> (Fungus) on <i>Prunus</i>	66
Common, Hartlepool.	
<i>Enophyes similis</i> (Mite) on <i>Prunus</i>	66
Dalton Piercy; A19 layby.	
<i>Myzus cerasi</i> (Aphid) on <i>Prunus</i>	66
The Grove; 'Mail' Office; Stranton, Hartlepool.	
<i>Neuroterus numismalis</i> (Wasp) on Oak	66
Hart Station railway line; Briarfields; Summerhill.	
<i>Neuroterus quercusbaccarum</i> (Wasp) on oak	66
Hart Station railway line; Southbrooke Farm.	
<i>Biorhiza pallida</i> (Wasp) on oak	66
A19 lay-by.	
<i>Andricus kollari</i> (Wasp) on oak	66
Summerhill, near Hartlepool.	
<i>Andricus lignicola</i> (Wasp) on oak	66
Also near Summerhill.	

Steve Robbins (all 1987 records).

FLOWERING PLANTS & FERNS

<i>Trollius europaeus</i> L. Globe Flower	66
More plentiful than formerly at Cassop Vale.	
<i>Centaurea cyanus</i> L. Cornflower	66
Continues to flourish in Bishop Middleham Quarry, whilst in the arable fields round about it is disappearing rapidly due to modern farming methods.	
<i>Linum anglicum</i> Mill. Perennial Flax	66
Now one of the commonest plants of Thrislington Plantation, compared with the position 30 years ago this is remarkable as then there were only two or three plants.	
<i>Thelypteris dryopteris</i> (L.) Slosson. Oak Fern	66
Several flourishing stands in parts of the Horsleyhope Ravine N.N.R.	

T.C.D.

LEPIDOPTERA - BUTTERFLIES AND MOTHS

I have checked all the Gold Spots that were recorded by me from Northumberland, by genitalia mountings. They are all *gracilis* except for one specimen. The characters used in the original determinations were correct except for a *gracilis* I had taken as a *festucae* because it was very pale. My definite records which should match those on the Hancock Museum's cards are:-

Kirkwhelpington 10-7-71 *male gracilis*
 Cresswell 6-8-72 *male gracilis* (was *festucae* on card)
 Cragend, Broomlee 18-7-71 female *gracilis*
 Prestwick Carr 14-7-71 female *gracilis*
 Bolam Lake 23-7-71 *male gracilis*
 Shaftoe 7-7-70 *male gracilis*
 Chuchland Cation, reared 1970 *female gracilis*
 Lynwood Avenue, Newcastle 4, 21-6-70 female *festucae*

I also checked my 'dark Dagger' in the same way and found it was just the grey, *Acronicta psi*.
 Ian Wallace.

The following list is of first time records from 1 Railway Cottages, Nevilles Cross, Durham.

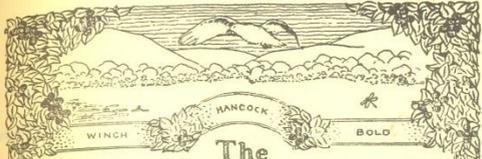
<i>Orthosia cruda</i> Small Quaker, 6-4-87	66
--	----

<i>Orthosia stabilis</i> Common quaker, 14-6-87	66
<i>Orthosia incerta</i> Clouded Drab, 15-4-87	66
<i>Cerastis rubricosa</i> Red Chestnut, 16-4-87	66
<i>Orthosia munda</i> Twin spotted Quaker, 18-4-87	66
<i>Orthosia gracilis</i> Powdered Quaker, 19-4-87	66
<i>Eupithecia abbreviata</i> Brindled Pug, 22-5-87	66
<i>Ectropis bistortata</i> The Engrailed, 25-4-87	66
<i>Sefenia dentaria</i> Early Thorn, 25-4-87	66
<i>Anticlea derivata</i> The Streamer, 6-5-87	66
<i>Aplocera plagiata</i> Treble Bar, 29-5-87	66
<i>Eupithecia tripunctaria</i> White-spotted Pug, 29-5-87	66
<i>Rusina ferruginea</i> Brown Rustic, 5-6-87	66
<i>Hepialus lupinus</i> Common Swift, 7-6-87	66
<i>Agrotis segetum</i> Turnip Moth, 10-6-87	66
<i>Diarsia rubi</i> Small Square-spot, 11-6-87	66
<i>Laothoe populi</i> Poplar Hawk, 12-6-87	66
<i>Callostege mi</i> Mother Shipton, 13-6-87	66
<i>Eupithecia absinthiata</i> Wormwood Pug, 14-6-87	66
<i>Apamea remissa</i> Dusky Brocade, 21-6-87	66
<i>Mythimna comma</i> Shoulder-striped Wainscot, 23-6-87	66
<i>Apamea crenata</i> Clouded Bordered Brindle, 23-6-87	66
<i>Hepialus fusconebulosa</i> Map-winged Swift, 24-6-87	66
<i>Lomographa temerata</i> Clouded Silver, 24-6-87	66
<i>Thera firmata</i> Pine Carpet, 24-6-87	66
<i>Drepana falcataria</i> Pebble Hook-tip, 28-6-87	66
<i>Phragmatobia fuliginosa</i> Ruby Tiger, 28-6-87	66
<i>Lacanobia oleracea</i> Bright-line Brown-eye, 28-6-87	66
<i>Odezia atrata</i> Chimney Sweeper, 29-6-87	66
<i>Ceramea pisi</i> Broom Moth, 29-6-87	66
<i>Abrostola triplasia</i> The Light Spectacle, 29-6-87	66
<i>Xestia triangulum</i> Double Square-spot, 29-6-87	66
<i>Biston betularia</i> f. <i>carbonaria</i> Peppered Moth, 29-6-87	66
<i>Thera obeliscata</i> Grey Pine Carpet, 3-7-87	66
<i>Graphiphora augur</i> Double Dart, 20-7-87	66
<i>Apamea lithoxylea</i> Light Arches, 20-7-87	66
<i>Eulithis pyraliata</i> Barred straw, 20-7-87	66
<i>Naenia typica</i> The Gothic, 20-7-87	66
<i>Hoplodinia alsines</i> The Uncertain, 20-7-87	66
<i>Oligia latruncula</i> Marbled Minor, 20-7-87	66
<i>Hepialus sylvina</i> Orange Swift, 21-7-87	66
<i>Lycophotia porphyrae</i> True Lovers Knot, 21-7-87	66
<i>Arctia caja</i> Garden Tiger, 23-7-87	66
<i>Noctua fimbriata</i> Broad-bordered Yellow-underwing, 23-7-87	66
<i>Caradrina clavipalpis</i> Pale Mottled Willow, 23-7-87	66
<i>Semiothisa clathrata</i> Latticed Heath, 24-7-87	66
<i>Nola cucullatella</i> Short-cloaked Moth, 24-7-87	66
<i>Autographa bractea</i> Gold Spangle, 27-7-87	66
<i>Pheosia gnoma</i> Lesser Swallow Prominent, 29-7-87	66
<i>Autographa jota</i> Plain Golden Y, 31-7-87	66
<i>Mesoligia literosa</i> Rosy Minor, 1-8-87	66
<i>Plusia festucae</i> Gold Spot, 5-8-87	66
<i>Eulithis populata</i> Northern Spinach, 5-8-87	66
<i>Semiothisa wauaria</i> V-Moth, 5-8-87	66
<i>Xanthia icteritia</i> The Sallow, 29-8-87	66
<i>Aethmia centrago</i> Centre-barred Sallow, 29-8-87	66
<i>Xanthia citrigo</i> Orange Sallow, 31-8-87	66
<i>Diarsia dahlii</i> Barred Chestnut, 31-8-87	66
<i>Mormo maura</i> Old Lady, 2-9-87	66
<i>Epirrita dilutata</i> November Moth, 5-11-87	66

R. Braithwaite.

<i>Diarsia dahlia</i> Hb. Barred Chestnut	67
First recorded Allerwash 13-8-87, conf. T.C.D.	
<i>Coenotephria salicata</i> Hb. Striped Twin Spot Carpet	67
Earliest record at Allerwash, 14-5-76. Also recorded 23-5-76, 11-6-80 and 1987 Conf T.C.D.	
The following more interesting records for Allerwash Hall East are the result of light trapping between 1975 and 1987.	
<i>Cilix glaucata</i> Scop. Chinese Character	67
The only record 1986, conf. T.C.D.	
<i>Tethea ocellaris</i> L. ssp. octogesimea Hb. Figure of Eighty	67
First record for Northumberland 26-6-86, two in trap, followed by one on 3-7-87, conf.T.C.D. Dunn & Parrack quote only one previous record for Northumberland.	
<i>Pseudoterpna pruinata</i> Hufn. Grass Emerald	67
Earliest record 19-7-86, only three previous records 27-7-75, 22-7-77 and 4-8-81. Also taken 18-8-86 and 24-8-86. Conf. T.C.D.	
<i>Trimandra griseata</i> Peters. Blood-vein	67
Earliest record 4-7-79, only two others 5-7-75 and 5-7-80, the 1975 specimen is mentioned in Dunn and Parrack. One specimen was a bloodless form. Conf. T.C.D.	
<i>Idaea straminata</i> Borkh. Plain Wave	67
Earliest record 22-7-77 (not correctly identified until 1987). As South says it is smaller and has a more silky appearance than Riband Wave. Conf. T.C.D.	
<i>Rhodometra saccharia</i> L. The Vestal	67
Earliest and only record 6-10-85. Conf. T.C.D.	
<i>Xanthorhoe munitata</i> Hb. Red Carpet	67
Earliest record 26-7-80. Dunn and Parrack say it is an upland species. Certainly commoner at East Steel, Whitfield (G.R. 78/60) than at Allerwash.	
<i>Epirrhoe rivata</i> Hb. Wood Carpet	67
First and only record to er dot 1987, 28 6-87. Conf. T.C.D.	
<i>Anticlea derivata</i> D. & S. The Streamer	67
Earliest record 24-4-84, latest 11-6-84. Only occasionally comes to the trap, one or two caught most years. I suspect that it is commoner than the record suggests. Specimens with the central area whitish have been noted. Conf. T.C.D.	
<i>Anticlea badiata</i> D. & S. Shoulder Stripe	67
Earliest record 3-3-87. Not common but one or two caught several nights April/May. Conf.T.C.D.	
<i>Chloroclysta siterata</i> Hufn. Red-green Carpet	67
Earliest record 29-8-75, South's 'rosy suffusion' is apt. There is a reddish rear edge of forewings and sometimes a marked green 'jewel effect' in the centre of the body. Noticeable habit of holding the tip of the abdomen up when sitting with wings flat. Conf. T.C.D.	
<i>Perizoma flavofasciata</i> Thunb. Sandy Carpet	67
Earliest record 12-6-82, first noted here 19-6-81. Conf. T.C.D.	
<i>Asthena albulata</i> Hufn. Small White Wave	67
Earliest record 12-6-87 and only one to end of 1987. Conf. T.C.D.	

P. L. Tennant.



The Vasculum

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SUBSCRIPTIONS WERE DUE 1st JANUARY, 1988
and should be sent to the Treasurer

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EVALUATION OF A 17 YEAR OLD MIXED PLANTATION ON A REGRADED SLOPE OF COLLIERY SPOIL IN NORTH EAST ENGLAND

J.A. Richardson, J.H. Whittle and G. Craig Department of Biology, The University, Newcastle upon Tyne, NE1 7RU.

SUMMARY

An account is given of the performance of 45 tree and shrub species after 17 years growth on a slope of regraded colliery spoil.

INTRODUCTION

The heaps of colliery spoil at the derelict Roddy moor site (NZ 155364) were regraded in 1968 to form gently sloping ground for farm grassland and a steep north facing slope (40°) for afforestation. The woodland area was 640 x 70m (4.48ha); it runs down to a stream and it was situated to complement a semi-natural mixed woodland on the other side (Richardson and Dicker, 1972; Richardson, 1985).

The primary aim of the reclamation was to restore the degraded landscape to a permanent high quality environment at minimal cost and without the use of topsoil. It was, therefore, important to base the selection of trees on those generally known to succeed on colliery waste. Nevertheless it was also possible to initiate some long-term experiments to test the suitability of other species.

The purpose of this paper is to give a detailed report on the performance after seventeen years of 12 species planted in large numbers in the main woodland, 29 species planted in small experimental plots and 4 tree species planted as seeds.

MAIN PLANTATION

Materials and methods

Details of the procedures employed in regrading the spoil heaps, preparing the seed bed and planting out have been described elsewhere and are now well-known (Vyie, 1971; Hackett, 1977). They will be mentioned only briefly here. When the cultivations were finished in 1968 the surface material had average pH 6.5, but it contained iron pyrites and hence the potential for rapid and persistent acid formation. However, except for one small low pH area (see p. 21) there was only a gradual fall in pH over the next 18 years to pH 4.5

The slope intended for the woodland was grassed in August 1968 in order to stabilize the ground and control erosion. The method of hydroseeding was used and the seed rate was low to reduce interference with the growth of young trees (Richardson, Burn and Craig, 1987). The transplants were pit planted by contractors in 1969/70 (except for birch and pine which were planted a year later). The planting was in rows of around 280 trees along the slope, with 1.5m between rows and 1.5m between individuals (except in the mixed willow/poplar rows where the spacing was 3.0m). Successive rows of alder, birch, pine, rowan and mixed willow/poplar made up a block and the slope accommodated eight such blocks. Because of waterlogging in places at the bottom of the slope and extreme exposure at the top, the survival and growth of the trees in the blocks 1 and 8 were atypical and therefore were not included in the results except where stated (see p. 18). There was some deviation from the approved planting specification (Richardson,

1985) and, for example, there were more *Ainus glutinosa* than *A. incana*, and *Pinus sylvestris* outnumbered *P. contorta* and *P. nigra var. maritima*. A more serious deviation from the specification was that the two alders and two birches were not planted separately in easily identified parts of rows but randomly within the rows. Consequently the figures for survival represent both species together. However, this did not interfere with the measurement of performance (height in metres) of the survivors of each separate species. Dead trees were replaced in 1973/74.

Measurements of survival and height were made after the growing season in 1986 and before growth commenced in 1987. Mean tree heights were calculated from samples in excess of thirty individuals taken at random in the rows. The actual numbers of trees in the rows 2 to 7 are listed in Table 1. The fertilizers which were added with the hydromulch in 1968 and as spot dressings at intervals later totalled 190 kg ha⁻¹ N and 160 kg ha⁻¹ P. Fertilizers were withdrawn in 1973 when the trees had reached acceptable growth rates.

Results

Survival was ranked for 12 species and given in Table 1. Although the ranking does not account for differences in significant effects of the location of the rows and the other variables (see p. 24), some general statements can be made about species survival.

Table 1. Survival and height of trees after 17 years (16 years for birch and pine) on regraded colliery spoil.

Species	No. Trees planted	Survival (%)	Height (m)
<i>Populus tacamahaca</i>	199	77	6.63
<i>Betula pendula</i> , <i>B. pubescens</i>	1188	63	5.24
<i>Pinus sylvestris</i>	816	61	6.13
<i>Ainus glutinosa</i> , <i>A. incana</i>	1496	55	5.40
<i>Pinus contorta</i>	322	54	5.89
<i>Populus alba</i>	193	53	5.32
<i>Populus canadensis</i>	101	53	5.35
<i>Pinus nigra var. maritima</i>	230	39	5.24
<i>Salix alba</i>	207	38	5.30
<i>Sorbus aucuparia</i>	1442	17	3.74

Populus tacamahaca, *Betula spp.* and *Pinus sylvestris* had the highest survival with all three species exceeding 60%. *Pinus contorta*, *Populus alba*, *Populus Canadensis* and *Alnus spp.* all exceeded 50%. At around 40% were *Pinus nigra var. maritime* and *Salix alba* with *Sorbus aucuparia* less than 20%. Except for *Sorbus aucuparia* the surviving trees had satisfactory shape and height.

Alder The survival rate for *Ainus* varied from 60% near the lower half of the slope to around 37% at the more exposed top. For *A. glutinosa* there was no significant difference ($p < 0.05$) in height in rows 3,4,5,6. Rows 2 and 7 were significantly different from each other and from the others. For *A. incana* rows 2,3 and 5 were not significantly different from each other but were significantly different from row 7 (Table 2).

The best individuals of *A. glutinosa* had diameters of 10.2cm and of *A. incana* 11.4cm. *A. incana* was quick growing (mean height 6.26m) and had good shape. It produced large numbers of suckers which increased the cover in the early stages. Although *A. glutinosa* made rapid initial growth the tendency for the leading shoot to die back checked growth and reduced the mean height to 4.82m which was significantly less than that of *A. incana*. (67 trees from the drier part of row 1 were included in the calculations for row 2, see p. 17).

Table 2. Mean heights (m) of trees in the rows after 17 years (16 years for birch and pine) on regraded colliery spoil (Standard Deviation in brackets).

SPECIES	ROWS					
	2	3	4	5	6	7
<i>A. glutinosa</i>	5.72 (0.794)	4.88 (0.847)	5.43 (0.560)	4.65 (0.960)	5.04 (1.073)	3.22 (0.860)
<i>A. incana</i>	7.01 (1.283)	7.45 (1.443)	—	6.02 (0.750)	—	4.57 (0.349)
<i>B. pendula</i>	5.37 (1.157)	5.82 (1.266)	5.81 (1.430)	5.37 (1.067)	5.10 (1.300)	5.15 (0.780)
<i>B. pubescens</i>	4.70 (1.033)	5.07 (0.924)	5.32 (1.398)	5.41 (1.021)	4.86 (0.861)	4.83 (0.802)
<i>Pinus contorta</i>	—	6.20 (0.735)	5.84 (0.590)	5.72 (0.668)	5.79 (0.523)	—
<i>P. nigra var. maritime</i>	5.61 (0.792)	—	—	—	5.20 (0.762)	5.08 (0.744)
<i>P. sylvestris</i>	6.52 (0.792)	5.75 (0.808)	6.21 (0.711)	5.82 (0.613)	6.63 (0.821)	—
<i>Populus alba</i>	—	8.04 (1.778)	5.24 (0.723)	3.97 (0.551)	—	4.01 (0.551)
<i>P. canadensis</i>	—	—	5.95 (1.855)	4.75 (1.260)	—	—
<i>P. tacamahaca</i>	—	8.10 (1.658)	—	5.98 (1.779)	—	5.92 (1.310)
<i>Salix alba</i>	5.52 (2.913)	—	4.50 (1.480)	—	5.90 (2.561)	—

Birch The survival rate for *Betula* was uniform at around 61 % in rows 2 to 6 and was 72% in row 7. There was much regeneration from seed which added to the ground cover. For *B.pendula* there was no significant difference in height between trees in different rows (Table 2). For *B. pubescens* the trees in row 5 were significantly different from those in rows 2, 6, 7. There was no significant difference in height between the two species within the same row and the mean diameter was 10.3cm

Pine Whereas the survival rate for *P.contorta* was uniform at 54% between the rows, *P.nigra* var. *maritima* did less well and varied between 14% and 43%. *P.sylvestris* had the highest survival rate of the three pines and it was fairly uniform at 61% between rows. For both *P.contorta* and *P.nigra* var. *maritima* there was no significant difference in height between the rows. For *P.sylvestris* there were two distinct groups; rows 2, 4, 6 and rows 3,5 were significantly different but there was no significant difference within each group. *P.sylvestris* (mean height 6.13m, diameter 12.3cm) was significantly taller than *P.contorta* (5.89m; 11.9cm) and *P.nigra* var. *maritima* (5.24m; 11.4cm); and the latter pair also differed significantly.

Rowan Initially the *Sorbus aucuparia* planting was a disaster and for 10 years it made no contribution to the woodland. Some individuals died back permanently, others died back and then produced a second leader. The commonest reaction was to form a low much-branched spindly bush. In any event, although many trees survived, little growth took place during this period. Then in the 11th year vertical shoots were put up from the base of this unpromising material which in the 17th year exceeded 4.5m in 9% of the planting and 3.74m in 17%.

Poplar *Populus alba* survived very well in two rows, moderately in one and badly in another. Nevertheless, overall, the mean survival rate of 53% and mean height of 5.32m (diameter 9.9cm) represented a useful contribution to the woodland. *P. alba* also suckered strongly, many stems exceeded 2.5m which compensated for any failures. *Populus canadensis* showed much less variation in height between the rows and like its cogenor, had survival 53% and height 5.35m. *P. tacamahaca* made the outstanding contribution to the woodland by virtue of its survival (77%), its height (6.63m) and the amount of leaf litter it produced. The mean diameter was 12.6cm.

Willow *Salix alba* survived well in rows 2 and 4 at 56%, but in row 6 it was a failure all 3%. Where it did survive the growth was good but variable. For example, in row 2 although the mean height was 5.52m there were eight excellent specimens of average height 10.0m and diameter 14.0cm.

Replacements Beating-up was most successful for *Salix alba* (+28%), *Pinus sylvestris* (+17%), *Pinus contorta* (+15%) and *Pinus nigra* var. *maritima* (+15%); and there was no substantial difference in the ranking order (Table 3). In addition *Acer pseudoplatanus* and *Sorbus aria* were also used. The former was not successful (33%; 1.72m) but the latter showed excellent survival and satisfactory growth (80%; 3.31m).

Table 3. Survival rate (%) of the original trees (1) and after beating-up (2).

Species	1	2
<i>Populus tacamahaca</i>	77	87
<i>Betula</i> spp.	63	71
<i>Pinus sylvestris</i>	61	78
<i>Pinus contorta</i>	54	69
<i>Populus alba</i>	53	60
<i>Populus canadensis</i>	53	59
<i>Alnus</i> spp.	51	59
<i>Pinus nigra</i> var. <i>maritima</i>	39	54
<i>Salix alba</i>	38	56
<i>Acer pseudoplatanus</i>	—	33
<i>Sorbus aria</i>	—	80

LOW pH AREA

Materials and Methods

This small area developed to the east of the centre of the Main Plantation. The direct and indirect effects of high acidity on the growth of plants on colliery spoil containing iron pyrites are well documented (Richardson, 1957; Hackett, 1977; Costigan, Bradshaw and Gemmell, 1981). These investigations showed that even when the spoil had been neutralised to an acceptable level before planting commenced, rapid acid formation was liable to occur locally when pyritic spoil was exposed to air and moisture. The woodland slope was no exception; and an area of high acidity (pH 2.9 to 3.4) developed abruptly in 1970/71 soon after the trees were planted. The affected part was roughly 50m wide at the top of the slope increasing to 70m at the base, and it traversed 25 rows containing some 1200 trees. The remedial measures taken to restore the damaged vegetation included the addition of lime and fertiliser and replacement of dead trees (Richardson, 1985). The pH was 4.0 in 1978, 3.2 in 1986 with values less than 3.0 in a few places.

Results

Within the low pH area the ground cover was less complete than outside and in many places the grasses were replaced by mosses (*Dicranella heteromalla*, *Hypnum cupressiforme*, *Polytricum formosum*, *P. piliferum*).

Table 4. Survival and height of trees after 17 years (16 years for birch and pine) in the low pH area.

Species	No. Trees planted	Survival (%)	Height (m)
<i>Pinus sylvestris</i>	233	46	4.65
<i>Betula pendula</i> , <i>B. pubescens</i>	201	45	3.55
<i>Alnus glutinosa</i>	271	9	2.85
<i>Populus canadensis</i>	32	6	3.05
<i>Populus tacamahaca</i>	78	5	3.20
<i>Sorbus aucuparia</i>	237	4	2.67
<i>Salix alba</i>	60	2	3.96

Table 4 shows that *Populus spp.*, *Salix alba* and *Sorbus aucuparia* failed to survive in large enough numbers to make an appreciable contribution to the woodland; *Sorbus aria* which was successful in the main plantation also failed in the low pH ground. *Alnus glutinosa* was decimated by the increased acidity. The few survivors were only about half the height of the trees outside the area and *A. glutinosa* was not a success as a replacement. In contrast *Betula spp.* and *Pinus sylvestris* survived well and reached heights of 3.55m and 4.43m compared with 5.24m and 6.19m in the main plantation. They also survived well as replacements and the final survival figures were 73% and 72% respectively. *Betula* was especially tolerant of the acid conditions and, following the remedial treatment which raised pH to 4.0, there was a remarkable natural regeneration of birch from seed which contributed to the restoration of the damaged area. The growth rates in low pH area of *B.pendula* and *B.pubescens* were not significantly different.

WILLOW PLANTATION

Materials and methods

Unrooted willow cuttings were planted on the grassed level ground at the base of the slope. The cuttings were 30cm in length and were taken locally in March 1970 from one year old well-ripened wood. They were given a hormone dip and inserted into the soil with one or two buds remaining above the surface. Unlike the trees in the main plantation no extra fertilizers were given, but the site was sheltered and, it could be argued, received nutrients in the drainage water from above. There were some 600 cuttings used, (85 each of 7 species) and they were planted in two rows 0.6m apart and 1.4m within the rows.

Results

Initially the overall survival rate was around 50% and height growth was impressive; one cutting of *Salix viminalis* put up two shoots, 1.5 and 1.2m, in the season of planting (Vyle, 1971). Subsequently there were heavy losses due in part to vandalism and competition from the lush growth of grasses. However, there was only one complete failure, *S. daphnoides*; and in 1986 there was an uninterrupted screen composed of groups of the following growing strongly at the foot of the woodland slope: *S. atrocinerea* 5.0m *S. caprea* 4.52m, *S. cinerea* 3.85m, *S. purpurea* 5.31m, *S. triandra* 6.11m, *S. viminalis* 5.58m. Individual trees of *S. x sericans* (*S. caprea* x *viminalis*), *S. dasyclados* (*S. caprea* x *cinerea* x *viminalis*) and *S. aurita* were also present.

NURSERY PLANTING

Materials and methods

At the west end of the slope, adjacent to the main planting, an area was set aside for an experiment to examine the growth of some tree, shrub and ground cover species which were not included elsewhere on the site. There were 19 species (see below) in separate plots (22.7 x 9.1 m); the trees were pit-planted in 10 rows at a spacing of 0.9m within the rows and 0.9m between the rows, 25 to a row. In a smaller plot were 50 transplants of *Sarothamnus scoparius* in two rows 1.8m apart and spaced 1.8m within the rows. The area (designated the nursery planting, Richardson and Dicker, 1972) was hydroseeded at the same time and in the same manner as the main slope before planting in 1970. No further fertilizer was added.

Results

The following were classed as outright failures on account of poor survival or poor growth or both: *Clematis vitalba*, *Cotoneaster simonsii*, *Hypericum calycinum*, *Polygonum baldschuanicum*, *Prunus cerasifera*, *Prunus padus*, *Rosa rubiginosa*, *Rubus idaeus*, *Sambucus racemosa*.

For the following the survival is given as a percentage of the number planted and the average height in meters: *Crataegus oxyacanthoides*, 30% 1.89m; *Ligustrum vulgare* 35% 2.21m; *Malus sylvestris* 20% 3.28m, *Prunus avium* plot 1, 60% 1.37m, plot 2, 25% 7.07m; *Robinia pseudoacacia* 30% 5.15m; *Rosa canina* 30% 1.72m; *Rosa multiflora japonica* 25% 1.91 m; *Sambucus nigra* 15% 2.36m; *Sarothamnus scoparius* 36% 1.52m; *Sorbus aucuparia* 83% 2.78m; *Hedera helix* var. *hibernica* formed a carpet which extended into adjacent plots.

DIRECT TREE SEEDING

Materials and methods

A seeds mixture of four trees, a grass and a clover were glob-sown in 1968 on bare regraded spoil at the west end of the nursery planting in a plot 60 x 20m (glob-seeding is a version of the hydroseeding method, see p. 17 where, instead of a thin layer spread evenly over the surface, a number of globules of the mulch are scattered over the ground). The idea was that trees would grow from the glob centres and herbs and grasses would spread into the bare areas between them in the framework created by the seeding process.

The composition of the mixture and the sowing rates (kg ha⁻¹) were as follows: *Acer pseudoplatanus* (1.1), *Alnus glutinosa* (2.2), *Betula pubescens* (1.1), *Fraxinus excelsior* (1.1), *Festuca rubra* var. *rubra* (S59) (16.8), *Trifolium repens* (9.0). The amounts of grass and clover, used to provide an initial greensward and stabilize the surface, were purposely low in order to prevent the tree seedlings becoming crowded out.

Results

After three years the ground cover was 50-75% and it included ten unsown herbs and grasses, well-known as spoil heap colonists, which had taken advantage of the bare ground (Richardson and Dicker, 1972).

No seedlings of *Acer* or *Alnus* were found; an early indication that *Fraxinus* would become established proved to be false and only a few individuals of *Betula* (<1 m²) were present. By 1986 the plot had developed into a birch scrub with the tallest trees around 5.00m and natural regeneration from seed freely occurring. *Crataegus monogyna*, *Rubus* spp., *Sarothamnus scoparius*, *Sorbus aucuparia* and *Ulex europaeus* were also present. The position of *Rosa rugosa* deserves special mention. Its seedlings which began to show in considerable numbers in 1972 were evenly distributed throughout the plot. By 1980 flowering and fruiting was widespread and in 1986 the bushes (0.6m) dominated the understorey beneath the birches. Dispersal by birds from outside would not have given such even distribution and the rose was not put in as young plants; therefore the possibility that *R.rugosa* seeds were contained in the original mixture as contaminants must be considered likely.

DISCUSSION

An examination of natural colonization of abandoned pit heaps in County Durham made in 1952-56 revealed that birch was the only woody species amongst the early colonizers. Later came bramble, broom, elderberry, goat willow, hawthorn, rose and after 40 years sycamore appeared. When tree planting on a large scale was carried out at thirty pit heaps between 1956-59, a notable feature was the high failure rate and the extensive beating up that took place to make the woodlands visually acceptable. Nine of these sites, containing over 200,000 trees, were selected for detailed examination (Shenton, 1968) and it was found that out of 18 species planted only 5 spp, *Betula pendula*, *Alnus incana*, *Pinus contorta*, *P.nigra* var. *maritima*, *P.sylvestris* had satisfactory rates of survival and growth. Trees planted into slopes colonized by low growing grasses did better than those on bare slopes, but the growth was still poor compared with trees planted into their natural soils.

The planting of trees on pit heaps as they stood was replaced in the late 1960's by one based on regrading and cultivation. This practice removed some of the obstacles to survival and growth, but introduced new ones (compaction, pH extremes) and of course the other variables which were hazardous (stock origins and vigour, handling, planting techniques, quality of maintenance) still remained. The selection of species for the Roddymoor plantation made in 1967 was based on a knowledge of the natural colonizers, those which had survived in plantations and those which were rapid growers and alleged to be tolerant. Research work to provide clones of trees suited to particular soils and situations lay in the future (Good and Last, 1987), and tree planting on colliery spoil was still somewhat of a risky undertaking.

The grass cover was established four months after sowing and was just sufficient to bind the surface and prevent erosion. During the drought years of 1976 and 1977 the grass was burned off and it did not fully recover until 1981 when growth was favoured by high rainfall and shade from the trees.

The tree spacing selected for this low maintenance woodland (1.5 x 1.5m) was probably the correct one in so far as the trees were mutually supportive between the 7th and 13th years. A tree spacing of 0.9 x 0.9m would have given earlier mutual shelter but more thinning would have been required. Aided by the adequate moisture content of

the spoil at 30cm depth (Richardson and Greenwood, 1967), the added nitrogen and phosphorus fertilisers and the stable surface, the young trees generally made good growth. *Populus tacamahaca* was a great success and *P.alba* was also a notable component of the woodland. Fewer *P.canadensis* were planted but initially their survival was high and the growth satisfactory. Then suddenly at height 4.6m some thriving individuals began to produce fewer and smaller leaves and survival fell from 63% to 53%. Die-back seemed to be total, unlike that in *Alnus glutinosa* (see below), and until further investigations are made *P. Canadensis* would not be in a list of recommended species. Similar results were obtained for pine with *P.sylvestris* and *P.contorta* performing well and *P.nigra* var. *maritima* falling behind in survival. The failures occurred within six years of planting and the survivors showed satisfactory growth.

Betula pendula and *B.pubescens* were both good survivors and uniformly satisfactory growers. The same is true for *Alnus glutinosa* and *A.incana* if one ignores the poor survival in rows 6 and 7. Whereas *A.incana* elongated steadily during the 17 years to give well proportioned trees *A.glutinosa* displayed its well-known habit in which the original leader died back and was replaced by a new leader from below. This gave a rather untidy tree less tall than *A.incana*.

Sorbus aucuparia occurs on acid moorland, on acid forest soils and it did well on a comparable reclaimed pit heap nearby, but it was not suited to the conditions at Roddymoor. Its survival was poor in the main plantation and, although it survived well in the nursery, the growth was unsatisfactory. The stock may have been physiologically adapted to high rather than low pH soil (Gillham and McAllister, 1977). Where the pH is above 4.0 perhaps a case could be made for its inclusion in a recommended list. It is possible that if rowan was planted 0.9 x 0.9m apart in groups of 15 to 25, suitably dispersed away from quicker growing species, it could provide an attractive variation in texture and colour in the woodland. For *Sorbus aria*, which is normally associated with woods on chalk and limestone, the reverse argument about adaptation could be advanced. This tree was planted as a replacement in 1974; it quickly became established, survived well (80%) and in 12 years had a mean height of 3.31 m (Table 3). It is a matter for further investigation whether *S.aria* would have done any better than *S.aucuparia* if planted at the same time, because by 1974 there was an improvement in shelter and in soil fertility.

Nevertheless *S.aria* performed well and could be recommended. In contrast the other replacement, *Acer pseudoplatanus* (Table 3), failed to make a contribution to the woodland and confirmed the view, suggested by the pattern of natural colonization, that this tree should not be used in the primary planting. *Salix alba* behaved erratically. In rows 2,4 for example, the survival was 56% yet in row 6 only 13%. In row 2 the mean height was 5.52m but the standard deviation was 2.913. Clearly this tree should be used with discretion.

The sudden rise in acidity threatened to scar the woodland with a broad band of dead trees and grasses. Fortunately the remedial action was successful and furthermore the occurrence gave another opportunity to test the tolerance of species to pit heap conditions (Table 4). The list of species that might be recommended for planting at pH 4.0 to 6.0 has to be revised for lower values. The *Alnus*, *Populus*, *Salix* and *Sorbus* species listed in Table 1 would be unreliable at pH 3.0 to 4.0 and only *Betula spp.* and *Pinus sylvestris* could be planted with any degree of confidence.

There may be places in a plantation where additional species might be appropriate and the nursery planting (see p. 23) gave some information about these. *Hedera helix* var.

hibemica may be used for a ground cover, and amongst the trees and shrubs not mentioned in either the list of natural colonizers or in the main plantation the following may be useful *Ligustrum vulgare*, *Malus sylvestris*, *Prunus avium*, *Robinia pseudoacacia*.

The willow plantation provided information about the performance of unrooted cuttings of seven species. Only *Salix daphnoides* failed completely, and for planting near the foot of slopes, or similar places elsewhere, the following may be recommended *S.atrocinerea*, *S.caprea*, *S.cinerea*, *S.purpurea*, *S.triandra* and *S.viminalis*.

The poor establishment of trees from seeds is consistent with the findings of other workers (Buckley, 1984). It could be argued that at the sowing rates used the site factors (seedbed texture, nutrient status, density of grasses, etc.) favoured only birch and *Rosa rugosa*. They acted against the growth of alder, ash and sycamore, while at the same time allowing natural colonization by bramble, broom, hawthorn, gorse and rowan. This area compares badly with the main plantation; it has a scrubby untidy appearance and it will require much more management in the next 5-7 years than the main plantation to make it presentable. However, if there were places where an impenetrable thicket was required, the possibility of allowing natural colonization by woody species into sparse grassland might be first considered before embarking on direct tree seed planting (Buckley, 1978).

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The late Professor J. W. H. Harrison (left) and Joe Wilson by the side of the Pond on a sunny day in the 1950's.

THE CENTENARY OF JOE'S POND

G.A.L. Johnson Department of Geological Sciences, Durham University Science Laboratories, South Road, Durham, DH1 3LE.

An eleven acre site, owned by the Durham County Conservation Trust, on low agricultural land below the Permian escarpment south-west of Houghton-le-Spring, Tyne & Wear, forms Joe's Pond Nature Reserve (Grid Reference NZ 329488). The rectangular fresh-water pond is surrounded by dense bushes and trees that partly cover reclaimed land of Nicholson's Pit, a coal shaft originally sunk in 1817. This shaft was part of Rainton Colliery that produced deep-mined coal for more than 150 years. Three other shafts are located near to Nicholson's Pit, North Pit lies 365m N.E., Plain Pit (1817) is 640m N.W. and Rainton Meadows (1824) is 800m S.W. There is little indication of this mining activity at the present day, particularly as the spoil tips were smoothed and recontoured during the 1960's. All the coal shafts were sunk down to the Hutton Coal, 1.6m thick at a depth of about 164m, and some continue to greater depth. Records of strata proved in the colliery shafts show that between 7.5m and 10.5m of glacial drift, boulder clay and interbedded clay and sand, overly the Carboniferous age Coal Measures sequence that contains productive coal seams. Brick and tile making from clay in the drift deposits was active in the Houghton-le-Spring and Chilton Moor area during the 19th Century and old directories give the names of several manufacturers in the region.

The first edition of the O.S. six inch scale map of the region about Joe's Pond (Durham Sheet XX) was surveyed in 1857 and published in 1861. It shows Nicholson's, Plain and North pits and a connecting railway part of which was already disused. No ponds are shown in the vicinity of Nicholson's Pit and the site of Joe's Pond was still agricultural land at this time. Of interest on this map is a large brick field shown at Chilton Moor 800m north of Nicholson's Pit.

On the second edition of the map (Durham XX NE, revised 1895 and published 1898) a brick works "disused" is shown immediately to the east of Nicholson's Pit and two sheets of water, labelled "Fish Pond" in each case, lie to the north of the brick works and the mine. The larger eastern pond is Joe's Pond and it was clearly well established by the time of the revision for this map in 1895. No indication is given on the map of brick making at Chilton Moor and it is possible that sometime after 1857 brick making ceased here and activity was transferred to Nicholson's Pit where two large clay pits were excavated. Keeping the excavations free from water must have been difficult, particularly if Nicholson's Pit was a pumping shaft at that time. Pumping the underground coal workings from this shaft has been active for many years and continues at the present time using submersible pumps and remote controls installed in 1964. These pumps operate at night when required and control the water-level in the abandoned coal workings of Rainton Colliery. At any rate, as soon as brick making ceased at Nicholson's Pit, both the clay pits flooded to form roughly rectangular ponds. The term "Fish Pond" on the 1898 edition of the map may be significant to us because it suggests that the clay pits had been flooded for some years and sufficiently long for the ponds to develop an ecology capable of supporting fish life. Possibly the ponds had been established for 10 years or more when the revision of the O.S. map was made in 1895. A date in the early part of the 1880's seems likely for the flooding of the clay pits after brick making ceased and the formation of Joe's Pond.

The third edition of the O.S. six inch scale maps of the region were published in 1923 following a resurvey dated 1915. Durham Sheet XX NE shows two ponds adjacent to Nicholson's Pit and on the eastern side of the larger or Joe's Pond there is a boathouse. No indication of the brick works buildings are shown on this map and by this time they must have been cleared away.

Scientific interest in the ponds began in the 1940's with visits and recording by Mr. Tom Dunn and Professor J.W. Heslop Harrison and they gave the name Joe's Pond to the larger eastern pond. The late Mr. Joe Wilson obtained the lease of this pond from the National Coal Board in about 1937. The thick shrubbery that surrounds the pond was planted and cultivated by Joe Wilson as a protection against intruders. He controlled the flow of water into the pond and prevented any pollution, so giving it careful management until his death in 1976. Both ponds seem to have been stocked originally with coarse fish, probably perch, but young trout were introduced by Mr. Dunn after egg hatching experiments in school biology classes and these now maintain themselves.

In 1951 the first provisional edition was published of the O.S. six inch scale map with national grid lines. Sheet NZ 34 NW, based on revisions up to 1950, shows the two ponds at Nicholson's Pit, but only the larger Joe's Pond is labelled "Fish Pond". The smaller western pond was clearly being infilled at this time because the original rectangular plan of the pond is reduced to a triangle. Fill material seems to have been tipped into this pond at the east side using access from the track that ran between the two ponds. In the 1940's, when the 1951 edition of the map was being surveyed, about half the small pond had been infilled. Mr. Tom Dunn remembers this pond particularly

because it supported a stand of the Lesser Bulrush *Typha angustifolia*. Last traces of this western pond probably disappeared during reclamation of the spoil tips adjacent to Nicholson's Pit by Durham County Council in the late 1960's.

The new metric edition of O.S. Sheet NZ 34 NW was surveyed in 1970 and published in 1973. No indication of the small western pond is shown, but Joe's Pond is clearly marked and with an altered southern shore as compared to previous maps. The large southern island is connected to the shore on this map with an independent shallow pond developed against the original shore line; the shallow pond area has still further dried out since then and now forms the wet meadow area of the Nature Reserve. This southern side of Joe's Pond may have silted up during recent times, but in addition to this and probably more importantly the water level in the pond has fallen.

Joe's Pond, a small nature reserve with unusual and important biological features, has been given S.S.S.I. status and protection. The clean, clear pond with its luxuriant swampy fringe looks exceedingly pleasing in its setting of thickly wooded banks. On a fine summer day it is difficult to believe that this peaceful wet-land lies so close to old mines and built-up areas. Its healthy ecological condition with no pollution is the result of 50 years of careful conservation and management, initially by the late Mr. Joe Wilson and latterly by the Conservation Trust. Before this period, for another 50 years or so, it was a fish pond and it must have had some form of management at this time. One hundred years old, fifty years of conservation and forty years of scientific inspection and recording, Joe's Pond is one of our best tended wet-land sites. This is the time to celebrate Joe's Pond Centenary, let's hope that over the next 100 years it will be equally well managed and protected.

THE HOVERFLIES OF HAMSTERLEY FOREST

G. Simpson Forestry Commission, Redford, Hamsterley, Bishop Auckland, Co. Durham,
DL13 3NL.

The recording of wildlife in Durham Forest District is being pursued on a tetrad basis. Figure 1 is a map of Hamsterley Forest showing the tetrads included in this account and Table 1 lists the hoverfly records that have been collected between April 1985 and August 1988. There are three tetrads which include little Forestry Commission land, NZ 0026,0626 and 0632, and this is reflected in the small numbers of records for these areas. The majority of hoverflies recorded in tetrad 0832 were found on Forestry Commission land around Dryderdale (the small almost triangular projection in the north east corner of the map). This land was not acquired at the original purchase from the Surtees family and is therefore not classed as part of Hamsterley Forest main block. All records from 0832 are nevertheless included because of the difficulty of sorting out what can be found on the land forming part of the main block and what can only be found in the Dryderdale block.

Several species of hoverfly that ought to be found in Hamsterley Forest have not yet been seen, but recording will continue and new species will, without doubt, be located. Subsequent recording should also turn up species not yet listed in a particular tetrad, yet found in surrounding tetrads.

Many specimens of the more critical species have been verified by Stuart Ball or Stephen Falk, but several more await verification.

The following short notes are included for species which have notable features worthy of special comment in addition to the bare listing.

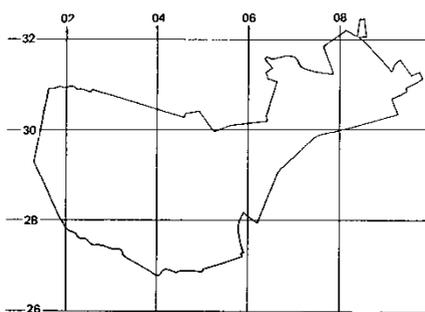


Fig. 1. Hamsterley Forest, Co. Durham

Platycheirus sticticus is only the second record for the NE, the first record being 50 years ago.

Chrysotoxum bicinctum — only 6 recent records in NE England.

Dasysyrphus albostrigatus — only 4 recent records in NE England.

Dasysyrphus lunulatus— only 7 recent records in NE England but widespread in Hamsterley Forest.

Eriozona syrphoides. A fairly new hoverfly to Great Britain. The Hamsterley records may be the first and only NE records to date. Eight specimens have been recorded between 2 and 17 August 1988 in five tetrads.

Melangyna arctica. This record for 0228 may be the second NE record and 0832 the fourth. The third record is in Hotburn Plantation near Derwent Reservoir.

Melangyna lasiophthalma. This is an early hoverfly best seen on willow on a sunny day in spring.

Malangyna quadrimaculata. Can be seen with the former species but appears to be more rare with only 4 recent records in NE England.

Metasyrphus latifasciatus is probably the sixth record for NE England.

Parasyrphus lineolus and vittiger are rare in the NE but should increase in the large conifer forests.

Syrphus torvus. A hoverfly that must have been overlooked in the NE as there are only four other records. In just over 1 year I have recorded it in over 20 tetrads.

Cheilosia albipila and *grossa*. Early hoverflies which I found on coltsfoot — first species recorded once, second species twice in NE England recently.

Cheilosia antiqua. I have found this hoverfly in one small ravine only. Rare in the east.

Eristalis rupium. Five recent records. I have also recorded this species in Slaley Forest.

Helophilus trivittatus. The first NE record.

Xylota coeruliventris. Common in Hamsterley Forest, rare elsewhere in the NE.

Sphaerophoria spp. All specimens caught to date have been females.

	0026	0226	0426	0626	0028	0228	0428	0628	0030	0230	0430	0630	0632	0832
<i>Melanostoma mellinum</i>	✓					✓	✓				✓	✓		
<i>Melanostoma scalare</i>	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Platycheirus albimanus</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Platycheirus angustatus</i>												✓		
<i>Platycheirus clypeatus</i>				✓										
<i>Platycheirus manicatus</i>														✓
<i>Platycheirus peltatus</i>		✓				✓		✓						✓
<i>Platycheirus scambus</i>						✓								
<i>Platycheirus scutatus</i>			✓			✓						✓		
<i>Platycheirus sticticus</i>												✓		
<i>Pyrophaena granditarsa</i>														✓
<i>Pyrophaena rosarum</i>														✓

	0026	0226	0426	0626	0028	0228	0428	0628	0030	0230	0430	0630	0830	0632	0832
<i>Chrysotoxum arcuatum</i>		✓	✓				✓								
<i>Chrysotoxum bicinctum</i>													✓		
<i>Dasysyrphus albostratus</i>					✓								✓		
<i>Dasysyrphus lunulatus</i>		✓	✓		✓	✓				✓		✓	✓		✓
<i>Dasysyrphus tricinctus</i>		✓				✓				✓		✓	✓		
<i>Dasysyrphus venustus</i>							✓								
<i>Epistrophe grossulariae</i>		✓					✓	✓				✓	✓		
<i>Episyrphus balteatus</i>	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
<i>Eriozona syrphoides</i>					✓	✓	✓					✓	✓		
<i>Leucozona glauca</i>					✓		✓				✓	✓	✓		
<i>Leucozona lucorum</i>							✓				✓	✓	✓		
<i>Melangyna arctica</i>						✓									✓
<i>Melangyna compositarum</i>			✓					✓							
<i>Melangyna lasiophthalma</i>			✓			✓	✓	✓	✓		✓	✓	✓		✓
<i>Melangyna quadrimaculata</i>													✓		
<i>Melangyna umbellatorum</i>												✓			
<i>Meliscaeva cinctella</i>			✓				✓	✓	✓	✓	✓	✓	✓		✓
<i>Metasyrphus corollae</i>		✓				✓	✓								
<i>Metasyrphus latifasciatus</i>		✓													
<i>Metasyrphus luniger</i>						✓						✓			
<i>Parasyrphus lineolus</i>	✓							✓			✓				
<i>Parasyrphus vittiger</i>		✓				✓		✓	✓	✓	✓				
<i>Scaeva pyrastris</i>						✓					✓				
<i>Syrphus ribesii</i>		✓				✓	✓	✓	✓	✓	✓	✓	✓		
<i>Syrphus torvus</i>					✓	✓	✓	✓	✓	✓	✓	✓	✓		
<i>Syrphus vitripennis</i>		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓		
<i>Cheilosia albipila</i>						✓									
<i>Cheilosia albitarsis</i>						✓	✓				✓	✓	✓		
<i>Cheilosia antiqua</i>			✓												
<i>Cheilosia bergenstammi</i>			✓				✓	✓				✓	✓		
<i>Cheilosia grossa</i>								✓							
<i>Cheilosia illustrata</i>								✓			✓	✓	✓		
<i>Rhingia campestris</i>		✓	✓			✓		✓	✓	✓	✓	✓	✓		
<i>Chrysogaster solstitialis</i>						✓	✓	✓			✓	✓	✓		
<i>Lejogaster metallina</i>							✓				✓	✓	✓		
<i>Neoscia podagrica</i>		✓	✓							✓	✓	✓	✓		
<i>Sphegina clunipes</i>	✓				✓		✓		✓	✓	✓	✓	✓		

	0026	0226	0426	0626	0028	0228	0428	0628	0030	0230	0430	0630	0830	0632	0832
<i>Eristalis abusivus</i>						✓									
<i>Eristalis arbustorum</i>						✓	✓	✓			✓				✓
<i>Eristalis horticola</i>		✓	✓			✓	✓	✓		✓			✓		✓
<i>Eristalis intricarius</i>		✓				✓	✓			✓		✓			
<i>Eristalis nemorum</i>												✓	✓		
<i>Eristalis pertinax</i>		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
<i>Eristalis rupium</i>		✓	✓		✓							✓			
<i>Eristalis tenax</i>		✓	✓					✓	✓	✓	✓	✓	✓		✓
<i>Helophilus pendulus</i>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
<i>Helophilus trivittatus</i>						✓									
<i>Myathropa florea</i>												✓	✓		
<i>Sericomyia lappona</i>		✓	✓	✓		✓	✓	✓			✓	✓	✓		
<i>Sericomyia silentis</i>		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓
<i>Volucella bombylans</i>			✓	✓			✓	✓				✓			✓
<i>Volucella pellucens</i>			✓			✓	✓			✓	✓	✓	✓		
<i>Syrifta pipiens</i>		✓	✓			✓	✓				✓	✓	✓		✓
<i>Xylota coeruleiventris</i>		✓	✓		✓	✓	✓	✓		✓	✓		✓		
<i>Xylota segnis</i>			✓			✓	✓	✓			✓		✓		
<i>Xylota sylvorum</i>		✓						✓					✓		
TOTAL	9	28	23	3	14	36	32	28	18	17	31	35	40	1	17

TABLE 1 HOVERFLY RECORDS FOR HAMSTERLEY FOREST APRIL 1985
TO AUGUST 1988

HARVEST MICE IN DURHAM

T. Coult 4 Officials Row, Malton, Lanchester, Co. Durham DH7 0TH. (Tel: Lanchester 520127).

An updated map of the distribution of the harvest mouse in Britain was published by the Mammal Society in 1987. Disappointingly there are only three dots in Durham County, labelled pre-1960. In fact they are pre-1900. One of these is near Wolsingham, one near Durham City and one in the Browney Valley. More recently there was supposed to be a sighting near Washington in the 1950's and another in the Derwent Valley in the 1980's, neither of which have been confirmed. In Yorkshire, the York Mammal Group has found the mouse to be well represented in a variety of suitable habitats throughout the county, up to the Durham (vc 66) border. It is also recorded

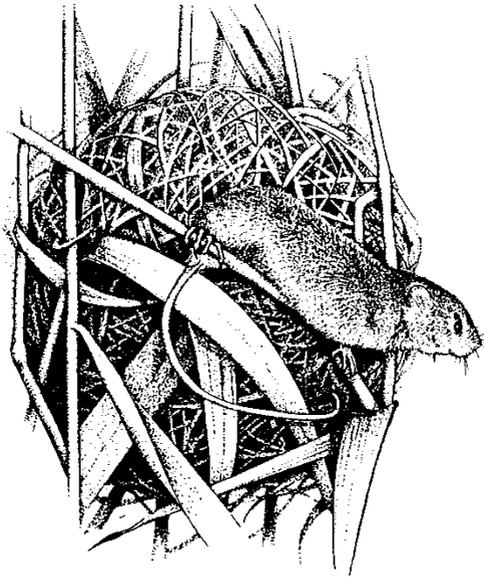


Fig. 1. Harvest Mouse at nest.

from two localities in Northumberland. Thus there is virtually nothing known about the present position in Durham County and the purpose of this account is to try to remedy this state of affairs.

Popular opinion has it that the harvest mouse has declined drastically due to modern harvesting techniques. This contention has been refuted where critical work has been carried out on harvest mouse populations. In fact, in Yorkshire major concentrations of mice have been found associated with marshes and other lowland wet areas such as reservoir edges, reed beds, etc. Other well used sites were areas of rough grassland, overgrown roadside verges, hedgerows and ditches, with fewer records from cereal fields, gardens and allotments. This may begin to explain why there is a dearth of records from Durham, a county not rich in wetland habitats. However, such habitats are not entirely absent from our countryside and there are many areas of suitable rough grassland.

The mouse is best found by searching for the distinctive nests at the end of summer, when the grasses begin to die back. The other well used method is by the analysis of owl pellets. Unfortunately the owl most commonly feeding on harvest mice is the barn owl, itself very rare in County Durham. It is difficult to use Longworth traps for the mice during summer, when vegetation is high, but in winter when mice are found down to ground level, then it should be possible.

The nests, about 5 to 10 cm in diameter, are woven from the living leaves of the host plant (Figure 1), and vary in height from the ground depending upon the surrounding vegetation. The other nests most likely to be mistaken for those of harvest mice and found in such situations are those of the reed warbler and whitethroat, both typical bird's nests, open at the top and woven from non-living material. The mouse's nest is ball shaped with no visible entrance. Other signs of the mice are not obvious, feeding remains and droppings being inconspicuous. Owl pellet remains are best identified from the skull, which is small and very fragile. However, if the first molar of the upperjaw is extracted carefully, five root cavities will be seen (Figure 2). This distinguishes it from the wood mouse, having four cavities and the house mouse with three.

If anyone knows of harvest mice in the north east, either past or present then please let me know. I am prepared to investigate even quite doubtful records and am quite able to keep secrets if confidentiality is required.

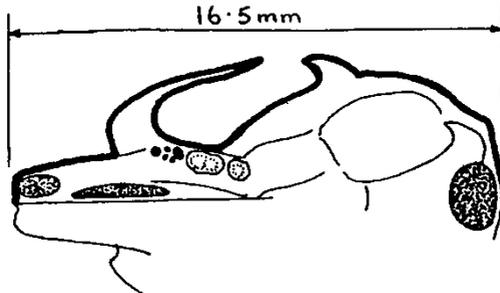


Fig. 2. Harvest Mouse skull showing five root cavities of the first molar.

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Edited by:

T.C. DUNN, M.B.E., M.Sc.,
The Poplars, Chester-le-Street, Co. Durham

BY THE WAY

Secretaries of Societies and other contributors to the Vasculum should send their notes to the Editor before 15th March, 1989 .

THE 1988 SEASON

For the second year in succession we have had to endure a wetter than average summer season, with very little sunshine. Most plants have grown rapidly, lank and tall. The coarse grasses in particular seem to have enjoyed it immensely, to the detriment of the more low growing plants that like the sun.

As a result the flower-loving species of insects have had difficulty in finding pollen and nectar as well as a little sunshine to warm them up and stimulate flight. The common butterflies have had a difficult time with numbers well down. The early flight of the Small Tortoiseshell was almost absent except for a few sheltered pockets here and there. We saw no more than five or six specimens on the river banks at Chester-le-Street during March and April with the June/July hatch consequently delayed until August and the whole of the second brood missed out. The spring brood of the Wall butterfly was also very sparse and the second brood completely missing at Chester-le-Street and rare even in Bishop Middleham Quarry. Orangetips were not up to their usual numbers. The Peacock did not appear at all in Chester-le-Street this year and this bodes ill for the future.

The immigrant butterflies started early in May and June when both Red Admirals and Painted Ladies arrived from overseas, but this promise was literally damped off by the July and August rains. A rather warm spell in late September and October revived our hopes and certainly several immigrants were seen. Large numbers of Silver Y's arrived at this time during a spell of warm south easterly breezes. Other immigrants like the Dark Sword Grass (*Agrotis ipsilon*), Vestal (*Rhodomestra sacraria*), Rush Veneer (*Nomophila noctuella*) and Diamond Backed Moth (*Plutella xylostella*) also appeared in small numbers in the traps at

this time. Sadly the trend ended with the advent of night frosts towards the end of October and we must now hibernate for the next few months.

RECORDING

1988 has seen a tremendous increase in the recording of wildlife generally in both counties. In Durham an informal group of enthusiasts have formed a midnight trapping circus with lights and a barbecue under the leadership of Lance Moore. This has operated sporadically on suitable weekend nights on various sites where recording had not previously been carried out. Sometimes results have been quite surprising, illustrating that, in spite of all that has been done in this direction, there is still much to be learned.

In North Northumberland, Peter Corkhill has been performing a similar function in an area which is much under-recorded.

BOOKS FOR SALE

The Editor still holds extensive stocks of the book, "Moths and Butterflies of Northumberland and Durham" Part 1; by Dunn and Parrack. It is essential that these be sold as quickly as possible in order to have sufficient funds to publish Part 2. The price to members is £4.50 if collected from Mr. Dunn or £5.50 if ordered by post. The corresponding prices for non-members are £6.00 and £7.00.

Stocks of the *Vasculum* right back to its inception in 1915 are also available for purchase as are copies of the early research papers in the Transactions of the N.N.U. For details and prices contact the Editor.

THE SOCIETIES NORTHERN NATURALISTS' UNION

The 181st Field Meeting was held at Teesmouth on 9th July 1988. Led by Russell McAndrew, the party of 20 members visited a range of habitats along the south side of Greatham Creek, including parts of the Cleveland Wildlife Trust's Cowpen Marsh reserve.

Land reclaimed from the estuary a century ago was found to show little evidence of its past history with the saltmarsh vegetation having been replaced by grassland dominated by Yorkshire fog and common bent. The presence of meadow barley was noted; this is a characteristic plant of old undisturbed grassland around the Tees estuary. Overhead, common terns were carrying fish inland to their nesting colonies. On the seaward side of the Cowpen Marsh seawall we were able to examine part of the surviving saltmarsh. Amongst the dominant *Puccinellia maritima* we noted annual seablite *Suaeda maritima*, sea arrowgrass *Triglochin maritima*, sea lavender *Limonium vulgare*, sea wormwood *Artemisia maritima* and other typical saltmarsh species.

Making our way along the Greatham Creek seawall towards Seal Sands, we found again many of the saltmarsh species, growing here on the slag of which the wall is constructed. In grassland by brackish pools at the foot of the wall distant sedge *Carex distans* was found in abundance and on the sides of the bank we saw knotted hedge-parsley *Torilis nodosa* with its distinctive spined fruits.

The rising tide had partly covered Seal Sands, but on one of the remaining mudbanks we counted eleven seals, about half of the resident Teesmouth population. A raft of young shelduck had assembled on the water and, although we were too early for the main autumn wader migration, a whimbrel was already present.

The windy conditions inhibited insect activity but during the afternoon we noted meadow browns, small heath, both species of burnet moth, and the damselfly *Ischnura elegans*.

R. McAndrew

The 182nd Field Meeting was held at Dodd Terrace, Annfield Plain on 10th September 1988. On a fairly bright afternoon about 30 members and friends gathered to be led by Lance Moore who had kindly produced copies of the planned route with a very good map.

Dodd Terrace Heath proved to be a flourishing stretch of heather, bilberry and purple moor-grass with numerous wet areas of *Juncus*, cotton grass, etc. as well as a recently created pond made by Durham County Council during the construction of a new road.

The first wet area to be looked at immediately produced the common or viviparous lizard hiding under sheets of corrugated iron which had been put in place by Terry Coult the previous day. This pond, we were told, frequently produced the Black Darter dragonfly (*Sympetrum danae*) together with other Odonata and the Great Crested Newt, although we did not see any of them on the Field Meeting day. During the course of the afternoon an increasing north wind lowered the temperature quite considerably so that flying insects became rather scarce. The only moths seen on this heathy area were the Pyralid *Udea lutealis*, the chevron *Eulithis testata*, and the northern spinach *Eulithis populata*. Also seen were larvae of the muslin moth *Cynia mendica* and many specimens of *Coleophora alticolella* on the *Juncus* seed heads, and cocoons of the emperor moth containing live pupae. Silken webs of the spider *Araneus quadratus* were frequent, forming conspicuous tents on the ends of the heather, the owner always very willing to emerge when the threads were touched.

Across the by-pass road we looked at a recently developed woodland of birch, oak, rowan and willow which had grown over heath land containing bilberry, heather and wavy- hair grass. In the centre a valley mire with sphagnum, cotton grass and smooth rush was of considerable interest. Here Dennis Hall compiled a formidable list of Fungi and Bryophytes whilst the entomologists were able to disturb specimens of *Acleris comariana* and *Ypsolapha parenthesesella*.

The following fungi and bryophytes came mostly from this woodland area:- *Paxillus involutus*, *Boletus luteus*, *Boletus badius*, *Russula claroflava*, *Russula cyanoxantha*, *Hypholoma fasciculare*, *Lactarius turpis*, *Lactarius blennius*, *Lactarius quietus*, *Amanita rubescens*, *Amanitopsis fulva*, *Lepista saevum*, *Collybia maculata*, *Laccaria laccata*, *Piptoporus betulinus*, *Phallus impudicus*, and *Clitocybe asterospora*. On the bare peat on the heath we found *Hygrophora puniceus* and an *Inocybe* species. The lichen *Hypogymnia physodes* grew on the heather twigs, whilst *Cladonia gracilis* and *Lecidia granulosa* covered much of the bare peat.

The Bryophytes seen were *Polytrichum juniperinum*, *Polytrichum commune*, *Ceratodon purpureus*, *Dicranella heteromalla*, *Pohlia nutans*, *Hypnum cupressiforme*, *Sphagnum fimbriatum*, and *Plagiothecium undulatum*. The three small liverworts *Calypogeia neesiana*, *Cephaloziella hampeana*, and *Cephaloziella rubella* were found mainly growing in association with *Dicranella heteromalla*.

The 183rd Field Meeting was held on the North Northumberland coast on October 22nd, 1988. After a spell of cool wet weather the previous week we were extremely fortunate to have a whole day of beautiful sunshine and a warm southerly breeze which raised the temperature so much that people had to remove several layers of clothing.

Six members and the National Trust Warden, Mike Freeman set off along the for at Newton-by-the-Sea in the morning. A number of sea birds were watched as they fed in the sea weeds near the tide line and a list together with those seen later near Newton Pool in the afternoon was compiled by R. Harris.

At the end of the beach we turned inland and returned via the golf links on the sand dunes. Several dune flowers were still in evidence and in this vegetation, full-grown larva of the fox moth were very plentiful. A single caterpillar of the ruby tiger was also seen. Attempts were made to photograph the large black and orange burying beetle but it dropped off its perch into the deep vegetation and was completely lost. There was much evidence of the case moth *Coleophora gryphipennella* on the *Rosa pimpinellifolia* and a case containing: live larva was found. Whilst looking for these a leaf was discovered bearing two gallery mines of a Nepticulid moth which was new to Mr. Dunn. On further microscopic examination this was determined as *Stigmella spinosissima*, a first English record. Specimens have been found previously in Scotland, Wales, the Burren country of Ireland and the Isle of Man but never before in England.

After a picnic lunch, when two members of the party had to leave for home, we motored south to the new Hauxley Northumberland Wildlife Trust Reserve where four more members were awaiting our arrival. The reserve consists of a number of ponds created from the remains of an extensive opencast coal mining operation. It occupies an ideal situation for both sea birds and land based species, freshwater as well as brackish water lovers and also the passage migrants to and fro across the North Sea.

Birds seen during the outing comprised a total of 54 species:- blackbird, blackcap, reed bunting, chaffinch, coot, crow, curlew, collared dove, tufted duck, dunlin, dunnock, eider duck, brent goose, bartail godwit, golden-eye duck, black-headed gull, common gull, herring gull, grey heron, jackdaw, kestrel, brown linnnet, magpie, moorhen, mallard, oyster catcher, pheasant, wood pigeon, pintail duck, meadow pipper, grey plover, pochard, redstart, redwing, ringed plover, robin, rook, sanderling, scaup duck, skylark, common snipe, house sparrow, starling, stonechat, whinchat, mute swan, teal, song thrush, blue-tit, great-tit, marsh-tit, turnstone, wheatear.

The 21st Heslop Harrison Memorial Lecture was held in Middlesbrough Scientific Institute on 29th October 1988 by kind invitation of the Cleveland Naturalists' Field Club.

About 50 members and associates were present and after a short business meeting Mr. I.C. Lawrence spoke on his researches into the vegetation of Cleveland carried out as a preparation to the publication of a comprehensive "Flora of Cleveland".

Slides showing maps of the area, particularly those emphasising vegetation types like woodland, grassland, salt marsh, fresh water, and industrial areas were used to set the scene. Then each habitat was taken in turn and some of the more interesting plants or those with unusual patterns of distribution were shown on the screen. In woodland for example ramsons, *Allium ursinum* is found growing in the south eastern woods but not in others. The peculiarities of distribution like this could often be correlated with the changing geological strata across the county, except where industry had altered the expected pattern by disturbance or the dumping of alien substances like ballast from ships on the surface of the natural soils. The destruction of certain habitats like the South Teesmouth marshes and Billingham Bottoms were also discussed and in some cases their botanical history elaborated.

During tea, kindly provided by the ladies of the Field Club, further discussion was continued by referring to a preliminary mock-up of the flora eventually to be published

Finally, thanks for the invitation to the Middlesbrough Club and for the splendid facilities and tea provided, were ably spoken by Mr. Derek Pickering on behalf of the N.N.U.

NOTES AND RECORDS

NOTES

A butterfly tragedy. Whilst walking my dog, on August 28th 1988, along a grass verge which was slightly overgrown I noticed a small white butterfly gently rising and falling over the ground. After a while the butterfly remained grounded. On closer inspection a wasp was seen on the body of the butterfly. It was busily biting off the butterfly's wings one by one. When it had finished it carefully arranged the butterfly's dark body and flew off carrying its quarry.

Jayson J. Lowery.

A visit to Holy Island. October 16th 1988 was a misty day with occasional rain, so we expected a good day, with hopefully some rare birds on the ground. As it turned out, the mist was not thick enough but some good species were located in spite of this.

On the causeway we saw a peregrine falcon sitting on a rock and we had good views of a red breasted merganser only a few metres away. On our way up the long hedge past the lake a twite was calling as it flew over our heads and further along the track there were reed buntings and a lapland bunting. On the beach the more interesting sightings were two bar-tailed godwits and a grey plover while offshore we could see a flock of over 30 shags to the north and an arctic skua wheeling about, no doubt waiting for an unsuspecting gull with a catch of fish. Heading back to the village down the other long hedge a group of people brought our attention to a wheatear and a black redstart on the fence some 30m away. Further along the hedge a short-eared owl was quartering the fields. Other birds seen were brambling, many goldcrests, 2 redstarts, Bewick swans, snipe, little grebes and grey heron, besides the large flocks of thrushes, redwings and fieldfares flying in from the sea. Many of these flocks were high and did not land on the island but carried straight on to the mainland.

On the way home we called in at Budle Bay where we saw over 200 shelduck, grey heron, golden plover, knot and greenshank. From there we drove to Hauxley where we walked along the beach to identify some waders which were feeding on small invertebrates in the washed up line of sea wrack. Here we put up a firecrest which flew into the marram grass where it continued to feed while we watched it for about twenty minutes with some excellent views from 4 or 5 metres. On the beach we had seen a black-tailed godwit.

From Hauxley we went inland to the lake at Togston. Here we patiently searched amongst over 200 pochard for the red-crested pochard which had been reported there. In the failing light, near the east side, we picked out a bird which may have been the red-crested pochard but it could also have been a female mandarin duck which had escaped from somewhere.

R. Harrison & K. Reiling

The Consett/Washington railway track. Would any individual, group or club, with any information on the flora and fauna of the old railway line between Consett and Washington Junction, and the old Cox Green branch line between Penshaw and Sunderland, please let me have copies of the records, as we are currently making the track bed into a cycle track, footpath and separate horse track, the whole arrangement to be a conservation area along its full length.

British Rail have announced the closure of the line over the Victoria viaduct in Washington. We also need help or suggestions to keep the viaduct as part of the walk. The viaduct holds about 30 pairs of jackdaws and until last year a pair of barn owls regularly bred there successfully until British Rail put up scaffolding to carry out repairs. They have not returned this year.

To help promote the path we need wildlife information badly and everything will be greatly appreciated. Please send notes to the Editor who will send it on to the group concerned or directly to R. Harrison, 34 Longacre, Fatfield, Washington. (Tel: 4178495).

Some unusual plant records. I found 2 good specimens of the Broad-leaved Helleborine on the side of the drive to West Hall Cottage near Witton Gilbert in August and a mullein plant which I think was the dark mullein, *Verbascum nigrum*, on the banks of the Derwent near Shotley Bridge.

Miss Jenny Wade.

Two rare Moths. On 5th July 1988 I found a freshly emerged female Lunar Hornet Moth *Sesia bembecyrtomis*, on the trunk of an old poplar tree in a Whitley Bay garden. This is only the second confirmed record of an adult being found in Northumberland for forty years. The tree appears to be the home of two separate colonies of this moth as there were some empty pupal cases protruding from the trunk and also signs of larval frass. As this species has a two year life cycle, adults and larvae not usually present at the same time. Since the moth is one of the Red Data species (which means that it is fully protected by law), the tree, which is privately owned, is now the subject of a tree preservation order.

On 10th September I found a perfect specimen of the Vestal *Rhodometra sacraria*, in my kitchen in Monkseaton. This moth is a rare immigrant from Southern Europe and northern Africa and appears in varying numbers most years.

Mrs. Jackie Beedle.

The Nepticulidae. The Nepticulidae is a rather large group of moths, which are the smallest known About one hundred species live in the British Isles, but because of their size they are very much under-recorded. All are characterised by having larvae which form gallery mines in the leaves and stems of various plants. Many members will have seen examples that have been exhibited from time to time at our indoor meetings. When the leaves are fresh the galleries are plainly visible on the upperside of the leaves, in the green parts of stems such as broom or gorse and in the wings of samara fruits such as sycamore. This habit has proved to be an extremely useful tool in identification as most species are plant specific and the mines themselves are of characteristic shapes.

Elsewhere in this journal is an account of the discovery of a new English species during one of our field meetings. It is apparent that little is known about the distribution of the Nepticulidae in the north east. The best time to see the mines and collect the leaves that have been mined is in the autumn when the mines will have attained their maximum size. We would be most grateful for specimen leaves from any part of the area between Tees and Tweed. Such specimens should be carefully packed before posting, first between two layers of thin polythene and then padded on each side with soft paper tissue. Data on host plant, date of collection and map Grid Reference are also essential. Alternatively the Editor would be grateful if they were left at the Poplars, Chester-le-Street so saving postage and the chore of careful packing.

T.C.D.

RECORDS CECIDIA - PLANT GALLS

<i>Urocystis anemones</i> (Smut fungus) on <i>Ranunculus repens</i> Near Briarfield.	66
<i>Cryptomyzus ribis</i> (Aphid) on <i>Ribes</i> Found in the garden, 57 Castleton Road, Hartlepool.	66
<i>Agrobacterium tumefaciens</i> (Bacterium) on the tea rose 'American Pillar' In the garden in Elwick Road.	66
<i>Blenocampa pusilla</i> (Sawfly) on rose Common.	66
<i>Wachtliella rosarum</i> (Midge) on rose. Common, Hartlepool.	66
<i>Diplolepis eglanterae</i> (Wasp) on rose. Hart Warren	66
<i>Diplolepis rosae</i> (Wasp) Bedeguar or Robin's Pin Cushion on rose Hart Station.	66
<i>Diastrophus rubi</i> (Wasp) on Bramble Seen only on one plant but about 30 galls. Hart Station.	66
<i>Pontania proxima</i> (Sawfly) on <i>Salix</i> Common.	66
<i>Pontania vesicator</i> (Sawfly) on <i>Salix</i> Hart railway line.	66
<i>Pontania viminalis</i> (Sawfly) on <i>Salix</i> Hart Station and railway line.	66
<i>Eriophyes tetanothorax</i> (Mite) on <i>Salix</i> Hart Station and Railway line.	66

<i>Dasyneura marginentorquens</i> (Midge) on <i>Salix</i> Burn Valley, Hartlepool and Hart railway line.	66
<i>Rhabdophaga rosaria</i> (Midge) on <i>Salix</i> Near Greatham Beck.	66
<i>Epirimerus trilobus</i> (Mite) on Elder Southbrooke Farm, Hartlepool.	66
<i>Witches Broom</i> (<i>Bacterium?</i>) on Elder Three on one old plant in hawthorn hedge in Brinkburn school field, Catcote Road, Hartlepool.	66
<i>Phragmidium sanguisorbae</i> (Rust fungus) on Great Burnet Hart Warren.	66
<i>Puccinia lagenophorae</i> (Rust fungus) on <i>Senecio vulgaris</i> Common, Hartlepool.	66
<i>Contarinia jacobaeae</i> (Midge) on <i>Senecio</i> Southbrooke Farm; west of Burn Valley; Hart Station; with a rust fungus as well at Seaton Lane, South Docks, Hartlepool.	66
<i>Cystiphora sonchi</i> (Midge) on sowthistle Claxton quarry; Seaton Carew; railway line near Steetly works.	66
<i>Urocystis sorosporioides</i> (Smut fungus) on meadow rue Hart Warren.	66
<i>Cotarinia tiliarum</i> (Midge) on lime Burn Valley, Hartlepool.	66
<i>Eriophyes exilis</i> (Mite) on lime Stranton; Rossmere Park; West Park, Hartlepool.	66
<i>Eriophyes leiosoma</i> (Mite) on lime Rossmere Park; Burn Valley; Greta Avenue, Hartlepool.	66
<i>Eriophyes lateannulatus</i> (Mite) on small-leaved lime, <i>Tilia cordata</i> Brinkburn; Ward Jackson Park, Hartlepool.	66
<i>Phytopus tetraichus</i> (Mite) on <i>Tilia cordata</i> Rossmere Park, Hartlepool.	66
<i>Dasyneura trifolii</i> (Midge) on clover Summerhill, Hartlepool.	66
<i>Uromyces trifolii</i> (Rust fungus) on clover Summerhill; Brinkburn, Hartlepool.	66
<i>Mycioplasma</i> (Bacterium) on clover flowers Summerhill area; Brinkburn; Belle Vue Way, Hartlepool.	66
<i>Puccinia poarum</i> (Rust fungus) on coltsfoot Common.	66
<i>Schyoneura lanuginosa</i> (Aphis) on elm, <i>Vimus procera</i> On one tree in Valley Drive, Hartlepool.	66
<i>Eriosoma ulmi</i> (Aphis) on wych elm, <i>Vimus glabra</i> Common.	66
<i>Tetraneura ulmi</i> (Aphis) on wych elm, <i>Ulmus glabra</i> Two seen on the same plant, Elwick Road, Hartlepool.	66
<i>Dasyneura urticae</i> (Midge) on stinging nettle Common.	66
<i>Jaapiella veronicae</i> (Midge) on <i>Veronica chamaedrys</i> Common.	66
<i>Ceruraphis eriophori</i> (Aphis) on <i>Viburnum</i> 9 Egerton Road, Rossmere Park, Hartlepool.	66
<i>Albugo</i> (Fungus) on <i>Capsella bursa-pastoris</i> Common.	66
<i>Chirosa parvicomis</i> (Midge) on male fern, <i>Dryopteris felix-mas</i> Hart Station railway line.	66
<i>Corynebacterium fascians</i> on purple toadflax Hylton Road; Coatham Drive, Hartlepool.	66

S. Robbins (1987)

LEPIDOPTERA - BUTTERFLIES AND MOTHS	
<i>Acronicta alni</i> Linn. Alder Moth	66

A single larva found in the garden at 9 Winalot Avenue, Grangetown, Sunderland was brought to the Sunderland Museum where it was identified by A. Coles.

A. Coles

The following Microlepidoptera are new to Castle Eden Dene, all from the Rothamstead operated by C. Gardener, species determined by T.C. Dunn/E.S. Bradford 1987. All records in VC66.

PYRALIDAE

Agriphila straminea D. & S.
Scoparia subfusca Haw.
Scoparia pyralella D. & S.

LITHOCOLLETINAE

Phyllonorycter nicelli Stt.
Phyllonorycter sorbi Frey
Phyllonorycter spinolella Dup.

PHALONIIDAE

Cochylis atricapitana Steph.

TISCHERIIDAE

Tischeria marginata Haw.
Tischeria ekebladella Bjerk.

TORTRICIDAE

Aphelia unitana Hb.

NEPTICULIDAE

Stigmella luteella Stt.
Ectodaemia albifasciella Hein

OLETHREUTIDAE

Dicrostampha acuminatana Zell

GELECHIIDAE

Rhyncopacha mouffetella Linn.
Isophrictis striatella D. & S.
Garyocolum viscariaella Stt.
Brvotropha terrella D. & S.
Metzneria metzneriella Stt.
Mirificanna mulinella lell.
Brachmia rufescens Haw.

TINEIDAE

Tinea trinotella Thunb.

COSMOPTERYGIDAE

Spuleria hellerella Dup.

OECOPHORIDAE

Hofmannophila pseudospratella Stt.

ELACHISTIDAE

Elachista pulchella Haw.

YPONOMEUTIDAE

Argyresthia albistria Haw.
Argyresthia laevigatella H.-S.

COLEOPHORIDAE

Coleophora benanderi Kanerva, det. E.C. Pelham-Clinton.
Coleophora coracipennella Hb.
Coleophora cerasivorella Pack.
Coleophora albicosta Haw.
Coleophora gryphipennella Hb.
Ooleophore spissicornis Haw.
Coleophora solitariella lell.

C. Gardener

ORTHOPTERA - GRASSHOPPERS, CRICKETS, COCKROACHES

Anacridium aegyptium Egyptian Grasshopper

Picked up at the Granada Service Station, Washington and brought in to Sunderland Museum. From a lorry with Egyptian produce?

66

A. Coles