

# Dundee Naturalists' Society

Instituted 1874

## annual bulletin

1978-79

No 3

# DUNDEE NATURALISTS' SOCIETY

Annual Bulletin 1978-79

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## EDITORIAL

Another successful year for the society has gone by with this the third bulletin to be published. It seems like only yesterday when a good turnout to a winter meeting meant 40-50 people; now as you know, these numbers can be doubled at every meeting. This continuing increase of interest is, to my mind, a reflection of the community at large becoming more aware of the areas of natural history interest on their own doorstep. These areas are unfortunately becoming fewer and fewer, the dune slack expanse at Barry Buddon being a prime example. It would be a sad day indeed if the beautiful Little Gull was driven from the mouth of the Dighty or the masses of Orchids, Gentians and delicate Parnassus flowers were all destroyed for the sake of short term gain.

Let us all hope that these areas can be saved and that the planners and developers can be persuaded to understand that these areas, once destroyed, can never be replaced.

In a rather less pessimistic vein, it is worth recording that the surveys carried out during the last few years, organised so ably by Mr Jim Cook, have had a much wider audience than was anticipated. Mr Cook was asked to write an article, describing the Lichen Survey undertaken by society members, for inclusion in the Scottish Wildlife Trust journal. This is a great boost for the society and thanks must go to Mr Cook whose enthusiasm throughout never seems to falter. It is anticipated that the Lichen Survey may be extended over a wider area later this year. Anyone interested in this type of recording, or any other, should contact either Mr Cook or myself for further details.

## SUMMER OUTINGS 1978

### 22 April - Geology Outing to Fife

Dr John McManus took us on a whistle stop tour of Fife, pointing out, as we went, the various geological formations to be seen. These included coal measures exposed by the sea at St Andrews and the sandstone beds laid down millions of years ago at Dura Den. The highlight, however, especially for the youngsters present was the searching for fossils in the limestone at Cults Quarry.

### 6 May - Loch of Lowes and Hermitage Dunkeld

These two places are always a popular outing and the fine spring weather made doubly sure this time. The nature centre and hides at the Loch of the Lowes was our venue before lunch with the grass at the car park making a great place for our picnic. The wooded walk to the Hermitage was the second area to be explored with lots of spring flowers and woodland birds to be seen. The first of the plant species lists was made out during this outing with a surprising number being recorded for the time of year.

### 19-21 May - Spring Weekend - Lochgilphead

As usual luck was with us weatherwise for our spring weekend outing. This year the Lochgilphead area was our chosen venue. Richard and Janet Brinklow, who had obviously put in a lot of work beforehand, had an excellent programme arranged for us. The early risers who took morning strolls along the sea shore and the banks of the Crinan canal were rewarded with the sights and sounds of many bird species. These included Heron, Cuckoo and the rare Grasshopper Warbler, the latter sounds uncannily like a free wheeling bicycle. The Saturday outing took us down the canal to Crinan and from there the more energetic members of the society walked back to the starting place

via the wooded hill paths, while others enjoyed a more leisurely walk along the banks of the canal which was covered with masses of Early Purple Orchids, Primroses and other spring flowers.

The Sunday outing was to Inverary Castle, where most of the party climbed the hill overlooking the extensive grounds where breathtaking views of the castle and Loch Fyne were enjoyed. Others in the party found time to visit the castle itself and learn how the extensively fire damaged building was being restored.

### 23 May - St Andrews University Botanic Gardens

The evening sunshine following an afternoon of rain, brought out the aromatic scents of the St Andrews Botanic Gardens especially among the collection of exotic conifers. Members were very impressed by the rock garden area and delighted to see our badge emblem, dwarf cornel, in flower amongst other interesting plants in the peat garden. The evening ended with a tour through the glasshouses with their extensive collection of plants from the warmer areas of the world.

### 3 June - Glen Muick

Two bus loads of society members set off, in beautiful sunshine, for the shores of Loch Muick, dominated as it is by mighty Lochnagar. The outing took the form of the 8 mile walk around the Loch where the most popular lunch stop was at the Royal Hunting Lodge at Glas-alt-sheil. Some of the more energetic members took this opportunity for a quick dash to the top of Lochnagar, while others took the more leisurely route round the loch. The drama of a mountain rescue alert plus a first class buffet tea at Aboyne made this one of the most memorable summer outings.

### 6 June - Panmure Estate

Panmure Estate was the venue for the second of our evening outings. Armed with a map and potted history of the Estate, prepared by Dorothy Fyffe and Violet Stott, we traversed part of the Estate starting off through woodland with its typical ground cover of Woodrush, Violets, Pink Purslane, Wild Garlic etc, made our way up to Panmure Monument situated on the highest point of Cambustone Hill, then came out into open driveways with wide grass verges. Unfortunately, from the naturalist's point of view, some of these verges had recently been cut, but there was still a good variety of plants to be found, notably the Common Twayblade - Listera ovata.

We chose a perfect summer's evening for this outing, and from our elevated position enjoyed lovely views over the Tay Estuary towards Tentsmuir as we made our way to the East Gate.

### 17 June - Aberlady Bay

The Nature Reserve at Aberlady Bay was the rendezvous for our joint meeting with members of the Edinburgh Natural History Society, and we couldn't have had a better day for our visit - sunshine all the way. The excellent leaders from both Societies guided us round the variety of habitats to be found there - seashore, sand-dune, salt-marsh and freshwater pond. On the seashore we found the uncommon Queen Scallop shells and saw three species of tern, and eiderduck with their young. For the botanist Aberlady is a real paradise. We identified 150 different plant species, and of especial interest were the Pirri-pirri Bur (a native of Australia and New Zealand), Houndstongue, three species of Orchid and masses of Viper's Bugloss; some of us were lucky enough to have the Greater Bladderwort pointed out to us.

A good turnout of members from both Dundee and Edinburgh made this outing a great success.

### 1 July - Ben Lomond

Two bus loads of Dundee Naturalists set off at 8 am on a rather damp morning. The mist was well down when we arrived. However by the afternoon those who climbed - about 20 or more reached the top - were rewarded with superb views as the sun broke through. Many alpine plants were found including the lovely Myosotis alpestris, the reticulate willow, the least willow, alpine meadow rue and many others. Cameras clicked busily and a good day was had by all.

### 26 August - Elliot to Easthaven

This walk began at the picturesque waterfall and bridge at the village of Arbirlot (formerly Aber Elliot), and was led by Mrs V Stott. The nature trail between here and the shore encompassed an interesting array of waterside, woodland and marsh plants, then woody shrubs along the final stretch of the disused Carmyllie Quarry railway. The busy Dundee/Arbroath road and the main railway had to be crossed. Sticky groundsel (*Senecio viscosus*) was hurriedly noted between the rails. The lunch break on the shore was followed by an inspection of the colonisers of the lagoons, sand-dunes and shoreline. This outing yielded a large plant list with some of the most spectacular plants in terms of size. Notable were the Great Water Dock, *Rumex hydrolapathum* and the brilliant long borders of Perennial Sow Thistle *Sonchus arvensis*.

### 16 September - Tayfield, Newport-On-Tay

A party of about 40 members was welcomed to Tayfield, Newport, by Dr and Mrs John Berry who conducted us on a tour of their most attractive grounds. There was something to interest everybody from a fine cut-leaved beech tree to an unusual duckweed for the botanists; andesite boulders from the Tay Road Bridge cutting for the geologists; and a wonderful collection of wildfowl for the ornithologists to identify. Dr Berry explained that in the case of the geese this was made more difficult owing to the exploits of a male snow goose with catholic tastes who has left his mark in the younger generations of the other species of geese.

### 14 October - Fungus and Lichen Foray

Although the season for fungi was all but over, the walk, led by Mr R Brinklow, round the nature trail of Campdown Park, produced a surprisingly large number of species. As well as identifying for us the many fungi we collected, Mr Brinklow pointed out many species of lichen explaining, in detail, their makeup and the indications they give to the observer as to the cleanliness of the surrounding air. This last aspect tied in nicely with the Pollution/Lichen Survey organised by Mr Jim Cook.

### WINTER PROGRAMME 1978-79

#### 10 October - From Manas to the Ghana: on foot and elephant in North Indian Game Reserves — Dr Richard W Byrne

This the first of the winter meetings, saw another record attendance with 150 members present, the highest for an opening meeting. We all enjoyed the talk and slides from Dr Byrne as he transported us on a tour of the nature reserves of northern India and Nepal. His slides were all of superb quality but the photographs of the One Horned Indian Rhinosorus were perhaps the favourite of the evening. Should anyone be interest, Dr Byrne is to be leading a study tour to these Indian nature reserves at Christmas. Details are available from the Secretary.

#### 24 October - Fireworks of the Sky — Mr Harry Ford

Mr Ford, who is fast becoming our most popular speaker, again delighted his audience with his talk on Comets and Shooting Stars. Judging by the number of questions asked at the end of the meeting, there is more than a small interest in Astronomy within our Society.

Further information on Comets etc, or, of course, any other branch of Astronomy can be had from Mr Ford who is Curator of the Mills Observatory, Balgay Hill.

#### 14 November - Birds across the Border — T M Clegg

Joint meeting with the Society and the Dundee Group RSPB

Mike Clegg is no stranger to these parts and since moving back to his native Yorkshire to take up an appointment as Director of the Yorkshire Museum he has maintained an interest in this area, visiting whenever the occasion presents itself. Many members were familiar with his lively presentation; to others he may have been known only by his wildlife articles in the local press.

Neither was disappointed; Mike's talk comparing bird life in Yorkshire and this area was as expected lively, factual and crammed with humorous anecdotes. He delighted the large turnout of both Society and RSPB members with some excellent slides, reliving each sighting with his usual enthusiasm.

#### 28 November - Life in and Around the Shores of Fife — Professor M S Laverack

We are very fortunate in having, literally on our doorsteps, the largest relatively unpolluted Estuary in Europe. Professor Laverack of St Andrews University, enthralled the meeting with an encyclopaedic account of the marine wildlife to be found on the shores and in the water between South Angus and Southern Fife. The Gatty Marine Laboratory has had a long history of investigation of the marine fauna of our local waters and this tradition still continues. The variety of life recorded is enormous, from multicoloured sea slugs and sea anemones to enormously long seashore worms and fiercely predatory ragworms.

#### 12 December - A Habitat within the City — Mr Alf Robertson

It might have been thought that the title of this talk might have imposed severe limits on the wildlife interest. This was not so. The ever-popular local figure and long-serving member of the Society, Alf Robertson from Camperdown Park, gave a lively and well-illustrated talk which revealed just what a wealth of different animals and plants there are to be seen in and around Dundee.

Alf completed his talk by telling us about an exciting project with which he is closely involved — the development of Trottick Ponds as an interpretive site. These old mill ponds are being converted from a near derelict state to a refuge for wildlife, eventually with educational facilities for visiting school parties.

#### 9 January 1979 — Members Night

Members Night was the ever popular night when Society members showed slides of holidays, outings and hobbies. The places visited were from Yugoslavia to the French Alps, Bettyhill to Arran and many more. The most unusual was a sequence of photographs of a Hawkmoth's development from Caterpillar to adult moth taken at Ceres. The cold weather inspired one member to photograph the frost on her bedroom window which had created beautiful and intricate patterns highlighted by the morning sun.

#### 23 January - Flowers of the Scottish Mountains — Mr J R Aitken

Despite a wintry evening, a large audience was present to enjoy Mr J Aitken's talk on the above. He showed slides of many of Scotland's rarities which often appeared to have been photographed with considerable risk to life and limb. A memorable part of the evening consisted of sets of slides taken from the same spot but at different seasons of the year. The contrast was heightened by the fade in/fade out projection technique which was most effective, the sparkling snows of winter changing to the fresh green of spring and then the russet tones of autumn.

#### 13 February - The Living Forest — Don and Bridget MacCaskill

At this meeting, jointly sponsored by the Naturalists' Society and the local branch of the Scottish Wildlife Trust, a large crowd was treated to a unique collection of slides depicting animals in their natural habitat in local forest areas. The animals were undisturbed and often actively engaged in their activities and always captured in an artistic way. Mr MacCaskill's skilled and often original observations about his subjects were enhanced by his photographic skills. He was aided in his presentation by his wife and our attention was drawn to the differences they had noticed in the habits of red deer living within forested areas compared with those on open hills. Magnificent pictures of birds of prey were linked with pictures and comments about their prey and always ecological inter-relationships were emphasised. Mr MacCaskill is a professional forester who believes in harmony between forests and their inhabitants. His pictures and comments were an inspiration to all aspiring naturalists.

## 27 February - Scotland Quakes - Mr George A Metcalfe

This most interesting talk by Mr Metcalfe encompassed the worldwide problem of earthquakes including, to most peoples amazement, the earth tremors which also occur in Scotland. Mr Metcalfe went on to explain in detail the many weird and wonderful ways earthquakes were thought to have occurred long before the scientific explanations of today were known.

Thanks to meticulous records kept by a group working in the Comrie district in the 19th century, much of our present understanding of earthquakes is based on these recordings. In fact the first primitive seismograph was invented by one of that group back in 1840.

## 13 March - Travels with a Canoe - Mr Jim Cook

A folding double canoe is an ideal vehicle for exploration. Its shallow draught allows movement through shallow shoal-infested waters, its relatively large size confers greater seaworthiness with ample storage space and it can be folded up for easy transport. The film by Mr A Campbell illustrated these points well and provided, for us, an unusual introduction to the slide lecture by Mr Cook. For the rest of the evening we were regaled with tales of travels to the far Hebrides, to the the windy isle, Harris and Lewis, to Loch Ness and nearer to home on the east coast. Illustrations of the varied animal and plant life, unusual weather conditions and scenery enlivened the talk.

## SEASHELLS ON THE SEASHORE

Colin McLeod

The coastline of Fife and Angus is very varied and relatively unspoilt, providing a wide range of habitats for marine animals. Molluscs which like sheltered sandy bays, mudflats, exposed rocky coasts or saltmarsh all find homes locally.

This means our shores have around sixty quite common larger shells, perhaps one hundred if you sift through the sands of Crail or St Andrews with a magnifying glass or search the alimentary tracts of fish.

This seems a rather poor species total compared with over six hundred marine molluscs on the British list. But few beaches can equal Monifieth's masses of dead shells, even if they do include just a relatively few common types. You can build up a sizeable collection simply by picking up empty shells from the strandline if you know where to look.

Starting in the south of our area, Largo Bay is a good place to hunt. This is almost the only place round here where Dentalium entalis, the Common Tusk shell, is found. Empty shells occur at low tide mark.

Just next door is Shell Bay, a fine place to look, but the shells which gave this attractive bay its name seem fewer now, perhaps due to pollution. Cowries can still be found in the shingle, along with the tiny Thick-lipped Whelk Nassa incrassata, and mussels thrive hereabout, Auger shells Turritella communis are also common.

From Elie to Crail, rocky shores punctuated by sandy coves support the usual range of rocky shore creatures, such as Common Limpets Patella vulgata, all five species of Winkle Littorina, Dog Whelk Nucella lapillus and Mussels. Fife Ness, jutting into the North Sea, gathers some rarer shells from deep water. The coast south-east of St Andrews displays the same animals living in rock pools.

St Andrews West sands to Tentsmuir point is a good place for bivalves, especially after storms, when live molluscs are swept up from offshore. Large Pod Razors Ensis siliqua, Otter shells Lutraria lutraria, and Prickly Cockles Acanthocardia echinata live in the clean sand, while the Common Cockle Cerastoderma edule thrives in the muddier Eden estuary. Donax vittatus, the Banded Wedge, and the brightly coloured Thin Tellin Tellina tenuis, brighten the shoreline. Another attractive shell is the Striped Venus Venus striatula, which is very common at St Andrews point, as is the Rayed Trough shell Mactra coralina.

The mudflats off Tayport hold more burrowing Cockles and countless millions of Hydrobia, the tiny Mud Snails, food for many waders and ducks. The mussel beds support a large proportion of the world's wintering Eiders.

Monifieth's wealth of shells has already been mentioned. Most common are Cockles and the Trough shells Spisula solida and S. elliptica, but Blunt Gapers and the Carpet Shells are also abundant. The Baltic Tellin Macoma balthica also likes the bay.

This is the best place for Pelican's Feet Apporhais pes-pellicani. Only the adults have the "wing"; for immature shells, look in the Eden estuary. Some nice shells are washed up in Carnoustie Bay. The rocky shore from Westhaven towards Arbroath holds many rock pools but not much new in the way of shells. It is a good beach for Grey Tops Gibbula cineraria, Chitons Lepidochitona cinereus and sometimes Common Cowries Trivia arctica. Many pebbles are riddled with the borings of Hiatella arctica, not Piddocks as is often thought. You can occasionally find White Piddocks Barnea candida at St Andrews, or Largo Bay. The shells of the two-year-old variety of the Blue-Rayed Limpet Patina pellucida are also common at Easthaven, but the one-year-old shells are fragile and are less often found.

Our largest local shells are the Pod Razors, often over 20 cms long, with the Cyprina islandica and Otter Shells coming a close second. Another big one is the Great Scallop Pecten maximus found in the deep waters of the Forth, but you can cheat and pick them up near the seafood factory at Balmerino. The delicate little Variegated Scallop is occasionally cast up on our beaches.

Our rarest non-microscopic shell is surely the Tusk Shell, but other odd things may be cast up after storms, such as a Painted Top Calliostoma zizyphinum at Kinshaldy, Tentsmuir, or a Canoe Shell Tricla lignaria in the Eden estuary.

As well as providing food for birds and fish, shellfish also fall prey to other molluscs. Commonest predator is the Dog Whelk, which feeds on Barnacles, Mussels and sometimes Limpets. The colour variations are supposed to be due to eating the different creatures. They bore through the victims' shells or force their way into them.

The Necklace Shell Natica catena of sandy shores also bores into bivalves. Fortunately for other creatures, the big Common Whelk Buccinum undatum and the Giant Whelk Neptunia antiqua are basically scavengers, often attracted to baited lobster pots. Cowries eat sea squirts, while the Limpets and Winkles are herbivores. Edible Winkles (wulks) do not eat sewage as is sometimes thought; their presence on the sewer outfalls is explained by the rich plant growth there. All bivalves and some gastropods feed by filtering food from their surroundings.

The gourmet (human) beachcomber might like to try: Edible Cockles, Common Mussels, Gapers, Otter Shells, Edible Winkles, or Common Whelks - for recipes read Richard Maebly's "Food for Free" and Tony Soper's "Shell Guide to Beachcombing". Few of these shellfish are eaten today, but archaeologists know they were a major item in the diet of our ancestors. Beware, however, of shells from polluted waters.

## BACKYARD BIRDWATCHING

Joan L Thomson

During this winter's Arctic weather, a lady from Fowlis Wester had a letter in the "Courier" claiming she had six species of birds coming to her garden. It occurred to me that I saw many more than that in my modest town garden in the Maryfield district of Dundee.

Throughout the year I can guarantee seeing blackbirds, house sparrows, dunnocks, thrushes, and starlings. These are supplemented in the winter months by robins, chaffinches, greenfinches, blue tits, great tits, coal tits, and the occasional bold black-headed gull, herring gull or carrion crow which swoops down for a piece of chicken skin. I provided fresh water daily (in which the birds insisted on bathing even on the bitterest day) and kitchen scraps plus some mixed seeds.

Warmer weather brings wrens to hop along the stone wall, linnets to trill their lovely song and bullfinches to destroy the apple blossom. The wood pigeons create havoc among the spring greens, but the collared dove just seems to peck on the ground for seeds. For a few days most years we are delighted by a pair or two of willow warblers flitting amongst the foliage. Although common in the parks, the pied wagtail is a rare visitor to my lawn.

If I include birds seen in my 'airspace', house-martins, swallows and swifts are an entertainment in the late summer as they rush and dart overhead, often it seems as if in play, and a kestrel is a frequent sight hovering over waste ground nearby. Autumn brings the skeins of geese passing on their way to the river, and I've seen a heron once and mute swans twice.

That makes a total of 28 species seen from my own backyard and that's not counting an escaped budgie.

### THE UNEXPECTED NATURE

Mrs E McLure

"Keep your eyes open" might be a good motto for a hopeful naturalist. You can go specially to see something and be disappointed - perhaps a late or an early season and the flower is past or not yet in bloom. On the other hand you may see most interesting sights quite unexpectedly.

Some years ago on an early April evening, with twilight approaching, I saw a dog fox and a vixen dancing on their hind legs, boxing and playing. They were interrupted by a third fox which tried to drive off one fox, I took the newcomer to be another dog fox. For quite a time there was doubt but eventually the newcomer was chased off into the trees and bushes of Monifieth Lane. We watched for about half an hour till deepening twilight made it too difficult to see.

Once I had the good fortune to look over a little bridge and see, crossing the stream on a log, a line of weasels, perhaps nine in all. They were nose to tail and moved as one. I wondered if the one behind had a grip of the tail of the one in front. But in a second they were gone.

The best view I have had of a dabchick was on the lower Stobsmuir pond one August evening. The bird fished very successfully, it seemed, and was quite unconcerned by my presence. In Glen Prosen I saw on the 1 April, about a dozen hares dancing in a ring. Perhaps it was their farewell fling till another March.

Look for the possibilities in every situation might be another maxim. There was the occasion when a group of the Dundee Naturalists were looking for spring flowers in a wood; one member slipped down a rather steep slope towards the river. Cries of joy followed, the first toothwort was uncovered.

Good viewing in 1979.

### A BOTANIST IN THE WELLGATE

Mrs Margaret Phillip

No, not a species list of the potted plants decorating the precinct, but a quick excursion to our wonderful new library - so comfortable, so spacious.

Talking about species lists, do you know when the first record of plant-collecting dates back to? This was a bit before Brian Allan started our lists, but was it 1450 BC; 1117 AD; or 1609?\*

All the flower identification books are available, so they can be studied at leisure before deciding which one to buy. A book to help with holiday planning is "Finding Wild Flowers" by R S R Fitter. This combines a simplified key for British Flowering plants, followed by a regional guide to the interesting plants of the British Isles. A newer 'where to find it book' is by his son Alistair Fitter. The "Atlas of the Wild Flowers of Britain and Northern Europe" contains nearly 2,000 maps showing

the distribution of different trees, shrubs and flowering plants.

Self-sufficiency is the 'in thing' just now, so "Food for Free" and "Plants with a Purpose" both by Richard Mabey have lots of ideas. Not all seem very practical - would we really like to start polishing furniture with a hazel-nut or drying and grinding the roots of silverweed to make a substitute for flour? - but they make interesting reading. When Russia's supplies of true rubber were cut off during the 2nd World War, their plant scientists began exploring the possibilities of producing dandelion rubber. An Asian dandelion, Taraxacum kok saghyz contained up to 10% latex in its roots, and several million acres were sown in the Ukraine. We are not told how successful this was.

Two other books by Richard Mabey are "The Roadside Wildlife Book", of particular interest because of the verge survey being done locally by the Scottish Wildlife Trust and the Naturalists, and "The Unofficial Countryside". This is a hopeful book about nature's ability to co-exist alongside man, even amongst his grimmest eyesores.

The more one knows about plants, the more wonderful they seem, and "Plant and Planet" by Anthony Huxley, is a book written to 'awaken interest and create wonder' in the many extraordinary ways plants function. He describes their birth and growth and how they relate to each other, to animals and ourselves, and gives a powerful impression of calculated order in the plant world - a world perhaps being taken too much for granted. Not many pictures in this book, for these we move on to the large book section, where we can indulge ourselves in the glossy 'coffee-table' books. We can travel the world looking at flowers - mountains, deserts and grasslands - all are here.

"The World of Kew" by Ronald King, first gives a brief history of Kew Gardens, then takes readers on a tour of the plants of the world assembled there. Some of the most exotic and unusual species known to man are described, and many of the illustrations are from botanical works of past centuries.

The biggest and glossiest I have read yet is "The Power of Plants" by Brendan Lehane. This is a beautiful book and so easy to read. I will end with a few quotes to try to convey the spirit of the book.

"For plants have dogged and dominated us at every turn. They have fed us, clothed us, provided our home and heat. They have caused some of the brightest and some of the darkest chapters of our history. They have set us on quests that opened up the world, sparked war, migration, enslavement, created the wealth and dominion of some nations, and the poverty and subjection of others. Only plants can look into the blinding sun - and transform it in myriad ways to make this planet hospitable to life ... from the power of plants to sustain us we cannot break free."

\*The first botanist to leave a record was Pharaoh Tuthmosis III of Egypt who, in 1450 BC, invaded Syria and brought back 275 different plants, all of which are depicted in bas-relief on one of the obelisks in the temple at Karnak (Guinness Book of Plant Facts and Feats.).

## DIGHTY BURN SURVEY SUMMER 1978

J Cook

It is Society policy to encourage active field work involving the participation of as many members as possible. With this in mind the Council agreed that one of the projects for the summer of 1978 should be a survey of the pollution levels of sewage in the Dighty Burn and its tributaries. This is not as difficult as it sounds. The Society does not have the facilities nor the experienced membership capable of monitoring the levels of individual polluting substances. However, by looking for and recording the distribution of various water pollution indicators - 'beasties' - pollution levels can be estimated. Some of these are killed off by almost any pollution at all, whilst others are surprisingly tolerant. By finding out where the tolerant or intolerant organisms are, it is possible to estimate the levels of pollution in the water. The animals looked for were, in order of tolerance, trout, mayfly and stonefly in clean water, freshwater shrimps, water hog-lice and blood worms in polluted conditions. We didn't find any of the aptly-named rat-tailed maggots or similar delightful

creatures indicative of really putrid conditions. In fact the water was much cleaner than we had at first thought, though the water could not be described as 'pure' or 'sparkling'. For most of the length of the stream, the water was slightly or moderately polluted with only a few short stretches of heavy pollution near storm overflows or some farm drains.

I would like to thank all those willing volunteers who took part, particularly Colin McLead.

## ROADSIDE VERGE SURVEY

Brian Allan

This survey being carried out jointly by Society Members and Scottish Wildlife Trust Members, is primarily to establish the status of Roadside Verges within Angus. Verges are an important habitat in many respects, being in some cases untouched by either the road authorities or by the landowners; thereby making these areas as near to a true representation of the kind of ground cover we would expect prior to cultivation.

The Survey which is expected to last a further two summers, is being completed in two phases. Firstly by taking random sites within each 10km square to give an overall picture of verge status, and secondly by pinpointing verges known to be of special interest either by having a high number of plant species present or by having one or two rare or unusual plants within the verge.

Anyone wishing to help in this survey, please contact myself or Mr J Cook for further information

### Answers to Crossword

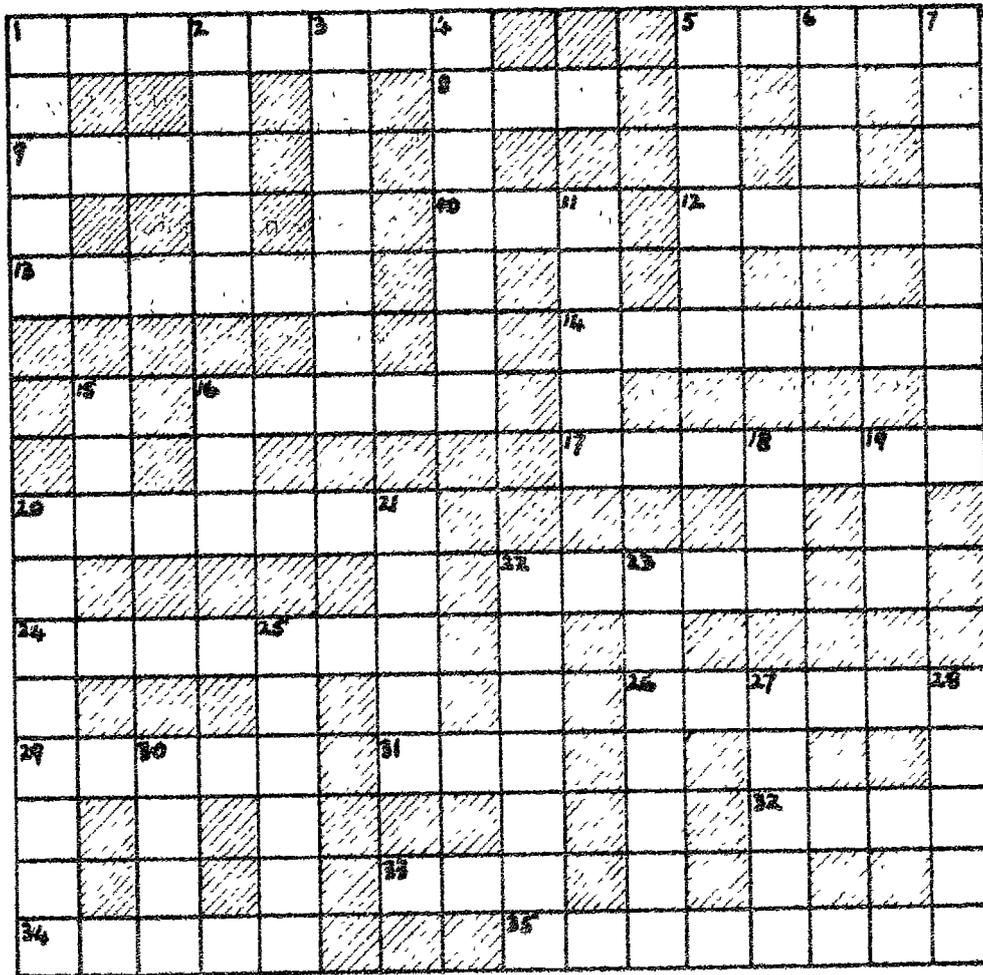
#### Across

1 Primrose 5 Scrub 8 Ash 9 Near 10 Log 12 Moths 13 Anther 14 Long Ear 16 Seeds  
17 Swallow 20 Parsley 22 Holly 24 Figwort 26 Willow 29 Bugle 31 Str 32 Moss 33 Bee  
34 Limit 35 Rye-grass

#### Down

1 Panda 2-7 Marsh Bedstraw 3 Oak Tree 4 Englets 5 Salmon 6 Root 7 See 2 11 Gills  
15 Pod 16 SOS 18 Ley 19 Owl 20 Puffball 21 Yetis 22 Harrier 23 Low Tree 25 Ocelot  
27 Lemur 28 Wasps 30 Geum

# Nature Crossword



## CROSSWORD CLUES

Across

- 1 Its Eye can be pin or thrum (8)  
 5 Would you wash here? (5)  
 8 Anti-smoking and health, wood you join? (3)  
 9 On the doorstep (4)  
 10 Not for smokeless zones (3)  
 12 Twelve annually could lessen your woollies (5)  
 13 Male part of flower (6)  
 14 A must for bunny girls (4,3)  
 16 Small beginnings (5)  
 17 Don't choke on this bird (7)  
 20 This lion is a herb (7)  
 22 Yuletide decor (5)  
 24 Adam wore this leaf to hide his blemishes? (7)  
 26 This tree drives you bats (6)  
 29 Revelle with this flower? (5)  
 31 Rise up hooker (3)  
 32 Soft under foot (4)  
 33 This insect has a sweet tooth (3)  
 34 Boundary (5)  
 35 Make hay with latin lolli (8)

Down

- 1 Worldwildlife fund emblem (5)  
 2-7 Rather wet to sleep on (5,8)  
 3 This is a corny pen maker (7)  
 4 Their home is eyrie (7)  
 5 This fish is a social climber (6)  
 6 Get to the bottom of things (4)  
 7 See No 2  
 11 Takes a breath in the deep (5)  
 15 Part of this grass is a river in Rome (3)  
 16 Nats cry for help (1,1,1)  
 18 Fallow? (3)  
 19 This is hoot (3)  
 20 Fungi essential for blow football (8)  
 21 Himalayan enigma (5)  
 22 This hawk is no chicken (7)  
 23 Least Willow is one (3,4)  
 25 This cat is in a spot (6)  
 27 This baby has big eyes (5)  
 28 Buzz off (5)  
 30 Water Avens is one (4)

## ACCOUNTS — 1978-79

<u>Income</u>		<u>Expenses</u>	
Balance as at 3/3/78	£265.55	Council for Nature	£ 14.56
Profit on Summer Outings	£ 26.65	Lecturers' Expenses	£ 48.29
Sale of Badges	£ 15.00	Scottish Rights of Way Soc	£ 1.00
Members Subscriptions	£223.25	Flowers Mrs Stevenson	£ 4.35
Sale of Flower Lists	£ 1.55	Insurance	£ 16.00
Bank Interest	<u>£ 15.44</u>	D C Thomson	£ 28.36
	<u>£547.44</u>	Postage Syllabus	£ 23.67
		Printing etc	<u>£ 52.49</u>
			£188.72
		Admin Expenses	<u>£ 13.17</u>
			<u>£201.89</u>

Balance = £345.55 as at 14 March 1979

N S Reid, Treasurer