

# Recorder News

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## **SCOTTISH BADGERS – RECORDING IN SCOTLAND**

Scottish Badgers was founded some eight years ago with the core purpose of protecting Scotland's badgers, their setts and habitat. Through representation of badger groups/networks and individual members it was hoped to get the best possible

deal for the species. There are now five badger groups and four networks coupled with numerous other individuals, all working together to record badgers and badger setts in a common and agreed manner. When you talk about protection of a species, it is of course the best course of action initially to find out where they are.



Mutual grooming

Photo Roger Cottis

Our progress to date has been slow, as befits the time it takes to survey land and even to check old records: many records were found to be rabbit burrows or the grid references were inaccurate. We have established that badgers are present in most counties throughout Scotland in varying densities. There are badgers on the north coast near Cape Wrath, in the sand dunes in Sutherland, where the rhizomes of the marram grass, *Ammophila arenaria*, have stabilised the dune system sufficiently to allow them to tunnel through the sand. In parts of Grampian, Highland and Perthshire there are setts at and above 2000 feet on open moorland, miles from trees, which put paid to the idea that badgers were woodland animals. South of the Forth-Clyde division badgers are abundant in most areas.

The first major problem is how we deal with badgers in Local Biodiversity Action Plans. Most areas are working on the basis of Habitat Action Plans, and because badgers are neither rare nor endangered they never quite make the species list. Some authorities have allowed us to submit Species Action Plans for badgers but what habitat do we associate the species with? A versatile and adaptable mammal such as the badger will have to be encompassed in most HAPs, and we look forward to the challenge of organising and writing action plans in relation to each.

One of the shocking statistics is the number of badgers killed on our roads every year. We estimate that 2000 badgers die annually as a result of road traffic accidents. In areas such as Grampian and Moray, where Mike Harris of the Grampian Badger Survey Network has been recording for over ten years, at least one report is received each day. The figures do not include those animals which crawl off the road injured or are removed by persons who do not subsequently report the accident. Scottish Badgers have begun collating figures with the idea of identifying "hotspots" for future mitigation. As we all know, mitigation can be costly, and once a development has been completed then the price can become astronomical. It costs £30,000 to use a retro boring machine to put a tunnel under an existing road, for instance. One might say that recording road traffic accidents shows the spread of the species throughout the country and that reported these often lead to setts that were previously unrecorded but it is rather sad to see these fine animals dispatched in such a cruel way. The importance of recording these incidents is paramount, however, and as an example the only badger record for Clackmannan in recent years was a road casualty.

From our records we can now see clear patterns, and two peak periods each year have become apparent (see figure 1). These peak periods collate to the most active times for badgers with movement during February-April as cubs are born, and rising again to peak in August when males are moving around more freely, marking territory, and mating is taking place. The December/January figures correlate to the period when badgers are least active.

The unseen problem with road traffic accidents is the effect they have on us as motorists. The average weight of a badger is about 10kg (22lbs.) but badgers are regularly recorded at 18–19kg (39-42lbs) which as you might imagine can do serious damage to a motorcar and place the occupants in serious danger of injury or loss of life. The British record is 27.7kg (61lbs). One record exists to my knowledge of a driver being fatally injured in an accident with a badger. You can imagine the problems you might encounter if you struck such a beast at 60 or 70mph. The records we now have are already showing us 'killer' roads, the top of the list being the A75 in Dumfries where we hold 178 recorded RTAs. The A96 from Aberdeen to Inverness sports 129, and over the past two years alone the M9 between junctions two and five has seen 25 badgers killed. There is a real issue of looking at ways to prevent wildlife coming into contact with traffic and placing drivers and vehicle occupants in danger.

Finally the recording of habitat has increasingly become an important issue. We have for years been recording only the minimum detail of habitat but if we are to become more efficient, and if our records are to mean something on the larger scale, then we must start recording more detail of where our setts are found. To that end we must become amateur environmentalists and not just badger workers. I have tried to enthuse our membership with the need to record everything where possible. I would say the same to all others who are recording in the countryside. If you are watching an eagle or collecting fungi and you fall down a hole, please check it out - it might just be your first encounter with a badger sett.

For where to send your records and how to become involved, contact

Ian Hutchison  
 Scottish Badgers  
 13, Eddie Avenue  
 Brechin  
 DD9 6YD

Tel/fax 01356 624851 email [ian\\_ntbg@lineone.net](mailto:ian_ntbg@lineone.net)  
 website [www.scottishbadgers.org.uk](http://www.scottishbadgers.org.uk)

**Badger RTA Pattern.**

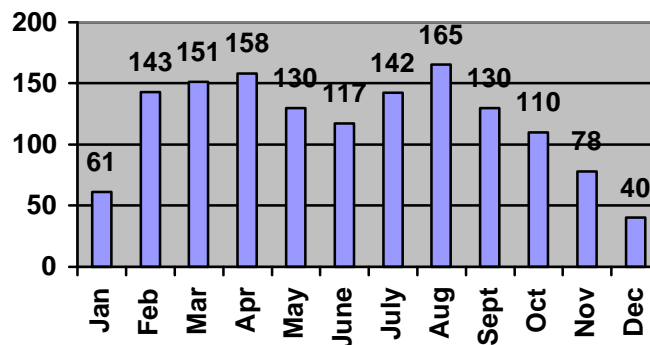


Figure 1

## NATIONAL MOTH NIGHT 2003: SATURDAY 12 APRIL

**National Moth Night** is to be held on Saturday 12 April this year. The event is now in its fifth year and is designed to stimulate a wider interest in moths and raise their profile amongst the public. Each year thousands of people take part, recording hundreds of different species throughout the country. The date of **National Moth Night** varies each year, enabling different species to be recorded and different target species to be chosen.



**Sword-grass** to the right  
(UK BAP priority species)

**Red sword-grass** to the left  
(a similar but commoner species  
both actual size)

Illustration by kind permission of  
Richard Lewington, from his  
forthcoming book

This year the date gives us a great opportunity in Scotland to target a UK Biodiversity Action Plan Priority Species - the **sword-grass** moth. There are few recent **sword-grass** records in Scotland despite the fact that it is found in a variety of habitats, including moorland, grassland, and open woodland, and is apparently widespread - there are old records from as far apart as the Borders, Mull and Fair Isle. It has therefore been recorded from virtually all parts of Scotland.

Its Latin name, *Xylena exsoleta*, means 'old/mature wood', referring to the adults close resemblance to a piece of old wood or twig as its wings are folded up tightly over its body. At first sight it is difficult to believe it is really a moth. Very little is known about the ecology of the larvae in the wild, which all adds to the intrigue and mystery of this species.

Fortunately the **sword-grass** is readily attracted to sugar as well as to "wine ropes", sallow blossom and even lighted-windows, so owning a moth trap is not a prerequisite for taking part. "Sugaring" is an old method of attracting moths, in which a sticky mixture of dark sugar, black treacle and flat beer is painted on fence posts or tree trunks or soaked in rags and hung out. The moths are attracted to the sweet mixture to feed where they can be readily approached and identified by torchlight. Wine ropes are simply sash-cord soaked in red wine that has previously been warmed to dissolve extra sugar. As a substitute for beer and wine, fizzy drinks can be used, thus making the solution more suited for use with children.

An informative colour leaflet from **Butterfly Conservation (Scotland)** is enclosed here, giving recipes and advice on sugaring, tips on where to look, and help with identification. This information can also be found on the National Moth Night website at [www.nationalmothnight.info](http://www.nationalmothnight.info) We really feel that anyone and everyone can get involved. It is an ideal project for families, as children will love making the sweet and sticky brew, painting it outside and staying up after dark to be enchanted by the moths that are attracted to them.

A number of public events are also planned - details can be found at [www.nationalmothnight.info](http://www.nationalmothnight.info)

**National Moth Night** therefore provides an ideal opportunity to put the **sword-grass** on the map, promote moths and get people involved. So put the date in your diary and start saving your old red wine and beer NOW!!!

We are grateful to SNH for their financial assistance in the production of the Scottish National Moth Night Leaflet.

If you have received this, or are reading this, after National Moth Night you are not too late to get involved and attract moths. Moths can be attracted by the four simple methods outlined in the leaflet throughout the year and we are particularly keen to receive records of sword-grass on any date. Please remember "a moth is not just for National Moth Night."

For more information on **National Moth Night** contact

Tom Prescott,  
Butterfly Conservation (Scotland)  
01540 661469  
[tprescott@butterfly-conservation.org](mailto:tprescott@butterfly-conservation.org)

## SLUK SLUG SURVEY – In Practice

Slugs are a gardener's nightmare! Slowly slithering over the garden under the cover of darkness, devouring all the plants and vegetables they can find. But, without slugs the UK would be without one of our most efficient rubbish disposal experts. Slugs are also a favourite food of many of Britain's more "celebrity" animals such as hedgehogs, frogs and toads, foxes, and a wide variety of birds including blackbirds, thrushes, ducks and even owls! So, a gardener wanting to attract a variety of wildlife to their garden should, even begrudgingly, be thankful for the presence of slugs.

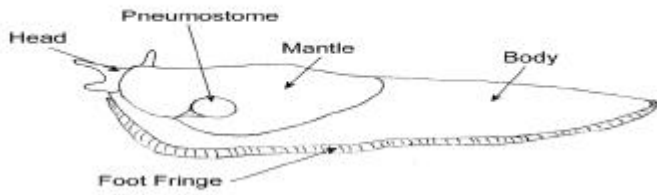
Thirty-three different types of slugs have been recorded from the British Isles and they range in size from just a couple of centimetres up to a massive 20cm long. One of the most noticeable slugs is the great black slug, *Arion ater*, which is commonly found in gardens all over the UK. However, the great black slug is a bit confusing as it comes in a range of colours from jet black to bright orange. We need your help to discover if the distribution of the black and non-black forms varies across the British Isles – we need to mobilise the UK's Slug Detective force!

This survey will form part of a BBC Children's programme called SLUK. The programme will transmit live every day during the last week of May 2003, celebrating the diversity of British wildlife. The results of the survey can be seen on BBC 1 at 4.35pm on Friday 30 May.

### How to take part:

From late April (and possibly earlier) young great black slugs will start appearing in gardens across the country. We need you to check out your garden, or local park, and look

for slugs of the species *A. ater*. To decide if it is this species follow these guidelines:



- a. Is it 5cm or over when extended?
- b. Does it have an obvious foot fringe?
- c. Is the breathing hole (Pneumostome) on the mantle towards the front?
- d. Is the body of the slug evenly coloured?

If YES to all of the above questions it is most likely to be the species *A. ater*

The questions we need answering are:

1. Total number of *A. ater* found?
2. Of those *A. ater* found how many are completely black?

While you are looking for *A. ater* you may find a number of other types of slug. Why not keep a record of the total number of all slugs you find as well... Then we might be able to work out which part of the country is the Slug capital of the UK!

Send your answers on a postcard or e-mail laid out below:

**Name:**

**Postcode where slugs found: (full postcode)**

**Date:**

**Total number of all *A. ater* found:**

**Number of those *A. ater* found which are completely black:**

**Total number of all slugs (inc *A. ater*) found:**

The address to send postcards to is:

SLUK  
 BBC Bristol  
 Whiteladies Road  
 Bristol BS8 2LR

Or e-mail: [ukwild@bbc.co.uk](mailto:ukwild@bbc.co.uk) and put SLUG in the subject the heading. **Closing date is 6pm on May 29 2003.**

GOOD LUCK and happy slugging!

## BATS and BAT WORKERS

On 24 November 2002, Mr David McRae, a member of Angus Bat Group and an SNH-employed bat worker, died of rabies caused by a form of European bat Lyssavirus (EBL). As a result of this incident SNH established, in January 2003, a Bat Project Team. The main aim of the team is to develop and establish a new safe system of working with bats. The team also oversees the running of the SNH Bat Casework Team established in response to the bat-rabies incident. This team

comprises Area Officers and SNH bat workers who have considerable bat handling experience, have been vaccinated against rabies, and have completed a revised risk assessment.

Bats are afforded protection under the Wildlife and Countryside Act (1981) and by the Conservation (Natural Habitats etc.) Regulations 1984. Before anyone can disturb bats or their roosts, they must, in the case of dwelling houses, advise SNH and take its advice. The law allows people to tend disabled bats, to kill seriously injured ones, and to disturb bats in the living space of a dwelling house without consulting SNH.

For other situations, such as public buildings and commercial premises, people must seek a license from the Scottish Executive who, in most cases, seek SNH advice. In practice, SNH is the first point of contact for advice in these situations. To provide advice to roost owners, SNH will very often inspect roosts to clarify the issues, identify options, provide information and address people's concerns.

In a normal year SNH deals with about 500 – 600 bat enquiries. About 300 of these need written responses and most of these involve a roost visit. Ninety percent of these enquiries are within the six SNH East and West Areas. Until 2002/03, bat casework has been highly seasonal with most cases occurring between May/June and August each year. However, since the bat-rabies incident, SNH has responded to approximately 300 enquiries (between December 2002 and February 2003), and in many of these cases a visit has been required.

SNH issues licenses to people it employs and to other people to disturb bats or their roosts. The confusion of licenses as a form of bat worker qualification will be addressed over the next year. SNH, with Bat Conservation Trust, bat groups and others, intends to develop a system of bat worker training accreditation.

Licensees, and their employer(s) where appropriate, are responsible for their own health and safety. In keeping with the Department of Health's advice, all SNH employees asked to carry out work that may involve handling bats are now required to be vaccinated. Other people – bat workers and bat carers – who have regular contact with bats, are strongly recommended to do likewise.

Geoff Johnson, SNH

## NOTES FROM THE CHAIR

April is the month when we ask members to renew their **subscription** to BRISC. Membership subscription is BRISC's only fixed income, and we are therefore very dependent on your support. All members paying by Standing Order need do nothing. If you have forgotten how you pay, you can check the address label on the present mailing: If the reference number at the top contains the letters /so you pay by Standing Order, if /cq you pay yearly by cheque. We strongly encourage members to change to Standing Orders, as this represents a great saving in time and effort for us. A renewal form as well as a Standing Order form is included

with this mailing. Please fill in as appropriate and return to Lesley Brown (note new address). If paying by Standing Order, do not include any actual payment because this will be attended to by your bank.

**Promoting recording** is fundamental to BRISC business, and I am delighted to include three widely different surveys in this issue: badgers, moths (national moth night), and slugs. I very much hope our members and other readers will take part in one or all of these and provide as much useful information as possible to the organisers.

It should also be noted that BRISC operates our own ongoing bumblebee survey, and survey packs with colour illustrations, keys to identification and helpful notes are available from me. They cost £2.50 for the full pack, £1.50 for the garden pack (8 of most likely species, although I am aware that the selection has a southern bias), to cover cost of printing and mailing. Alternatively, most of the information is available on our website [www.brisec.org.uk](http://www.brisec.org.uk)

The fun to be had from trying to extend one's knowledge and 'get into' a new group should not be underestimated, so do have a go. Learning new skills can be greatly assisted joining national schemes and society and taking part in their activities. For instance both Butterfly Conservation (Scotland) and the Dragonfly Society have appetising programmes with training days/outings in various parts of Scotland this summer, just to mention a few. Why not contact them?

The last three months have seen a lot of activity on many fronts. BRISC has finally published the long awaited *Scottish Natural History Societies and Allied Group: a Directory* (see separate advert). A workshop on 'Integrated Habitat Systems' was run by Bill Butcher of Somerset Environmental Records Centre. In addition to our annual conference, BRISC organised a National Biodiversity Network seminar. These last two events are covered in more elsewhere in this issue.

At the Scottish level two important launches took place. The first was the *Draft Biodiversity Strategy for Scotland*, proposed and prepared by the Scottish Biodiversity Forum, which lays down a 25-year vision for Scotland, namely that 'Scotland is a nation where the conservation and enhancement of biodiversity underpins all decision making and practice to ensure the environment is sustained for its people'. To see for yourself what this three part strategy contains and to comment on the proposals in it, download it from the SE's website at [www.scotland.gov.uk/publications](http://www.scotland.gov.uk/publications) or request hard copy by post from Elaine McCall, SBF Secretariat, SE, Victoria Quay, EH6 6QQ.

The second launch was the *Draft Nature Conservation (Scotland) Bill*, which is hailed as the most important legislation of its kind since the Wildlife and Countryside Act of 1981. The main themes are better management and protection of SSSIs and stricter laws regarding wildlife crime (the marine environment will receive equal treatment later). Ross Finney MSP writes -encouragingly - in the foreword: "I am determined to protect and enhance Scotland's exceptional natural environment ...it underpins the quality of our life in Scotland."

The draft bill (in 2 parts) is available on the Internet at [www.scotland.gov.uk/views/](http://www.scotland.gov.uk/views/) or by post from Jim Welsh, SE, Wildlife and Habitats Unit, Victoria Quay, EH6 6QQ. **Deadline for responses is 6 June 2003.**

Anne-Marie Smout



### LINK's 'EVERYONE' CAMPAIGN

Whether we like it or not, politicians hold the key to progress or stagnation, and at last it seems that the natural environment is creeping up the political agenda. But there is no call for complacency. The pressure on the Scottish Parliament to deliver on promises must be kept up, and the next few weeks are critical in convincing politicians that there is a large number of people in Scotland who care deeply about the environment and want more serious action to protect it.

To this end, and as a partner in Scottish Environment LINK, BRISC has signed up to LINK's 'Everyone' campaign, which is aimed at influencing the coming election for the Scottish Parliament. All BRISC members, who have let us have their email addresses, have already been circulated regarding this. The campaign focuses on six main topics (air, food, homes, seas, wildlife and waste). Please visit the 'Everyone' website at <http://www.everonecan.org/> to see all the details (a link has already been put into BRISC's website at [www.brisec.org.uk](http://www.brisec.org.uk)).

'Ask the candidates' is a useful page on the website which lets you to select your own constituency and find out the names of all the candidates and their parties. It also has a number of suggested sentences to help you when you write your letter to the candidates expressing your concern.

Everyone's website also carries suggestions for how to run 'hustings' prior to the election, as well as details of where planned ones are taking place. The *Sunday Herald* will be carrying various articles on different aspects of the campaign. . In a recent System 3 poll, 86% of people in Scotland said that the environment was an important political issue. But we need to tell the politicians. If we all show we care, we cannot fail to make a big impact. Please do all you can.

Anne-Marie Smout

***For Better for Worse*** is an independent environmental report, commissioned by LINK and carried out by Edinburgh based consultants, gives an independent assessment of parliament's first four year. Launched on 26 March it contains views of both politicians and environmental NGO. Download it from the web at <http://www.everyonecan.org>

## CONFERENCE PROCEEDINGS

*[It is hoped to be able to publish the remaining talks in the July issue, ed.]*

### PHENOLOGY – OBSERVING NATURE'S CALENDAR

Phenology is the study of the timing of natural events, such as first leafing, first flowering, fruit ripening, and is not to be confused with phrenology: the study of mental ability by feeling bumps on the head! Natural events specifically relating to climate are selected and people record when these happen in their locality.

Spring recording of phenology has been taking place since 1736 when the so-called father of phenology, Robert Marsham, began recording his "indications of spring" on his Norfolk estate. He spent 62 years cataloguing things like the first leaves on various trees in order to improve the timber production on his estate, and his family continued this until 1958, and then a neighbour took further records and still continues to do so now.

The UK Phenology Network is a partnership between the Woodland Trust and Centre for Ecology and Hydrology and was revived in 1998. People record simple spring and autumn events of common species that can easily be noted. It enables people of all ages and abilities to be able to get involved, whether in the countryside, in their garden, or out of the window. We have sought compatibility with historical and contemporary schemes and have paper and on-line recording with about half of all recorders recording on-line. In Britain five of the six warmest years since 1659 have occurred since 1990. Globally nine of the ten warmest years have occurred since 1990, particularly in Eurasia. 1998 was the warmest with last year, 2002, being the second warmest since worldwide records began in 1860.

Phenology information can be used for a variety of purposes such as climate change indicators; identifying trends; scientific and popular publications; medical links (pollen timing); contingency planning (leaf fall, flooding risk), and raising environmental awareness

There are direct implications for people – winters are warmer and increasingly frost free with implications for pests and a knock on effect to agriculture, forestry, leisure, human health and extreme weather events. Longer growing season means longer pollen season and an increase in related allergies. Hay fever is one of the commonest allergies affecting about 1 million people in Scotland. This spring we are working with the National Pollen Research Unit and hope our records will help to forecast the start and length of the hay fever season.

From results obtained by the study of phenology we can see that over the last 30 years the growing season has lengthened markedly, by 20-30 days or 3-4 weeks, which is significant. Spring is arriving a week earlier than 30 years ago and autumn takes longer to set in.

The UK Phenology Network shows us

- in conjunction with historical data the extent of change and response to temperature
- the popularity of the scheme and the willingness of the public to get involved
- the viability of web based recording

However it does not yet enable us fully to

- identify response to extreme events
- identify problems of competition between species and problems in the food chain
- assess regional variation
- examine possible genetic change in phenology

Phenology is raising more questions than it is answers. For example, which species are facing real problems in terms of their ability to move or adapt to climatic changes? There are problems of synchrony, life cycles and competitive advantage.

Insects such as bumblebees and butterflies appear relatively well able to adapt and appear about three weeks earlier than ten years ago. Flowers generally are about two weeks earlier and most birds about a week or less, earlier. An important aspect is the synchrony between plants and animals and there are real concerns relating to this. The differing response times lead to some fundamental questions about the future events in life cycles where different species have evolved their timing to coincide. On average, spring is coming a week earlier than 30 years ago. The ability to adapt will impact on food availability, competitive advantage, and so on.

Historical data are invaluable in identifying changes, and many such data lie scattered and in obscurity. Continued monitoring is necessary to identify change and potential problems with life cycles, competition and the food chain. If you can contribute, please visit [www.phenology.org.uk](http://www.phenology.org.uk) and become a recorder or inform us about your own historical phenology records. More recorders mean more robust data and more are needed in Scotland. Your help would be much appreciated, especially if you have been collecting your own records for a number of years – we would love to hear from you.

#### For phenology enquiries contact:

UK Phenology Network,  
The Woodland Trust, Autumn Park,  
Grantham,  
Lincolnshire,  
NG31 6LL  
Tel: 0800 026 9650  
E-mail: [phenology@woodland-trust.org.uk](mailto:phenology@woodland-trust.org.uk)

#### For general information contact:

The Woodland Trust Scotland,  
Glenruthven Mill, Abbey Road,  
Auchterarder,  
Perthshire, PH3 1DP  
Tel: 01764 663554  
Web: [www.woodland-trust.org.uk](http://www.woodland-trust.org.uk)

## CHANGES IN THE FRESHWATER FISH FAUNA OF SCOTLAND OVER THE LAST 200 YEARS

The native fish fauna of Scotland consisted originally only of species with marine affinities, which were able to invade our virgin fresh waters from the sea after the last ice age. These fish included lampreys, shad, eel, salmonids (Atlantic salmon, brown trout and Arctic charr), spurling, sticklebacks and flounder. Very slowly, a few other purely freshwater species (e.g. pike and perch) started to invade naturally from relict populations in the southeast of England, an area which had escaped the ice sheet and was originally connected to continental Europe. However, at various times and especially during the 19th Century, many introductions were made by humans, and fish from both England and abroad started to appear in Scottish waters and become established here. Now, 38% of our fish fauna are alien species.

One of Scotland's commonest species, the brown trout, has lost populations in Galloway and other granite areas due to acidification, but the present concern about this species is with the migratory component (sea trout) whose populations in those north-west rivers draining to sea lochs with salmon cages have collapsed. A similar situation exists with Atlantic salmon, contrasting with those populations in rivers on the east coast which are relatively stable. Several populations of Arctic charr in southern Scotland have become extinct and stock in the sole remaining site there (Loch Doon) has been successfully transferred to Megget and Talla Reservoirs. The vendace, with only two previously known populations, is now extinct, though attempts have been made to reintroduce it to Daer Reservoir and Loch Skeen, whilst the powan, also with only two stocks, is stable, though as a safeguard populations have been created in Loch Sloy and in Carron Valley Reservoir. Several species have been given protection recently through the EC Habitats Directive, most notably Atlantic salmon and lampreys. However, whereas lampreys, especially the brook lamprey are relatively common in Scotland, the spurling, which has no significant legal protection, has lost 80% of its stocks and only three populations remain – in the Rivers Cree, Forth and Tay.

Several alien species have been very successful in Scotland, most notably the grayling, introduced to the River Clyde in 1855 and now established in many rivers from the Tay southwards. Other established species include common carp, Crucian carp, dace, chub and rudd. The ruffe, which was discovered in Loch Lomond in 1982, 100km north of the nearest known stock at that time, has exploded in numbers and is now one of the commonest species in the loch, having disrupted many of the previous ecological balances there. The most recent addition to the Scottish ichthyofauna is the barbel, which at present appears to be establishing from adults released in the River Clyde.

In summary, virtually all our native species are showing a decline in the number of populations and one species is extinct. In contrast, alien species such as ruffe and dace continue to be dispersed by anglers and almost all alien species are expanding in terms of numbers of populations. The current proposal by the

Scottish Executive, to produce an Order which lists those foreign fish which it will be illegal to keep or release, is a belated but welcome measure to help protect our stocks of native freshwater fish.

Peter S Maitland  
Fish Conservation Centre,  
Gladshot, Haddington, EH41 4NR  
E-mail: [SavingFish@maitland60.freereserve.co.uk](mailto:SavingFish@maitland60.freereserve.co.uk)

## WATER BEETLES CHANGE – WHAT CHANGE?

A water beetle might crudely be defined as any beetle that prefers to be wet, were it not that some water beetles are covered with water-repellent hairs! About 240 species of water beetle occur in Scotland, 69% of the British list, and they include familiar species such as the great diving beetle (*Dytiscus marginalis*), whirligig beetles (*Gyrinus* species) and the first animals to fly into the summer paddling pool (almost bound to be *Helophorus brevipalpis*). There are about 46,000 records for water beetles in Scotland and an Atlas was produced for Scottish Natural Heritage (SNH) in 2001.

A survey in 2002 of some fens, bogs and lochs in southern Scotland commissioned by SNH resulted in some observations on the potential for beetle populations to change – or to stay the same – about 29 years after many of the sites included water beetles amongst the reasons for their protection as NNR and SSSI. The rare species of the Borders Mosses have a distribution based on relict fens not only in the Borders but also in the Norfolk Brecks and Broads and central Ireland. Some species still thrive in the Borders Mosses but others are declining over much of Britain. One, *Dryops anglicanus*, may have become extinct in Scotland. Others may have proved just too elusive. Although one site under survey appeared to have gained an incipient raised bog complete with species typical of raised bogs, the “dubh lochan” of the Silver Flowe NNR, appeared to have lost its northern acid water-loving species, which were replaced by pond species. The two lochs surveyed had also lost some species typical of lakes, these replaced by pond species. As might be expected on this basis, the natural pond complex, the Carrick Ponds, showed little change.

Beyond this survey general recording indicates a few species on the increase, possibly following global warming. In particular this applies to *Rhantus suturalis*, found in several “SUDS” in Fife in 2002 by Thomas Huxley. SUDS stands for Sustainable Urban Drainage Systems, such as newly created water-collecting systems for storm water on roads and so on; whilst some water beetles prefer pristine waters in relict sites, others are quite partial to pollution! *R. suturalis*, not found in Scotland since the 1950s, is on the very edge of its distribution through Europe and Asia to Australia. However, the extension in range of other species into the Central Belt since the 1970s is probably as much to do with the availability of post-industrial sites. Water beetles provide several complexes of indicator potential. For

example, *Nebrioporus depressus*, a species of larger lakes in west and north Scotland, Cumbria and Wales, plus northern Scottish rivers and the whole of Ireland, appears to be on the decrease coupled with expansion in the range of *N. elegans*. These two forms (species?) interbreed to produce stable hybrids, rather like Sika deer (*Sika nippon*) with red deer (*Cervus elephus*). This process may previously have been facilitated by the major hydroelectric developments of the 1930s, which allowed river waters to intermix in south-west Scotland, and is almost certainly accelerating with climate warming. We even have a situation almost identical to that for carrion and hooded crows (*Corvus corone corone* and *C. corone monedula* respectively) with *Hydroporus memnonius*, which has two female forms meeting up in southern Scotland.

Finally, an earlier change had been detected in association with acid rain on the granitic areas of south-west Scotland. It seems likely that, following the loss of fish, beetles came to dominate the fauna of loch margins, with more individuals and the presence of larger species. In the late 1980s, liming of some Galloway Lochs or their catchments resulted in restoration of trout fisheries, at which point these beetle communities changed radically. Although the problems associated with acid rain have receded, they are likely to become a focus for attention once more if electricity generation from lignite (brown coal) is approved in Northern Ireland. The plumes from power stations would immediately impact upon on the south-west of Scotland and might have a high sulphur and acid content if these discharges are not treated. Acid rain might be temporarily good for beetles, but it would generally be deleterious to the fauna and flora.

Beyond finally comes lastly, which is a plea for water beetle records. Guidance on how to record beetles is freely given via the e-mail address given and the Balfour-Browne Club.

Garth Foster  
([g.foster@au.sac.ac.uk](mailto:g.foster@au.sac.ac.uk))

### **Minutes of BRISC's ANNUAL GENERAL MEETING 2003**

Held at the Burrell Collection, Pollok Country Park, Glasgow  
22 February 2003 at 12.10

#### **Apologies**

Apologies were received from David Beaumont, Brian Boag, Sara Hawkswell, Paul Kirkland, Bob Saville, Andy Wakelin.

**Minutes of previous AGM** (02.03.02) at Dundee University  
These were approved without alteration, proposed by Keith Bland, seconded by Jon Mercer.

**Chair's report for 2002** (previously circulated with *BRISC Recorder News* No 48 – January 2003)

Because the report had already been circulated to members, Anne-Marie Smout did not wish to go into it in any detail but was pleased to announce that 2002 had been a good year for BRISC, and that this had been largely due to success in obtaining funding for a Development Officer.

BRISC still requires a new treasurer, as Mark Simmons has filled this role for eight years and would like to stand down. The responsibilities are not onerous as BRISC holds a single bank account and runs a simple book of transactions. Activities consist primarily of paying money in and out (around 30-40 transactions per year but no need to visit the bank) and monitoring members' Standing Orders. Any future offers to fill this post would be most gratefully received.

#### **Development Officer's report on the Strategic Plan**

Alan Cameron was appointed as the BRISC Development Officer on 10 June to implement BRISC's Strategic Document, which had been endorsed by the membership at the AGM in 2001.

The Strategic Plan set out how BRISC would develop relationships with Recorders, Local Records Centres, Agencies and other public bodies. It addressed involving the membership in more practical ways through setting up three sub-groups covering different areas of members' interests. The Strategic Plan also provided an analysis of the requirements for data on wildlife by different sectors, including local authorities, recording schemes and SNH. This analysis would provide a framework for BRISC in work to improve the availability of biological records.

The Development Officer is implementing the Strategic Plan through a work programme, which has been agreed with the management team. This programme contains many elements, including membership support, practical activities and policy development.

BRISC views Local Records Centres as critical to achieving the aims set out in the Strategic Plan, in particular the need to support and encourage biological recording at the local level. The work of the Development Officer during the initial six months has therefore concentrated on LRCs and has consisted of:

- ◆ Encouraging and advising partnerships working to develop new and existing LRCs
- ◆ Working with existing LRCs where important lessons might benefit others
- ◆ Advocacy with key stakeholders including SNH and the Scottish Biodiversity Group now Scottish Biodiversity Forum
- ◆ Development work to set and promote a shared vision based on common standards
- ◆ A 6-month report summarising key areas of work has been prepared and is available to the membership on request.

#### **Membership Secretary's report**

Lesley Brown gave a breakdown of the current membership. Total members stood at 118. The importance of individuals was stressed, as this class of member constitutes 81% of the total.

Twenty members subscribe by Standing Order. AMS again stressed the great advantage to BRISC administration of members paying by Standing Order and asked members if

possible to choose this method of paying their annual subscription.

#### **Treasurer's report**

Mark Simmons explained that 2002 had been a reasonable year, with income exceeding expenditure. As ever, grant income remains important to BRISC although this money is tied to particular activities and it is quite worrying that membership is at an historical low. It is hoped that the Development Officer can address this.

BRISC cannot afford to employ professional accountants, although the requirement to have the accounts inspected by an 'independent examiner' should be complied with. The receipt of grants for the Development Officer may require BRISC to introduce further accounting, and this will be looked into.

It was reiterated that the post of treasurer is essential and that Mark Simmons has tried to stand down for three years now.

#### **Website Manager's report**

Andy Wakelin was unable to attend the AGM and a report will be included in the next edition of *Recorder News*. Anne-Marie Smout invited members to submit website addresses to which the BRISC site could link and pointed out that most of the Bumblebee Survey material is available on the site, and more photographs of individual species have been added.

#### **Election of the Committee**

Three members are standing down due to lack of time – Julie Bett, Bob Saville, and Ann McKillop. All were thanked for their support and time.

Anne-Marie Smout extended thanks to all Committee members for their hard work – without them BRISC would be unable to continue.

Other changes on the Committee were as follows: Geoff Johnson has replaced Jeanette Hall as the co-opted SNH representative on the committee. Geoff is NBN Co-ordinator within the Natural Heritage Data Unit. David Beaumont has been co-opted from RSPB and Alan Cameron is co-opted as the Development Officer.

Craig Macadam had expressed his willingness to be elected to the committee and was nominated by Thomas Huxley, seconded by Lesley Brown.

All other committee members had indicated that they are willing to continue.

#### **AOCB**

The lack of any commitment from Highland Council to developing the LRC based in Inverness Museum, which currently benefits from only a small portion of a staff post, was raised as an issue for discussion. The Development Officer explained that SNH has three Areas covering the region and that significant development funds should be available, although the lack of local authority commitment is clearly a problem. Due to the size and significance of the region for biodiversity, and the unsatisfactory level of resources currently available, BRISC will consider this issue a priority.

Alan Cameron also explained that work to promote a network of LRCs in Scotland will be taken forward by a 'discussion paper' on LRC functions and locations with a view to agreeing on a national strategy. This will involve BRISC in promoting LRCs to all stakeholders, including the Scottish Executive and SEPA. SNH remains a critical partner and BRISC will continue to encourage the setting of policies and mechanisms by SNH that are appropriate and that assist LRCs to develop within a coherent, overall vision.

Anne-Marie Smout informed the membership that BRISC has signed up to a significant Scottish Environment LINK partnership campaign called 'Everyone', which will be launched on 26 February and which will provide a focus for raising the profile of environmental issues in the run-up to the forthcoming elections to the Scottish Parliament.

Anne-Marie Smout also said that the Scottish 'Scottish Natural History Societies and allied Groups Directory' was now with the printer and would shortly be published. A printout was on view by the BRISC display stand.

There was no further business and the meeting finished at 1300.

## **LRC ACTIVITIES**

### **North East Scotland Biological Records Centre Recorders' Forum 2003**

NESBReC held its third very successful annual Recorders' Forum on Saturday 1 March. Mark Young, replacing Ian Francis as Chair for the day, welcomed the forty-three delegates who attended. Mark expressed the Management Group's gratitude for the hard work and dedication of Andy Ferguson, the Centre's first manager, and welcomed Lesley Cropper as his new replacement.

The Centre's other staff member, Janet Imlach, provided an update on the activities of the LRC. Janet said that NESBReC now holds over 120,000 species records in Recorder 2000 and that these are contained in over 60 datasets collected and owned by a wide range of individuals, groups, organisations and agencies. The GIS system holds data on sites, habitats and NVC surveys, and inventory data from SNH and others. She explained that, in addition to the considerable amount of data that the Centre can collate, analyse and make available to its users, its role in promoting biological recording is critical to its continued success. Part of this support is through providing a programme of recording training days. This year will see the programme build on the considerable success of last year's training days with mosses, liverworts, lichens, mammals, higher plants, and moths under consideration as potential topics.

Lesley Cropper introduced delegates to the Centre's new website, which was developed with grant assistance from the New Opportunities Fund (NOF), and benefited from the skills of Stephen King and David Green from the University of Aberdeen. This powerful interactive site allows users to carry out various searches for species and habitat data that

are presented against map backgrounds. The website also provides an invaluable source of information on local activities that may be of interest to the recording community. The Centre is pleased that a link to the website currently appears on the front page of the UK website supporting life-long learning within NOF funded digitisation projects at [www.enrichScotland.net](http://www.enrichScotland.net)

Aberdeenshire Council has been highly supportive of NESBReC from the earliest days and continues to play a lead role. Emma Parkes, Aberdeenshire Council Environmental Planner, demonstrated the importance within the Planning process of the biological searches which the Centre carries out on the weekly Planning list. Emma presented an analysis of applications that have been influenced through taking wildlife interests into account and demonstrated the need to integrate biological data fully into the Planning System in order to maximise the potential for these data to be taken into account.

Alan Cameron, BRISC Development Officer, explained that BRISC supports and advocates voluntary biological recording across all taxa and promotes the use and sharing of data: as such, BRISC is working to promote a network of sustainable and effective LRCs in Scotland. Within Scotland BRISC is pleased that NESBReC continues to set a standard that others are trying to follow. With two members of staff, the Centre is almost unique in Scotland in having achieved the minimum set out in the National Federation for Biological Recording guidance to the NBN Trust. The Centre's Service Level Agreement with SNH is a tribute to the dedication of Andy Ferguson and to the commitment of SNH Area staff, while the Centre's wide management partnership and close working relationship with a local authority continue to provide others with a model to follow.

Andy Thorpe, County Bird Recorder, explained how the Centre has provided invaluable assistance through compiling bird records for the *North East Bird Report*, handling around 10,000 records per year. He went on to summarise the advantages of working with NESBReC, which include making data secure and disseminating data to others.

Mike Davidson, Spider Recording Scheme area organiser, outlined the survey methodology used in producing the *Provisional Atlas of British Spider* (2002) and illustrated his talk with a discussion of the distributions of a number of interesting species. The recording scheme will continue with new recording cards to enable more detailed data to be collected.

David Welch, BSBI Recorder for VC 91 and 93, outlined the recording methodology used to produce the *New Atlas of British and Irish Flora* (2002) and described some interesting changes and trends in distribution while also highlighting some of the problems and discrepancies affecting a small proportion of the data.

The day concluded with wide-ranging discussion sessions. Topics covered included: how NESBReC could assist Ranger Services in steering recording by the public; how systems to ensure that all records - particularly those from other parts of

the UK - can be verified by local experts; and how NESBReC could further improve its communications with recorders, particularly those without access to the web.



NESBReC Recorders' Forum

photo Alan Cameron

BRISC was very pleased to be involved in such a successful day that managed to bring together recorders from across North East Scotland and that demonstrated how important the recording community is in improving understanding of wildlife and in promoting the use of data in decision making.

Alan Cameron

## Lothian Wildlife Information Centre Delivering Biodiversity Data

Last year saw the launch of a new and exciting organisation to help others protect the threatened wildlife of the Lothians. Leading the way in providing up-to-date, interactive information on the region's wildlife, the Lothian Wildlife Information Centre will provide, to a wide range of local organisations, the information they need to do their jobs effectively. The Centre can also provide information to local people and community groups to enable them to increase their understanding of their local patch.

Lothian Wildlife Information Centre is an independent, not-for-profit company run for the public benefit. Established early in 2002 the company has taken over a project run by Scottish Wildlife Trust and is developing and enhancing it to provide new and innovative information on the wildlife of the Lothians. The Centre is led by a dynamic group of four directors whose skills and experience cover strategic planning of local record centres throughout the UK, running record centres, field surveying and recording, liaison with organisations and institutions in the Lothians, and working with the community.

The Centre has now collated and reviewed a vast amount of information about what species, habitat and sites are found within the area covered by the four local 'Lothian' councils. Bob Saville, the Centre's Co-ordinator, with the help of his assistants, has developed close relationships with the many amateur and professional field recorders who supply the data to develop and enhance the database. However, there is still

much work to do on ensuring that all available data on the Lothians are accessible through the Centre, and developing relationships with recorders remains a high priority.

Last year saw the introduction of Recorder 2000 and ArcView8. Working with these and other systems the Centre is now able to provide high quality views and analysis of the data to users, easily and efficiently. An analysis of the database shows that there are over 7,000 different species living in the Lothians. Most of the special wildlife sites and biodiversity hotspots have also been identified. The Centre can provide a professional service about the wildlife of the area and produce maps and lists of sites, habitats, species, rarities and distributions. A particular achievement is the development of a notable species database, used to produce GIS layers suitable for local authorities to use as part of alert systems.

Lothian Wildlife Information Centre development programme is focussed on being able to achieve accreditation through the National Biodiversity Network, as soon as this scheme is initiated, and is currently using NBN guidance and draft accreditation scheme as a guide.

The Centre is financially supported by a number of government, local authority, and voluntary sector organisations who use its services to support their own work. These include Scottish Natural Heritage, City of Edinburgh Council, Edinburgh and East Lothian Local Biodiversity Action Plan groups, and the Scottish Wildlife Trust. The Centre is now entering into formal Service Level Agreements and works to strict service delivery conditions, providing a more professional, reliable service. Services are also available to one-off customers and are already used regularly by many consultants, although there are plans to extend this part of the customer base over the next year.

A rolling business plan looking ahead over the next three years identifies an expansion in the range and sophistication of the Centre's products and anticipates a wider range of organisations benefiting from its services. For further information contact

Bob Saville (LWIC Co-ordinator)  
or  
Alastair Sommerville (LWIC's chair)  
Lothian Wildlife Information Centre  
Room 19, Leith Walk Business Centre  
130 Leith Walk  
Edinburgh, EH6 5DT

Tel/fax 0131 554 6360  
e-mail [info@lothianwildlife.co.uk](mailto:info@lothianwildlife.co.uk)

### **LWIC Seminar 15 March 2003 at Eric Liddle Centre, Edinburgh**

As indicated in the article above a lot is happening in LWIC, and this second meeting of the new centre was a memorable and most interesting day. The large number of people who turned up demonstrated how successful the centre is in building close relationships with the local recording community. Alastair

Sommerville introduced the day, outlining the new setup. He was followed by Bob Saville who gave an impressive demonstration of the wide ranging and sophisticated analysis which the centre is now able to provide on its data holdings; Adrian Sumner then told us about the great benefits he as the local mollusc recorder has reaped from feeding his records into the centre; and David Chamberlain entertained us all with tales of past LWIC outings, many of which had also resulted in exceptional records.

The last speaker of the morning was Sarah Hawkswell, who talked about the strategic aspects of the data management, such as how the centre would deal with access to sensitive data, ownership of data, safeguarding usage, etc., stressing that the centre would follow guidelines and standards promoted by the National Biodiversity Network. The centre would also produce an 'alert' map for planning purposes. A useful discussion followed, which helped to clarify a number of important issues for those present.

We were then treated to a generous and welcome buffet lunch and the recorders, seizing the opportunity to meet, went on talking till well into the afternoon. Altogether it was a valuable and most enjoyable day. BRISC wishes the new LWIC a successful and bright future, and if success solely depended on commitment and hard work, the centre will surely shine like a star!

Anne-Marie Smout

### **NBN SEMINAR 21 JANUARY 2003**

On 21 January BRISC convened a seminar at Perth Museum on 'Progress and current issues arising from the work of the National Biodiversity Network'. The purpose of the day was to look at practical aspects of the work of the NBN and to hear of progress in other areas of the UK.

The programme was aimed at recorders, data managers and those involved in policy on data management, and thirty-two delegates attended the full day of presentations from a panel of UK experts. Speakers came from a number of organisations including SNH, the NBN, the Countryside Council for Wales, the Biological Records Centre, and Somerset Environmental Records Centre.

Alan McKirdy, Head of the SNH Natural Heritage Data Unit, described how SNH views the NBN as providing a potential mechanism that will enable it to implement e-government requirements for openness and accountability and help SNH to disseminate data internally to improve site management and implement the Scottish Biodiversity Strategy. Alan described how SNH might develop as a data repository and thence become an NBN node with data being supplied to it from LRCs and others. In addition to looking at internal data requirements and taking a national overview, Alan stressed that SNH is keen to see a thriving network of LRCs and would welcome more applications for grant support.

Geoff Johnson, NBN Co-ordinator for SNH, described work undertaken within SNH to provide desktop tools for its staff, which integrate site documentation, species databases and 'Natura 2000' Site Search through collating data from a number of sources, including the NBN Gateway. Geoff also outlined a proposed SNH Data Warehouse to support SNH day-to-day business and statutory reporting requirements, and to deliver data more widely on the Internet. The model presented involves obtaining data via the NBN Gateway from a range of sources, including LRCs. Geoff explained that SNH is therefore keen to support the development of LRCs and to plug gaps in the network. SNH is currently developing summary policy on LRCs, which will clarify how SNH views the role of LRCs.

Patrick Cloughley, Biodiversity Information Team Leader for CCW, described how CCW is implementing a 'Biodiversity Information Project' to improve the biological and earth science information available to its staff and, where possible, to make its data holdings more accessible to its partners and the public. An important component of the CCW vision is agreeing on who has responsibility for computerising, collating, checking and holding the 'master' copy of all data, i.e. who is the data custodian. Data custodians will include CCW headquarters and LRCs, which will be the custodians for all its Area data. The NBN will permit sharing between custodians through providing a data warehouse from which data will be made available, either through the NBN Gateway website, or through a data custodian. In this way data custodians, such as LRCs, can meet the CCW objective of providing a one-stop-shop for data providers. It is proposed that CCW will work towards a complete network of four LRCs by 2006/7. The Agency will engage in partnerships, finance part of the cost of writing LRC development plans and part of the cost of establishing LRCs, and thereafter use LRCs in perpetuity. As custodians of CCW data and as agents acting on their behalf, CCW will support LRCs through Service Level Agreements that may account for up to 1/3 of their running costs.

The NBN Gateway is a system to deliver biological data through the Internet and Andy Brewer is the new NBN Technical Liaison Officer who provides technical support to all Gateway users, including organisations that wish to deliver their data through this system. Andy explained that providers of data retain complete control over their data and demonstrated how the Gateway can collate data from different sources and display results dynamically against OS map backgrounds. Current functions include permitting users to specify their own area of search within which data may be displayed or sent directly, depending on access agreement between the user and supplier. Andy also demonstrated the ability to analyse data through producing maps of co-occurrence of more than one species. The Gateway has many other functions, including listing species at a named site, displaying site boundaries and holding habitat data as GIS layers. Current developments, in addition to uploading new datasets, include a new interactive mapper that can display records as semi-transparent dots whose size denotes the precision of the record. To view the NBN Gateway website visit [www.searchNBN.net](http://www.searchNBN.net)

Paul Harding, Head of the Biological Records Centre, addressed how the NBN is working with National Schemes and Societies through the work of Trevor James, the NBN NSS Development Officer. Paul explained how National Schemes and Societies constitute a critical source of expertise and data, often providing a national scale focus for taxonomic expertise and covering most species of priority in conservation. Many National Schemes and Societies have long-standing relationships with the BRC, which manages their data and publishes distribution atlases, but the resources available to the BRC limit its scale of engagement with the National Schemes and Societies and the BRC is encouraging engagement with the National Biodiversity Network.

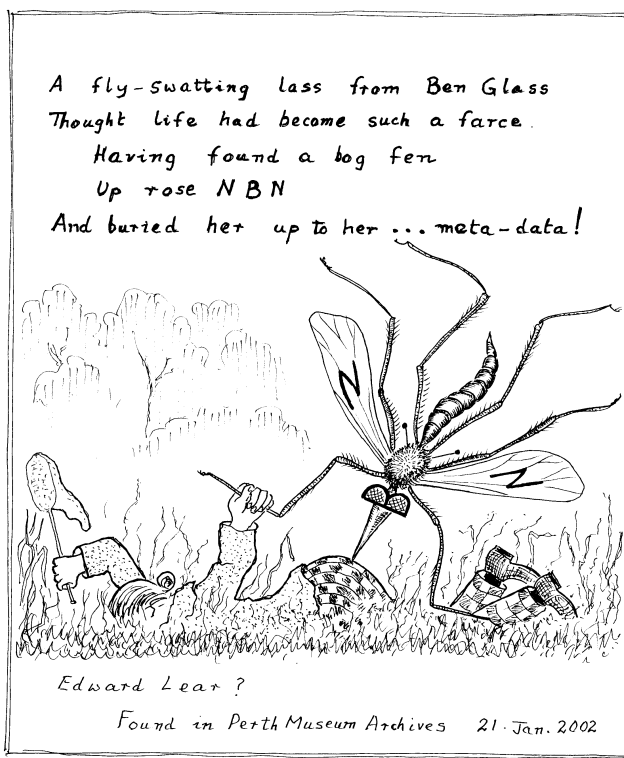
Many Schemes and Societies remain uncertain about the potential benefits of the NBN and require encouragement, support and guidance. Paul explained how this area of work is based on an understanding that National Schemes and Societies have a unique contribution to make and are integral to the success & viability of National Biodiversity Network. Resources are the critical factor, and only some NSS are able to act as collators or custodians of national datasets, while many smaller NSS requiring other data custodians to manage their data within NBN: few National Schemes and Societies have sufficient resources to supply data to NBN Gateway. Much of the work of Trevor James is aimed at building the capacity of the National Schemes and Societies through developing their work within local networks, including with Local Records Centres, and through helping actual and potential users to identify their data requirements. Paul explained that the NBN is very well placed to build understanding with institutional data users of the needs by voluntary recorders, in particular through explaining the financial implications of the fact that before data can be made available they must be computerised, collated, and managed.

Bill Butcher, Manager of Somerset Environmental Records Centre, gave a presentation on the wide-ranging and ambitious NBN Pilot Project in South West England, which is now entering its demonstration phase. Two of the activities undertaken within the project are to identify the local and national biodiversity data needs for the region and to develop and test mechanisms of data flow to meet those needs; and to produce mapped inventories for all Biodiversity Action Plan Priority Habitats. The overall aim is to demonstrate the benefit of the National Biodiversity Network, Local Records Centres and habitat inventories in meeting Biodiversity Action Plan targets and other nature conservation policy objectives. The project partners include seven LRCs, JNCC, Environment Agency, DEFRA, RSPB, the National Trust, Butterfly Conservation, Herpetological Conservation Trust, and the Marine Biological Association.

Regional inventories for twenty-five species have been compiled and these will be made available on the NBN Gateway, along with full associated metadata on the NBN Index. Work on habitat mapping has involved defining map-able habitat definitions, testing new habitat data capture tools, and using multiple data sources. Specific aspects of

the work include identifying how information required by the LBAP can be delivered through LRCs, and delivering data from LRCs to partners via the NBN Gateway.

Alan Cameron



Anonymous contribution - ed.

## BOOK REVIEWS

**Wernham,C., Toms,M, Marchant,J, Clark,J, Siriwardena,G & Baillie,S (Eds) (2002). *Migration Atlas: Movements of the Birds of Britain and Ireland*. T & A D Poyser, London. 884pp, illustrated with line drawings, diagrams and maps. ISBN 0-7136-6514-9 hbk £55.00**

Having produced two atlases of breeding birds and one of wintering birds, it was perhaps inevitable that the British Trust for Ornithology (BTO) should complete the set with an atlas that shows how our breeding and wintering birds travel to and fro, which they have done with tremendous success. This new work is in every way as authoritative and informative as its companions. It is also a very substantial book, weighing in at a hefty 4kg.

Birds have been ringed in Britain and Ireland since 1909 and to date over half a million recoveries have accrued. These have enabled the BTO to select 188 species for major treatment (two to five pages, each containing several maps and diagrams) and a further 73 species which have shorter accounts (a half to one page of text only). Each of the species accounts is written by a

specialist author and I should declare my interest by saying that I contributed two of them (you must buy the book to find out which!).

The introductory chapters almost make a worthwhile book on bird migration by themselves. The first discusses the different methods by which bird movements have been studied, including counts, radar, systematic watches at sites like bird observatories, radio tracking and, of course, ringing. The second chapter is a history of the British ringing scheme showing how, from its small beginnings, it has grown into an essential conservation tool able to be used for monitoring changes in numbers and breeding success as well as the study of movements.

Chapter 3 is headed "Why and how do birds migrate?" and is written by three undoubted experts: Franz Bairlein, one of Europe's leading migration scientists, the late Peter Evans, who was involved in migration and orientation studies in the UK for many years, and Norman Elkins, who has written extensively on weather and bird migration. Between them they ask, and answer, the questions "Why migrate?" and "How do birds migrate?" and discuss weather and bird movements. Reading this chapter enables one to gain an excellent understanding of bird migration, including the reasons, the mechanics and the constraints.

The fourth introductory chapter is called "The analysis and interpretation of ring-recovery data". Recoveries of ringed birds are subject to many biases and great care must be exercised before applying the results to the whole population. Ringing activity in Britain and Ireland can, unsurprisingly, be as dependent upon the distribution of ringers and of trapping stations as it is of the birds themselves. Thus, the Wildfowl and Wetlands Trust has been responsible for the majority of ringing of ducks, e.g. mallard, teal, tufted duck and pochard, using large and generally fixed catching equipment, such as duck decoys and cage traps. The main duck ringing stations have, partly by chance, been concentrated in the southern half of England, and duck populations occurring there have been well ringed and their recoveries have produced a mass of information about movements both within and between years. However, only comparatively small scale ringing of ducks has taken place in Scotland and although there is outline knowledge of the movements of most species, there is nothing like the detailed information that is available for populations further south.

Sticking with wildfowl, they well illustrate another aspect of recovery analysis and interpretation. Several species of ducks and geese are shot for food or for sport and so recovery rates, the number of recoveries per 100 birds ringed, can be as high as 15-20%. Compare this with a small passerine, such as Willow Warbler, which has a recovery rate of 0.25%, and it can readily be seen how much more information will be gained by ringing a thousand ducks than a thousand warblers. However, duck recoveries are greatly affected by shooting seasons, which vary widely in the different countries. What might appear to be a sudden movement into or out of a country at a particular time of

year may merely reflect the start or end of the shooting season.

The final introductory chapter is "Synthesis of the migration patterns of British & Irish birds". This is an overview of migration by birds occurring here, comparing and contrasting groups of species, as well as different individual species, and relating this to their different migration strategies.

The species accounts themselves are full of fascinating information, clearly written and superbly illustrated by several maps. Every species has two maps (for breeding and non-breeding periods) showing the distribution of the ringing locations of subsequently recovered birds, a histogram showing the month of ringing, a pie-diagram of recovery methods, and tables of the numbers of birds ringed and recovered and of any statistical significances found in the data. Maps plotting actual recoveries vary in number from one to at least eight, depending on the complexity of the movements shown.

The book concludes with a look at the future of migration studies for bird conservation science, a very full bibliography, and appendices summarising the statistical test data and comparing movement patterns among the species.

I have refrained from picking out highlights about individual species as each reader will undoubtedly find their own. I have worked with birds, including ringing them, for over 40 years, but I have already learnt a great deal from dipping into the species accounts and I know I will continue to do so for a long time to come. I cannot recommend this book highly enough. Whether measured in terms of pounds sterling per species, per page or even per kilo, it has to be worth buying. The BTO are to be congratulated on producing such a magnificent tome.

Malcolm Ogilvie

**Baker, R. (2001). *Fragile Science*. Macmillan, London. 258 pp. ISBN 0 333 901029 hbk. £15.99. (2002) ISBN 0 330 480936 pbk. £7.99.**

This was last Christmas's 'serious book' from my biochemist son and it deserves a brief review, for surely other BRISC readers will welcome the author's explanation encapsulated in the book's subtitle: *The reality behind the headlines*. In eight chapters, he summarises the scientific underpinning to the following headline issues of recent years: sunscreens and skin cancer, cholesterol, clinical depression, mad cow disease, global warming, conservation, GM foods and the genetics of free will. There are introductory and concluding chapters, and an index. However, although there is a list of further reading there are no text figures, and few references to sources, so one cannot easily follow up particular statements. Broadly the pattern of each chapter begins with a summary explanation about the subject, then a substantial teasing apart under sub-headings often posed as questions, and ending with a summing up. The book's title derives from the general conclusion that, too often, the science underpinning major issues about our environment, agriculture and human condition is inadequate and *fragile*.

This is not a book one needs to read through seriatim. Chapters can be cherry picked according to one's interests. Those on clinical depression, mad cow disease and GM foods struck me as particularly good; sunscreens and cancer somewhat tortuous. Other readers will have different preferences but surely all will gain much from Baker's mastery of a considerable range of subjects. The main drawback is that parts of the book will probably become out of date fairly quickly and had my local bookshop not revealed that the paperback version is remarkably cheap, I would have suggested that this is a book more to borrow than buy. Either way, read it and learn (or be reminded if you knew already) of the strengths and weaknesses of the science base underlying so much that hits the headlines.

There has been much about the holocaust recently and an article in the Weekend Scotsman for 25 January described how 13 year old Ruth Kluger survived Auschwitz because of the crucial action of a 20 year old clerk to an SS officer. Reading it soon after Robin Baker's penultimate chapter on *Fragile Wills, Genetic Leftovers*, made me ponder on what happened to free will in the whole of that dreadful episode – an intended thought-promoting benefit of this Christmas gift. Baker left academic life in 1996 and since then has concentrated on interpreting science to a wider audience than his former students. We can be grateful for that.

Thomas Huxley

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Arran Biological Records Centre	Kate Sampson	NTS Brodick Country Park Isle of Arran KA27 8HY <a href="mailto:Ksampson@nts.org.uk">Ksampson@nts.org.uk</a>	01770-302-462
Ayrshire Biological Records Centre	Gill Smart	c/o Dunaskin Heritage Centre, Waterside Patna, Ayrshire, KA6 7J <a href="mailto:gi11smart@ayroffice.freeserve.co.uk">gi11smart@ayroffice.freeserve.co.uk</a>	01292-532-000
Central Area Recording System for the Environment (CARSE)		Smith Art Gallery & Museum, Dumbarton Road, Stirling FK8 2RQ <a href="mailto:CARSE@CARSEC.freeserve.co.uk">CARSE@CARSEC.freeserve.co.uk</a>	01786-446-008
Dumfries & Galloway Environmental Records Centre	Clair Spray	Solway Heritage, Carmont House, The Crichton, Bankhead Road, Dumfries DG1 4ZB <a href="mailto:cspray@solwayheritage.co.uk">cspray@solwayheritage.co.uk</a>	01387 247-543
Fife Nature	Julie Bett	Fife House, Glenrothes, Fife KY7 5LT <a href="mailto:Julie.Bett@fife.gov.uk">Julie.Bett@fife.gov.uk</a>	01592-413-793
Glasgow Biological Records Centre	Richard Sutcliffe	Kelvingrove Museum & Art Gallery, Glasgow G3 8AG <a href="mailto:richard.sutcliffe@cls.glasgow.gov.uk">richard.sutcliffe@cls.glasgow.gov.uk</a>	0141-287-2660
Inverness Museum Biological Records Centre	Jonathan Watt	Inverness Museum, Castle Wynd, Inverness IV2 3EQ <a href="mailto:jonathan.watt@highland.gov.uk">jonathan.watt@highland.gov.uk</a>	01463-237-114
Islay Wildlife Information Centre	Lindy MacLellan	Main Street, Port Charlotte, Islay PA48 9TX <a href="mailto:Lindy@islaywildlife.freeserve.co.uk">Lindy@islaywildlife.freeserve.co.uk</a>	01496-850-288
Lothian Wildlife Information Centre	Bob Saville	Suite 19, Leith Walk Business Centre, 130 Leith Walk, Edinburgh EH6 5DT <a href="mailto:swtlothianrc@cix.co.uk">swtlothianrc@cix.co.uk</a>	0131-554 -6360
NatureBase (Dundee Museum)	David Henderson	Dundee Art Gallery & Museum, Albert Square, Dundee DD1 1DA <a href="mailto:david.henderson@dundeecity.gov.uk">david.henderson@dundeecity.gov.uk</a>	01382-432 -069
North East Scotland Biological Records Centre	Lesley Cropper Jannet Imlach	Room G64, MacRobert Building, Aberdeen University, King Street, Aberdeen, AB24 5UA <a href="mailto:Lesley.Cropper@aberdeenshire.gov.uk">Lesley.Cropper@aberdeenshire.gov.uk</a> <a href="mailto:Janet.Imlach@aberdeenshire.gov.uk">Janet.Imlach@aberdeenshire.gov.uk</a>	01224-273-633
North Lanarkshire BRC	Jenny Storey	Conservation and Greening Unit, North Lanarkshire Council, Palacerigg House, Palacerigg Road, Cumbernauld G67 3HU <a href="mailto:storeyj@northlan.gov.uk">storeyj@northlan.gov.uk</a>	01236-780-636
Orkney Biodiversity Records Centre	Sydney Gauld	The Orkney Library, Laing Street, Kirkwall, Orkney, KW15 1NW <a href="mailto:sydney.gauld@orkney.gov.uk">sydney.gauld@orkney.gov.uk</a>	01856-873-166
Perth Museum Biological Records Centre	Mark Simmons	Perth Museum & Art Gallery, 78 George Street, Perth PH1 5LB <a href="mailto:mjsimmons@pkc.gov.uk">mjsimmons@pkc.gov.uk</a>	01738-632-488
Renfrewshire Biological Information Centre	c/o Jenny Gough	<a href="mailto:jenny.gough@renfrewshire.gov.uk">jenny.gough@renfrewshire.gov.uk</a>	
Scottish Borders Biological Record Centre	Jon Mercer	Harestanes Visitor Centre, Jedburgh, Scottish Borders, TD8 6UQ <a href="mailto:jmercer@scotborders.gov.uk">jmercer@scotborders.gov.uk</a>	01835-830-306
Skye Environmental Centre	Gracie Yoxon	Broadford, Isle of Skye IV49 0LA <a href="mailto:Grace@otter.org">Grace@otter.org</a>	01471-822-487
Shetland Biological Records Centre	Paul Harvey	c/o Shetland Amenity Trust, Garthspool, Lerwick, ZE1 0NY <a href="mailto:sbrcc@zetnet.co.uk">sbrcc@zetnet.co.uk</a>	01595-694-688
South Lanarkshire BRC	Ann McKillop	Chatelherault Country Park, Ferniegair, Hamilton ML3 7UE <a href="mailto:ann.mckillop@southlanarkshire.gov.uk">ann.mckillop@southlanarkshire.gov.uk</a>	01698-426-213
<b>Some Country Parks with collections of data</b>			
Almondell Country Park	Ranger Service	Visitor Centre, Broxburn, West Lothian EH52 5PE	01506-882-254
Balmedie Country Park	Ranger Service	Balmedie, Aberdeenshire	01358-742-396
Bennachie Country Park	Rangers Office	Bennachie Centre, Eassons Car Park, Chapel of Garioch, Inverurie, Aberdeenshire	
Calderglen Country Park	John Hawell	Strathaven Road, East Kilbride G75 0HZ	013552-36644
Crombie Country Park	Scott Morris	Monikie, Broughty Ferry, Tayside DD5 3QL	01241-860-360
Culzean Country Park	Gordon Riddle	Maybole, Ayrshire KA19 8LE	01655-760-269
Haddo Country Park	John Malster	Tarves, Ellon, Aberdeenshire AB4 0ER	01651-851-489
Loch Leven Nature Centre	Kenn Shaw	RSPB Vane Farm, Loch Leven, Kinross KY13 7LX	01577-862-355

