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BRISC
BIOLOGICAL RECORDING IN SCOTLAND

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Recorder News

WHAT'S SPECIAL ABOUT ST ABB'S HEAD

By Liza Cole
Property Manager, National Trust for Scotland

I am very tempted to say "what's not special about St Abb's Head"? but I suspect that most people who care for a particular area will have the same point of view about their area. However, the fact that St Abb's Head is one of the most heavily designated natural and cultural heritage sites in the UK rather supports my point of view. I will not bore you with all the acronyms; suffice it to say that the most notable designations are Special Area of Conservation (SAC), Special Protection Area (SPA) and National Nature Reserve (NNR).

White Heugh at the south end of St Abb's Head NNR © Liza Cole/NTS

The Nature Reserve at St Abb's Head covers an area of 77ha. It has a complex coastline with boulder beaches, cliffs up to 90m high and many offshore stacks and rocks which provide nest sites for large numbers of seabirds. The sea cliffs and the slopes and knolls behind them support a rich maritime flora. Soil pH varies considerably across the reserve, giving rise to both calcareous and acidic grasslands. Running parallel to the coast is a deep glacial overspill channel in which lies the man-made Mire Loch. Around the loch is a narrow fringe of fresh-water vegetation, planted trees and gorse scrub. The vegetation over most of the Reserve is closely-grazed grassland with a high species diversity and several rare or local species. The site is also notable for lepidoptera, migrant birds and geology.

Seabirds:

Numerically, St Abb's Head has the largest seabird breeding colony on the mainland between Fowlsheugh (Angus) and Bempton (N. Humberside) with around 45,000 individuals of eight species. The cliffs here are especially suitable for nesting because of the underlying volcanic rocks which erode to form high, sheer cliffs with a variety of ledges and stacks, which are inaccessible to land-based predators and allow a clear drop to the sea for auk chicks. **Continued on p.3**

Chairman's Column

The latest BRISC Committee meeting took place in August and, as indicated in my last Notes from the Chair, the meeting was dominated by our discussions on the general activities for BRISC over the next few years.

It is obviously essential for any organisation to have clarity on how it intends to proceed with its aims and activities in both the short and medium term and, if at all possible, for the long term. BRISC Members have always represented the broader 'recording community' and where it has undertaken any project work it has done so on the understanding that such work will be of benefit or interest to all recorders or recording societies. Therefore and predictably, the outcome of our discussions was that we will continue to provide this independent view on recording; disseminating information on what is happening in different geographical and taxonomic areas.

Our strongest means of communicating matters of interest are the Newsletter and Website but we will try and facilitate more evening and weekend meetings for greater personal contacts to be established, otherwise called networking. We will continue to keep in mind some of the other thoughts put forward in the last Newsletter, with perhaps the most important of these being to assist those who are new to recording to meet and make contact with those who are more established.

We have been considering the format of the AGM. The timing of our AGM is dictated by the Constitution rules, which states that it must take place within 14 months of the previous one, and also by the need to enable us to complete and have the accounts audited. To meet these two parameters we have run the AGM in the spring of each year, in conjunction with an annual conference. However, there has been a steady increase in the number of other conferences taking place at that time of year, many of them with themes that are of interest to our members. This has resulted in conference overload, and we have been wondering how to make changes that would suit the majority of our members.

For 2011 we are arranging for the AGM to take place in conjunction with an evening talk, and that a conference or weekend event is considered for a date later in the year. Accordingly would you please make a note in your diaries that the **2011 AGM will take place on Thursday 10th March.** The evening is likely to commence around 6pm and it will be combined with a Glasgow University Zoological Society talk.

Patrick Milne Home

The Deadline for next issue (January 2011) is 20 December 2010.
If possible please submit all material in electronic format to the editor at Hanne-marie@smout.orgH
Otherwise by ordinary mail to A-M Smout, Chesterhill –upper flat, Shore Road, Anstruther,

Editorial

It is with great sadness that we report the death of Bob Saville, who passed away on 9 September 2010. There will be few people in Scotland involved in biological recording who have not at one time or another come into contact with Bob and been inspired by his enthusiasm and dedication. Personally I learned a very great deal from Bob, whose knowledge and support was especially helpful when, back in the early 1990s, I was employed by Fife Council to set up a local records centre for Fife. An obituary can be found on p. 12 below.

The long running feature on "What's special about" this time takes us to the very special area of St Abb's Head. This stretch of coastline is a tremendous introduction to Scotland's dramatic scenery, and I defy anyone, native or tourist, travelling by boat towards the Firth of Forth not to be immensely impressed. Of course, it is not only the scenery and the wonderful views, but this site, now happily belonging to the National Trust of Scotland, is a very special place in many other ways. I am very grateful to Liza Cole, senior ranger, for giving readers a taste of the many different kind of plants and animals that inhabit this site or put in a visit at one time or another.

As from this issue, however, the "What's special about" series will also take a new angle. Instead of focusing on what is special about different areas and interesting sites in Scotland, this feature will also at times deal with different taxonomical groups and what is special about these from a Scottish perspective.. I am most obliged to Jonathan Willet for being able to present the first contribution – on dragonflies (Odonata) – in the present issue.

For a biological recorder the beastly weather recently has a definite upside, because strong easterly with rain and poor visibility often brings exciting migrants. Most notable are the birds, of course, but they are not alone – many insects also migrate. Our own exposed seaside garden has for instance had several rather unusual migrant moths, including a striking white pyralid moth, *Palpita literalis*, which is a rare migrant from southern Europe. It would be really interesting to hear something about what other people have seen, so please write in and tell us! As always, any contribution to the newsletter is most welcome, whether bits of news, reviews books or websites, letters and of course full articles.

My apologies for the late publication of this issue – due to lengthy technical problems with my computer outfit.

Anne-Marie Smout

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Continued from p.1.
Seabird numbers have been monitored for decades and have fluctuated wildly during this time. The last full colony count was carried out in 2008 where numbers were as follows.

Fulmar: 137 Apparently Occupied Nests (AON)
Shag: 131 AON
Herring gull: 258 AON
Kittiwake: 5,298 AON
Guillemot: 33,181 individuals
Razorbill: 1,687 individuals
Puffin: 13 individuals

The guillemot breeding population is recognised as being internationally important, and the populations of kittiwakes, razorbills and shags are considered to be nationally important.

Guillemots with chicks (top) and Kittiwake with chick (bottom) ©NTS/Kevin Rideout

The headland is also a good vantage point to observe passage seabirds such as skuas and shearwaters.

Other birds:
Apart from seabirds, over 240 species have been recorded on the Reserve, with around 30 species breeding regularly, which reflects the diversity of habitat on the site. Species that can be spotted on a daily basis at the right time of year include mute swan, little grebe, moorhen, rock pipit, sedge warbler, linnet and yellowhammer. In addition, the geographical location of the Head, coupled with the presence of a relatively sheltered area of good cover at the Mire Loch, makes it attractive as a stop-over point for many migrant species.

Plants:
The variety of habitats found on the reserve supports a diverse flora with over 360 species of higher plant, 60 species of bryophyte, 40 species of lichen and 12 species of fern. The exposed sea cliffs and the slopes and knolls just behind them support a diverse maritime grassland influenced by varying soil depth, pH, exposure and grazing by rabbits and sheep. These areas are dominated by thrift, sea campion, scurvy grass and plantains. In the gullies on sheltered cliff slopes there are species such as bluebell, red campion and cowslip; and where there is water seepage or enrichment from seabird droppings you will find scentless mayweed. The cliff tops are where you will find the best displays of purple milk vetch, which is scarce elsewhere in Berwickshire.

Thrift (left) and Purple Milk Vetch (right) © NTS/Liza Cole

Areas of short calcareous grassland on south facing rocky slopes support flourishing colonies of common rockrose, which grows in an abundance that is notable in both Vice County and British terms. This species also has the added importance of being the food plant for the caterpillar of the locally important northern brown argus butterfly.

Common Rockrose © NTS/Laura McHugh

The most notable plant on the reserve is spring sandwort, which is a scarce plant in Britain, locally widespread in northern England but rare in Scotland, and St Abb's Head is the only place it is found in Berwickshire. This can be found on rocky ledges in one or two areas of the reserve.

Spring Sandwort © NTS/Kevin Rideout

Lepidoptera:

Such a rich and varied flora supports a diverse invertebrate life of which the most intensely studied are the Lepidoptera with over 260 species having been recorded. Butterfly transects have been carried out since the 1980s and there are 16 regularly occurring species of butterfly, the most notable being the northern brown argus, the grayling, the dark green fritillary and the wall brown.

(above) Northern Brown Argus © NTS/Laura McHugh

Marine:

Wolf Fish © NTS/Cathy Lewis

The coastal waters adjacent to St Abb's Head form part of St Abbs & Eyemouth Voluntary Marine Reserve (VMR), which was designated as Scotland's first Marine Protected Area in 1984. Since then further protection has been afforded by the wider area being designated a Natura site for its internationally important reefs and sea caves, and grey seals. The area has long been appreciated by marine biologists for having an unusual mix of cold water species, like the wolf fish, and warm water species, like the Devonshire cup coral.

St Abb's Head provides a particularly good viewpoint for cetacean watching. Harbour porpoise can be seen all year round and in the summer months minke whales are a common sight. Other species recorded include humpback whale, killer whale and Risso's dolphin.

Devonshire Cup-coral © VMR/Jim Greenfield

Geology:

The national geological and geomorphologic importance of St Abb's Head is reflected in the fact that it is a Geological Conservation Review site. The St Abb's Head fault separates the Devonian period Lower Old Red Sandstone volcanic rocks from the Silurian period sedimentary greywackes. Pettico Wick, just west of the Head, is the perfect viewpoint from which to see how the horizontal strata of the greywackes were thrust into deep folds by the coming together of continents over 400 million years ago.

Management of the reserve:

The National Trust for Scotland, who own St Abb's Head, employ two full time rangers and a seasonal ranger to manage the reserve. Biological recording is an important part of their work. The most in depth work is the seabird monitoring, which includes both whole colony counts and productivity monitoring, with data sets going back decades. Butterfly transects have been carried out for nearly 30 years and moth traps have been used sporadically over the years to build up a fairly comprehensive moth species list over the years. Other wildlife records are kept on a day to day basis. The flora of the reserve has been recorded in detail, mostly by Vice County Recorder Michael Braithwaite. A local bird ringer monitors breeding birds as part of the British Trust for Ornithology Constant Effort Site scheme.

Other management issues include grazing management, access management and education.

Further information can be found on a number of websites. Apart from the National Trust for Scotland website at www.nts.org.uk, there is a useful in house seabird website at www.ntsseabirds.org.uk. The Voluntary Marine Reserve is well covered on www.marine-reserve.co.uk and the Rangers produce a informal blog with news and observations at http://stabbsrangers.blogspot.com/

Folding of Silurian Greywrake at Pettico Wick ©NTS/Laura McHugh

Work on updating the SNH National Nature Reserve is in progress, and this should be online soon at www.nnr-scotland.org.uk while the creation of an electronic list of species/database is a project for the future.

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If you see this publication and feel tempted to join BRISC and support our work, you can down-load a membership form from our website at Hwww.brisc.org.ukH or request a form from Duncan Davidson, BRISC membership secretary.
Individual membership is only £15 p.a.
Corporate membership is £30 p.a.

What's Special about Odonata in Scotland?

By Jonathan Willet

The special thing about Odonata (dragonflies and damselflies) in Scotland is that when you get to see them the sun tends to be shining, so it is always a cause for celebration! As we have relatively few species it is relatively easy to get to know the entire Order. From there you can study distribution of species, their behaviour or just enjoy a summer's day by a pond with pretty insects buzzing about.

Odonata are also special because they are so old in evolutionary terms; think of them as the crocodile of the insect world. Along with the mayflies, they are known as the Paleoptera, and this group's common ancestor separated from the progenitor of all other winged insects a long, long time ago. We know that the first Odonata fossils date from over 300 million years ago, and these Protodonata were huge, with a 70cm wing span. Modern day Odonata have not changed that much and their old, simple design works very well; so well that they are still the fastest flying of all the insects.

There are twenty-one species of dragonfly that breed in Scotland and another seven that are suspected to breed here or whose breeding range is moving north. Being quite mobile insects, and most species being generalist in their habitat requirements, it is likely that since the end of the last glaciation there has been an ebb and flow of species distribution moving north and south, depending on the prevailing climate. More on this later.

With all insects the further north you go the overall number of species declines, and this is the case with Odonata, with Scotland having about half the breeding species of the south of England and a quarter of those found in France. Northerly latitudes, suitable habitat and an island's isolation causes further reduction in the number of species that can be found. For example seven species of Odonata are found on the island of Hoy, with only five recorded on the mainland (of Orkney). Shetland may have a single breeding species, the large red damselfly, but there are no recent records.

(above) Large Red Damselfly - female © Jonathan Willet

Common Species.
There are nine common species that you can find pretty much everywhere in lowland Scotland.

- Large red damselfly *Pyrrhosoma nymphula*
- Common blue damselfly *Enallagma cyathigerum*
- Azure damselfly *Coenagrion puella* – from Pitlochry south.
- Blue-tailed damselfly *Ischnura elegans*
- Emerald damselfly *Lestes sponsa*

- Common hawker *Aeshna juncea*
- Four-spotted chaser *Libellula quadrimaculata*
- Black darter *Sympetrum danae*
- Common darter *Sympetrum striolatum*

Four-spotted Chaser, recently emerged plus exuvia © Jonathan Willet

Species with a Restricted Distribution.

There are a further twelve species that are more localised.

Beautiful Demoiselle © Jonathan Willet

- Beautiful demoiselle *Calopteryx virgo* – mainly coastal from Islay to Skye, but also inland in northern Argyll.
- Banded demoiselle *Calopteryx splendens* – a single site near Dalbeattie.
- Variable damselfly *Coenagrion pulchellum* –a stronghold in Dumfries and Galloway; also known from the Black Lochs near Oban. Probably under-recorded and overlooked as it is one of the blue damselflies.
- Northern Damselfly *Coenagrion hastulatum* – scattered sites in Strathspey, Deeside and near Pitlochry and Dunkeld. Under-recorded.
- Hairy Dragonfly *Brachytron pratense* – very few sites, found near Oban and in Dumfries-shire. Under-recorded?
- Azure Hawker *Aeshna caerulea* – scattered sites all over the Highlands, and a relic site at Silver Flowes, Galloway. Under-recorded.
- Southern hawker *Aeshna cyanea* – Moray Firth coastal plain from Tain to Buckie. Also a recently colonised southern population breeding at least as far north as Stirling.
- Golden-ringed dragonfly *Cordulegaster boltonii* – widespread but restricted to the west, scattered sites on the eastern coastal plain.
- Downy emerald *Cordulia aenea* – is found in Speyside, Argyll and Strathglass / Glen Affric.

Brilliant Emerald - pronotum © Jonathan Willet

- Brilliant emerald *Somatochlora metallica* – this species has a limited range in Strathnairn east of the A9, Speyside, Argyll and Strathglass / Glen Affric, but is still likely to be under-recorded.
- Northern emerald *Somatochlora artica* – widespread in the Highlands and Argyll, as far south east as Flanders Moss. Under-recorded.
- White-faced darter *Leucorrhinia dubia* – this species is found from Wester Ross through Speyside to a few sites in Deeside and Perthshire. Its patchy distribution is probably due to under-recording.

Northern Emerald –teneral[1] female © Jonathan Willet

[1] A recently emerged adult dragonfly whose cuticle has no fully hardened and darkened. A sub-set of this category is the pre-flight emergent, a teneral adult that is still to take its first flight.

Species that may be breeding here.
There are seven species that are spreading into northern England or have already been regularly sighted in the south of Scotland.

- Banded demoiselle – moving up the north east English coast and from Cumbria.
- Southern hawker – the "new" population is breeding as far north as Stirling.
- Migrant hawker *Aeshna mixta* – in Dumfries and Galloway.
- Brown hawker *Aeshna grandis* – few sightings in southern Scotland.
- Emperor dragonfly *Anax imperator* – suspected breeding in Galloway.
- Broad-bodied chaser *Libellula depressa* – Breeding confirmed at Keilder Reservoir in 2009, not far from the Scottish border.
- Black-tailed Skimmer *Orthetrum cancellatum* – A few sightings, on the east coast.

A Scottish Speciality.
The northern damselfly is the only UK species that is only found in Scotland; however it is a common species in Scandinavia. It is known from around 40 sites in Scotland but each year more sites are being found. In UK terms it is likely that it is Scotland's rarest Odonate in terms of sites and also population size.


Northern Damselfly 'in cop' © A-M Smout

Another Scottish odonatological speciality was the highland darter. In the 1970s there was a population of reddish darters in the north west Highlands and some common darters in southern Scotland, with a big gap between these populations. The Highland population was described (to much scepticism) as a separate species due to its geographic isolation and its visual difference from the common darter, namely being a bit blacker. However, DNA testing of common darters and highland darters in 2008 showed that the highland darter was no more. So it is now an ex-speciality.

Changing Distributions.
Being a mobile insect, Odonata can alter their distribution quite rapidly in response to climate change provided suitable habitat is available. This ebb and flow of species' distribution can explain why in the 1980s the only southern hawker sites in Scotland were at the Black Lochs near Oban and Culbin Sands near Nairn. Though undoubtedly under-recorded the populations seemed to be centered round these sites. The southern hawker has now spread from these sites into Argyll and up the Great Glen and all over the Moray Firth Coastal Plan from Buckie to Tain and down the Great Glen. Soon these two, long separated populations will become one. To further confuse the issue, southern hawkers are moving into southern Scotland from England, but they have not got much further north than the Central Belt.


Spring (or Hairy) Hawker © Jonathan Willet

In 2009 breeding of both the northern damselfly and azure damselfly was confirmed at the pond at Castle Fraser near Inverurie. These were both the most easterly for northern damselfly (by 30km) and most northerly (by about 80km) for azure damselfly records to date. Having been told that azure damselfly had been recorded in Aberdeen in the early 1900s and the fact that water spider is found at the site made me think that this is not a new site but a very old one, and that the two Odonata species mentioned represent relic populations, not a recently colonised ones.

Going back to the (ex) highland darter, its previous isolation has been reversed and the southern population of common darter has now spread, so that there are no gaps between these two previously isolated populations. It is impossible to say when this isolation of the common darters in the north west Highlands began but it was long enough for them to evolve a slightly darker colouration than their southern branch of the family. This darker colouration would have increased absorbsion of the sun's heat, giving these individuals a competitive advantage in a cooler climate than those with "normal" colouration.

Climate is only one factor that has affected Odonata; the availability of wetlands and their proximity to one another is the other key factor. This is probably why the Aberdeenshire and Angus coastal plain is relatively species-poor, with isolated pockets of the full range of expected species. Through agricultural improvement over the last 200-300 years huge areas of wetlands and bogs have been drained, representing a massive habitat loss. Interestingly, though, in Stirlingshire a survey of the ponds there in

the 1980s, "Operation Brightwater", showed that the number of ponds and lochans had increased since the 1880s. In the Highlands, my gut feeling is that the extent of wetland habitat has not changed greatly since the industrial revolution, even allowing for commercial forestry, land improvement, grazing, etc.

Golden-ringed Dragonfly female (top)) male (bottom)
© Jonathan Willet

Good places to see them

In general any still, clean waterbody on a sunny day between May and October should have at least one species of Odonata flying around it. Sites with water and a boardwalk are especially good, as the Odonates will bask on boardwalk. Below are some good sites with easy access that I know of, the list reflecting my incomplete knowledge. They are:

- Dumfries and Galloway – Loch Ken and the Wood of Cree.
- The Borders - The Ettrick Marshes, St Abb's Head.
- Glasgow – Any of the "rewilded" park ponds.
- Dunbartonshire – Loch Ardinning, Lenzie Moss.
- Fife and Kinross – Loch Leven, Morton Lochs, pools in the Tentsmuir Forest.
- Perthshire – Loch of the Lowes, the curling pond/ Fairy Loch at Logierait.
- Ayrshire – Culzean Country Park.
- Stirling – The Flanders Moss path.
- Argyll – Moine Mor.
- Highland – Glen Affric, Loch Maree, Torridon.

Golden-ringed Dragonfly – larva © Jonathan Willet

Northern Emerald – larva © Jonathan Willet

What you need / publications.

For watching Odonata, a pair of close-focussing binoculars (or monocular) and a hotline to the god of sunshine, is all you need. Get comfortable by a pond on a sunny day and observe away. For larger ponds a telescope may be useful.

To look for larvae all you need is a pond net or colander, a tub of some description to keep your catch in, and a white plastic spoon to inspect your catch closely. A x10 hand lens is useful.
The two best field guides are detailed below, both have their good points but it boils down to whether you prefer illustrations or photos.

- Brooks, S. (1997, revised edition 2008). *Field Guide to the Dragonflies and Damselflies of Great Britain and Ireland.*

British Wildlife Publishing. Rotherwick. (illustrations by Richard Lewington).

- Smallshire, D. & Swash, A. (2010). *Britain's Dragonflies*. Wildguides. Old Basing. (digital pictures).

Golden-ringed Dragonfly looking for a place to emerge

Golden-ringed Dragonfly just emerged © Jonathan Willet

If you are going to get into larval identification then the above books both have larval keys. Two books have been published on dragonfly and damselfly larvae, unfortunately neither have a key.

- Cham, S. (2007). *Field Guide to the larvae and exuviae of British Dragonflies*. Volume 1: Dragonflies (Anisoptera). The British Dragonfly Society. Peterborough.
- Cham, S. (2009). *Field Guide to the larvae and exuviae of British Dragonflies*. Volume 2: Damselflies (Zygoptera). The British Dragonfly Society. Peterborough.

If you are travelling in Europe, you will find that there are a multitude of 'confusion' species. The book that is best is Dijkstra, K-D. (2006). *Field Guide to the Dragonflies of Britain and Europe*. British Wildlife Press. Gillingham

The British Dragonfly Society: history, training and field trips.
The British Dragonfly Society (BDS) was formed in 1983 to promote and encourage the study and conservation of dragonflies and their natural habitats, especially in the United Kingdom. It has around a thousand members and through its volunteers it runs events and field trips showing members and non-members local sites that are great for Odonata. In Scotland this tends to be exploring areas with few or no records, and it is always an adventure and good fun.

Next year's field trips will be mainly in the Highlands or Argyll. But there will be one to Lenzie Moss and also Silver Flowe in Galloway.

Training courses are occasionally run, so check the BDS website for any courses. I run one course a year for free as a BDS volunteer. I am booked for 2011, but if you would like a course for your club or a group you are involved with in 2012 do get in touch. I am of course much more available if I get paid….

Common Hawker exuvia © Jonathan Willet

Recording and the Odonata Atlas 2008-13.
The fieldwork for the Atlas is coming into its last three seasons. Many white holes have been filled but there are lots still in Scotland, so if you would like to do some recording in your local patch or further afield then contact myself. The resulting Atlas from all this survey work will be really useful to get a baseline in order to assess the future changes of Odonata distribution in the UK.

The NBN.
The British Dragonfly Society was one of the first organisations to upload all its data onto the NBN. By early on in the new year just about all of the previous year's records have been uploaded, so the maps you see on the NBN gateway http://data.nbn.org.uk are very up to date.

Conservation.
As with just about all species conservation, their long term survival is a case of suitable habitats being bigger, more widespread and better connected. Our Odonata have survived much drier times in the last 10,000 years and I am hopeful that they will continue to do so in the future, but the major change to habitats in the modern world is their loss, fragmentation and degradation. There is little resilience in degraded habitats to cope with climate stress, so some of the most widespread upland habitat, blanket bog, could suffer really badly if temperatures increase as predicted.

If our conservation efforts embrace the Ecosystem Approach in its most basic form, that is as far as possible to protect our habitats of long ecological continuity, allowing these and other habitats, at an appropriate scale, to function as naturally as possible, with minimum intervention from people, there is some hope.

Jonathan Willet. September 2010.
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BRISC Project update

BURSARIES

It is BRISC's objective to support all aspects of biological recording in Scotland and as a critical part of this BRISC is keen to help people learn new skills or improve existing one. As part of this objective, at the start of 2010, BRISC and Glasgow Natural History Society jointly offered four bursaries of £150 towards attending any of the Field Studies Council's professional taxonomic courses during this year. One of the recipients writes about her course here below.

Attending an NVC course at Kindrogan

By Maureen Potter

Towards the end of February, I received an email from John Hawell, Senior Ranger at Calderglen Country Park in East Kilbride encouraging me to apply for a bursary to visit Kindrogan. I suggested to John that maybe I was a bit old for that type of activity but John did not agree so I duly completed the form and sent it off. A few weeks later I was thrilled to find out that I had been awarded the Bursary to attend Kindrogan FSC, in July to participate in a course called An Introduction to the National Vegetation Classification (NVC).

I had chosen NVC because my knowledge of the different bog plants on Langlands Moss LNR is somewhat limited, and as we are trying to promote the bog locally I felt it would be important to be able to tell visitors about the various plants and their properties.

In July, I duly arrived at Kindrogan and met the tutor and other students. I was taken aback to say the least of it to find that I was the only native Scot on the course and the oldest! The others were botanists, ecologists, or professionals in the Natural History World, whereas I am only a humble volunteer at our Local Nature Reserve. However nothing daunted I owned up to my abysmal ignorance and listened and learned. Much of what I learned was about plant recognition and their properties, but it took me all my time to remember the English names for the plants so when the rest moved on to Latin names, I shut my mouth firmly – a very unusual occurrence for me!

The tutor was Martin Robinson, and he was most enthusiastic about plants and his enthusiasm was shared by the others on the course. This enthusiasm has brushed off on me and made me even more determined to learn more about plants, not only at Langlands Moss LNR but in the wider sphere of the Scottish/British Countryside. It has also raised my awareness of the rich diversity of plants which we have around us and which we all take for granted.

So just in case anyone reading this is an absolute beginner like myself and is wondering "What is NVC?" Well NVC stands for National Vegetation Classification and was started about one hundred years ago by Arthur Townsley, who wrote a book about the need for a systematic classification of plants. In this book he recognised that each plant has its own requirements, but plants live within their own plant communities just as people live within their own people communities. Within each of these communities there are sub-communities, and even within these sub-communities there are variants, e.g. at Langlands Moss LNR we have two different types of heather, common heather which is known by its Latin name as *Calluna vulgaris* and bell heather whose Latin name is *Erica cinerea*.

Current knowledge of NVC is found in five volumes called *British Plant Communities*, which have been edited by J.S. Rodwell. These books give very detailed information on the plant communities which are found in Britain. Prior to the course I had tried to access information from these books but not very successfully. However during the course I learned how to access the information and how to use it – something again which will undoubtedly prove useful in the future.

I was really pleased during a recent walk on Langlands Moss to find blaeberries *Vaccinium myrtillus* and crowberries *Empetrum* there as well cranberries *Oxycoccos*. However at Langlands we have many different types of moss and I now have realised that I need to learn more about these different mosses and their plant communities. This will improve my understanding of the health of the Moss and its hydrology.

I really enjoyed my stay in Kindrogan Field Studies Centre and I am very grateful that I was given the opportunity to participate in this course. Since coming back I have been encouraging one of the younger members of our Friends group, who is very interested in amphibians, to consider going to Kindrogan to widen his knowledge of the Natural World.

Mrs Maureen Potter is secretary to the Friends of Langlands Moss Local Nature Reserv, East Kilbride. Ed.

LRC page:

FIFE NATURE RECORDS CENTRE – 2010 AND BEYOND

By Alexa Tweddle

Introduction

In the January 2010 issue of *BRISC Recorder News*, Simon Scott provided a summary of the work being undertaken by Fife Nature Records Centre to further local and national nature conservation. Since then, Simon has left the post of Records Centre Officer, which he held since 2005, to take up the post of Countryside Services Team Leader within the Fife Coast & Countryside Trust. I'm sure you will join me in wishing Simon every success in his new post.

In July 2010, I was appointed as Simon's replacement and it was with relish that I took up the Fife Nature Records Centre reins to continue Simon's good work and further develop the centre.

Fife Nature Records Centre remains an integral part of the Fife Coast & Countryside Trust (FCCT) - a not-for-profit registered environmental charity that manages, conserves and enhances the biodiversity and countryside of Fife - and is supported by funding from the Trust, Fife Council and Scottish Natural Heritage.

The main role of Fife Nature Records Centre is to gather all available information on the plants, animals and habitats of Fife, as well as sites that are of value to wildlife. This makes Fife Nature Records Centre the main single source of wildlife information in Fife. The information held by Fife Nature Records Centre has a number of practical applications which contribute to nature conservation at both local and national levels:

- Informing planning application decisions
- Informing local and national biodiversity projects
- Contributing to local and national research projects
- Contributing to local and national wildlife protection policies

Fife Nature Records Centre holds a vast amount of information on Fife's natural heritage, including more than 300,000 records of plants and animals. It would not have been possible to gather this volume of information without support from the general public, expert recorders and local and national organisations, for which we at the Records Centre are very grateful. However, it is acknowledged that the information held by the Fife Nature Records Centre represents a fraction of the available information and so work continues to increase the data holdings and to reach a wider audience.

Partnership Working

Fife Nature Records Centre continues to support local recorders and recording groups by undertaking collaborative projects. For instance, the Centre is supporting George Ballantyne, a prominent local botanist, in the production of a Fife Flora Atlas. In addition, work is continuing with the Fife & Kinross Bat Group to develop a definitive bat database and to address the backlog of digital and paper records, whilst support for the Fife Amphibian and Reptile Group (FARG) continues.

Pond dipping with FARG © Alexa Tweddle

Online Presence

The new and improved website of the FCCT was launched in May 2010 with Fife Nature Records Centre having a front page presence. An online recording form is available on the Centre's web-pages for submission of ad hoc individual records.

Events

Fife Nature Records Centre had an important role to play in two leading environmental events held in Fife in the summer of 2010.

Firstly, the Records Centre played a significant role at the Fife BioBlitz 2010, an event organised by FCCT as part of series of events being held across the UK in celebration of the 2010 International Year of Biodiversity. The event involved many members of the public, students, naturalists and scientists trying to find as many different types of wildlife as possible in the small Lime Kilns region of the Lomond Hills Regional Park on Friday 25 and Saturday 26 June 2010. The Fife BioBlitz, supported by funding from Celebrating Fife 2010, consisted of several wildlife recording activities each led by expert members of the Fife Ranger Service and several local naturalists assisting the public to identify wildlife. For example, the moth trapping activity, led by Countryside Ranger Kate Morison and Duncan Davidson (Butterfly Conservation), was particularly successful with a fantastic 43 different species recorded including *Pyla fusca*, the first record of this micro-moth for Fife.

All of the records generated during the BioBlitz were collected by Fife Nature Records Centre, with a total of 195 different species of plants and animals recorded!

FCCT, including Fife Nature Records Centre, were exhibitors at the Big Tent Festival, Scotland's environmental festival, on Saturday 24 and Sunday 25 July. The interest in the work of

FCCT and the Records Centre was high and the wide variety of children's activities on offer proved very popular!

Conclusion

Fife Nature Records Centre continues to seek out all available information on natural heritage in Fife so if you have a report or survey that contains information on the plants, animals, habitats or wildlife sites of Fife, please send it to us.

Fife Nature Records Centre offers a wide range of information services including:

- Environmental reports:
  - Site species lists
  - Habitat information
  - Information on site of importance to wildlife
- Technical assistance and support:
  - Mapping
  - Information analysis
  - Publication of materials
- Biological recording materials:
  - Recording forms

For more information on the services offered visit our website at www.fifenature.co.uk or contact me at

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- Further information on FCCT can be found at the its website www.fifecoastandcountrysidetrust.co.uk

OBITUARY

Bob Saville

Bob Saville was one of the best known faces in biological recording in Scotland over the last 25 years. Even those who never met him had had various telephone and/or email discussions with him as he tracked down and investigated some aspect of wildlife data. His enthusiasm and determination on behalf of the local record centre for the Lothians, now known as The Wildlife Information Centre, was a lesson to us all on how to understand what was happening in the very complex community of natural historians.

Bob was born on the 9 February 1952 in Wolverhampton and went to Wolverhampton Municipal Grammar School. He went on to read chemistry at Southampton University and obtained a Master of Philosophy degree from Wolverhampton Polytechnic in 1977.

After a short time working using his chemistry skills, Bob wanted to try something different and, choosing at random, came up to Edinburgh and joined the Scottish Wildlife Trust as a trainee biological recorder and developed his interests in many different groups of wildlife as he learnt about surveying and recording. These included plants, bryophytes and lichens but ended up with a passion for invertebrates. He obtained a job with the SWT as a Team Supervisor and in this role he trained a great number of people in the skills and disciplines he had developed.

Eventually Bob secured the job to create and manage the first biological records centre for the Lothians, Wildlife Insite. This ground-breaking initiative involved collecting together all known data about the wildlife of the area and adding to it through original surveys. Many of these were carried out by Bob's Team but others such as the Secret Garden project in 1995, involved substantial promotion and publicity to encourage the public to provide wildlife information. This included the SWT's publication in 1997 of ***The Dragonflies of the Lothians*** which provided all of the detailed distribution information required about this fascinating group of insects. At his peak, pictures of Bob looking for bugs of some sort were frequent in the local papers.

With the decreasing funding for training, the Lothian Wildlife Information Centre became an independent company, with Bob as the only member of staff, developing contracts with the local authorities and other bodies in the Lothians to supply biological data and services to help them fulfil their biodiversity duty. LWIC proved to be so effective and successful that it currently covers the Scottish Borders as well as the Lothians and now operates as The Wildlife Information Centre.

Bob's contribution to biological recording has been to develop a wide range of analytical and statistically based methods to use the available biological data in an applied way. Routinely these methods are used to scrutinise planning applications for the potential effects on wildlife and to identify the remaining wildlife hotspots, the Local Biodiversity Sites, as the first step in their conservation.

Bob Saville

Throughout the period Bob worked for the records centre, he was developing an interest in one of the more obscure and least studied group the Barkflies (previously known as booklice). These tiny creatures live almost everywhere, especially on the trunks and leaves of trees and bushes. Bob set out to survey the local species through intensive sampling and as he gained in experience he extended the searches to other places, especially locations where rarities had been found or where no barkflies had ever been

recorded. To try and make sense of some of the apparent anomalies of barkfly taxonomy Bob developed working relationships with several of Europe's experts in the discipline, including Dr Charles Lienhard of Geneva.

The most important contribution to the understanding of the Psocoptera was Bob's energetic development of the National Barkfly Recording Scheme, (see the website at http://www.brc.ac.uk/schemes/barkfly/homepage.htm) which provides encouragement, fact and awareness-raising of this group. In particular his ground breaking web-based, photographic key to the species of barkfly is a huge help in the fundamental requirement to be able to easily and confidently identify the different species. Thanks to a wealth of excellent digital photographs taken by Bob, his wife Val and his colleagues throughout the UK, anyone can be stepped through the identification process in an unambiguous way, ending up with excellent close-ups of the living animals to confirm the identification.

More recently, Bob turned his attention to the question of why were several species of barkfly living on the same tree trunk? On the hypothesis that they may be eating different food, such as algae or lichens, he set up, with help from staff from the Royal Botanic Gardens, miniature experiments of different samples of these foods presented to samples of barkflies. Meticulous measurements of what had, and had not, been eaten clarified what each species favoured but, as with all good research, this identified a lot more questions that needed answering.

Fundamentally, Bob was a great enthusiast and never stopped both enthusing others and investigating some new aspect of wildlife that caught his imagination. Certainly there are very few naturalists in the Lothians and elsewhere who do not know Bob either directly or by reputation. He served for some years as a member of the BRISC Committee and brought plenty of original ideas and proposals to the table.

Bob met his wife Val while working at the Scottish Wildlife Trust and they married in 2008. He has a son Paul. Bob passed away peacefully in hospital in Edinburgh on Thursday 9th September, after a sudden deterioration in his longstanding condition and will be greatly missed by us all.

Published papers:

"The barklice (Insecta: Psocoptera) of the Lothians (Scotland)", B Saville, *Glasgow Naturalist*, 1999, Volume 23; Number 4, pages 50-54.

"New British Barklice (Psocoptera) since 1974." B Saville, *Entomologist's Monthly Magazine*, 2001,Volume 137, pages 79–83.

"Some notable British barkfly (Psocoptera) observations." Saville, B., Alexander, K. A., Dolling, W. R., & Kirby, P, *Entomologists Record and Journal of Variation*, 2005, Volume 117; Part 1, pages 35-39.

"The identity of Stenopsocus species (Psocoptera: Stenopsocidae) in Britain." Robert E. Saville, *British Journal of Entomology and Natural History*, 2009, Volume 22, pages 7-13.

"An initial study of the feeding and egg-laying preferences of bark dwelling psocids (Psocoptera) using composite bark blocks." Robert E. Saville, *Entomologist's Record and Journal of Variation*, 2010, Volume 122, pages 35-42.

Dr Alastair Sommerville,
Chair of The Wildlife Information Centre,

BITS AND PIECES.

BirdGuides [http://www.birdguides.com/birdnews/birdmap.asp] is a brilliant colourful website where anyone can follow the arrival of migrants day by day for free. All you have to do is to register your email address and give a password to load a map of today's reports from all over the country. Just rest the curser on the different squares to see what they represent. To get the full details of the particular sighting, however, such as grid reference, you have to pay a sub. BirdGuides also offer many other services and products for birdwatchers, such as a weekly e-newsletter summarizing the previous weeks reports and videos, multimedia CD-ROMs, photographic competitions, etc. A must for anyone interested in birds.

The Bumblebee Conservation Trust, based at Stirling University, and which only started in 2006, is greatly to be congratulated. This calendar year they have bagged two prestigious prizes; the first was earlier in the year when they won £25,000 in a competition launched by the "Live for the Outdoors" website. The winner would be chosen by the number of votes received from the general public. BBCT's project, which gained 59% of the votes, involves creating a flower-rich habitat to attract and support rare bumblebees along a new ten kilometre path in Pembrokeshire National Park. Then on 11 September BBCT came first again with the **Best Environment Project 2010** at the **National Lottery Award.** Visit the Bumblebee Conservation Trust website at http://www.bumblebeeconservation.org/index.htm to see what else is on the go.

Moth recording has become a very popular pursuit over the last 5-6 years, partly to do with the publication of easily accessible guides to their identification, partly because of some outstanding websites, such as http://www.UKMoths, which offers photos of practically all moth species recorded here, or http://ukleps.org which has photos of most species in many or all the stages of the life cycle. There is also an increasing number of local moth websites, such as the East of Scotland Branch's website which has useful flight times of moths. See http://eastscotland-butterflies.org.uk/mothflighttimes.html

However, the Garden Moth Scheme (see their website at http://gms.staffs-ecology.org.uk/index) has perhaps done more than anything else for the recently increased interest in moths, albeit more people in Scotland need to join if we are to have proper coverage. For Scottish 'mothers', joining the Scottish moth discussion group at ScottishMoths@yahoogroups.com is extremely useful in helping with problem identifications and much else. To join is by invitation only, so go to 'Yahoogroups', and

when prompted for 'which group' type in 'Scottish Moths' and follow instructions.

All these activities also feed into the **National Moth Recording Scheme** (NMRS), which was launched in 2007. To learn more about NMRS visit their excellent website at http://www.mothscount.org/text/27/national_moth_recording_scheme.html The scheme is organised by Butterfly Conservation and concentrates on the 900 or so species of macro moths that occur in the UK, Isle of Man and Channel Islands. Among the downloads are a list of Scottish macro moths (with their UK status and Scottish status) and a copy of the "Code of conduct for collecting insects and other invertebrates", originally published in the *British Journal of Entomology and Natural History* 15: 2002. The present NMRS is similar to one run 1967 -1982 (by the Biological Records Centre, Monkswood), thus providing important historical data about distributions, against which changes can be assessed.

It is a mark of the scheme's success that it has amassed an incredible 11 million records from over 5000 volunteers. It is also worth mentioning that 1700 people have attended training events over the four years that the scheme has been running.

A network of volunteer county moth recorders has been established to help with validation and verification of records before they are submitted to the NBN, and the website lists contact details, so that it is easy to find the appropriate person to receive any record wherever you might record.

All records are made available to the National Biodiversity Network, and a live link is provided within the website, so that the most up-to-date map of every species of macro moth can be viewed. It should be noted, however, that due to pressure of time and volume not all records submitted have necessarily been uploaded yet, so some recent dots may be missing – but give it time!

Moth Count newsletters can also be downloaded and, looking at the effort map in the latest issue, I was pleased to see that Scotland is relatively well recorded, although these are some significant gaps, especially in mainland north (Sutherland and Caithness), Ardnamurchan and inland from there, parts of the Border and Arran. However, some of these gaps may already have been filled when we see the final map.

A provisional atlas is to be published this autumn, to stimulate interest and not least to enable recorders to spot errors.

Native Woodland Survey of Scotland (NWSS). The Forestry Commission Scotland (FCS) is leading a field-based survey of all of Scotland's native **t**o identify their location, extent, type and condition. Also included in the survey are nearly native woodlands, plantations on ancient woodland sites (PAWS), and woodlands of at least 0.5ha. The aim is to create a woodland map linked to the special dataset.

Scotland's native woodlands are especially important in a biodiversity context, as they support a high proportion of the habitats and species that require the most protection. Any fragmentation of native woodlands poses a serious threat to biological richness. Intense deer browsing, and invasive species such as *rhododendron ponticum*, have a very negative impact on native woodlands. They are also increasingly important for green tourism and recreation, and there is widespread public support for more native woods in the landscape.

The Forestry Commission and other public bodies will use the information gained from this exercise to inform the development of policies and incentives for owners to help manage these woodlands in the future.

The fieldwork for this project started in 2006, and is planned to be completed in 2013, when it will be the most comprehensive survey of its kind to date. The results will be published in summary reports covering each of the 32 local authority areas, eight of which have so far been published: Aberdeen City, East Renfrewshire, East Ayrshire, North Ayrshire, South Ayrshire, Glasgow City, Dundee City, and City of Edinburgh. This October another five local authority reports will be published: East Dunbartonshire, West Dunbartonshire, Midlothian, Renfrewshire and the Western Isles. For the publication dates for the remaining areas see FCS's website.

The reports published so far are available for downloading from the Forestry Commission Scotland's website on NWSS. Also for download are the NWSS survey plan, process and procedures,

A Training Course on using and querying the data, including FCS map viewer and ARCGIS tools will be held in Edinburgh on **Thursday 28 October 2010**. For a booking form and for more information on the project see http://www.forestry.gov.uk/forestry/INFD-76AHC7.

Cairngorm National Park – I read in the recent SEPA magazine that a booklet has been produced to help people record wildlife in the park. I have in vain searched the official website for the park for any reference to this, which is very disappointing. In fact you have to search quite hard to find *any* reference to the wildlife within the park, which one might have thought would be of top interest to many visitors. It seems that biodiversity has been demoted to take a very low profile on the official website, which is a crying shame. *the editor*

New website launched on Scottish Fungi

A fantastic new website dedicated to Scottish fungi has been launched and can be found at http://sites.google.com/site/scottishfungi/home

It has been created by Dave Genney (Scottish Natural Heritage) in collaboration with Scottish mycologists including Roy Watling, Liz Holden, Nev Kilkenny and Dick Peebles, and it is designed to be an information hub for both beginner and established mycologists alike. It is a communal site, which means it is open to everyone to contribute photos, records, tips and stories.

There is a calendar on the website showing dates of fungi forays, workshops, talks and events taking place throughout Scotland, with details of how to get more involved with the four fungus recording groups in Clyde and Argyll, Fife, Grampian and South East Scotland.

For complete beginners there are sections on what fungi are, what fungi do, and why fungi are important to us and our environment, and there are specific areas of the site dedicated to teachers and land managers, and also for those interested in eating fungi, including delicious recipes to try.

The best thing about this website for me is the section on identification, which includes tips on collecting, field characters and microscope techniques. There are also helpful pages on keys to use, and also a section where you can submit an experimental key. I worked on a wood-rotting fungi key during my mycology apprenticeship with Roy Watling, and we have put this onto the website. Please do try it out (great for those long winter months) and let us know how you get on.

Sam Ranscombe, BRISC committee member and former BTCV Natural Talent Mycology Apprentice.

Book Reviews

Savill, P.S., Perrins, C.M., Kirby, K.J. and Fisher, N. (Editors), (2010). *Wytham Woods, Oxford's Ecological Laboratory.* Oxford University Press. Hbk ISBN 978-0-19-954320-5 £55.*

In the preface, John Krebs (Lord Krebs of Wytham) writes that "If there were a Nobel Prize for Ecology, and you could award it to a place rather than a person, Wytham Woods would surely be a prime candidate. It is almost certainly unmatched anywhere in the world as a place of sustained, intensive ecological research, extending over nearly three quarters of a century." For others without an Oxford bias, such claims may demand a counter-claim that, although Wytham is a typical representative area of woodland in central England, there are other candidates for top prizes in sustained ecological research, such as Wicken Fen in Cambridge-shire, or Loch Leven and the Ythan Estuary in Scotland. Yet I have often been struck when hearing people trot out statements such as the number of invertebrates in an oak tree or the importance of dead and dying wood, how many ecological truths have their origins in research conducted in Wytham and it is for this reason that I suggested to the Editor that it might be appropriate to publish a review of this book. So here it is.

Wytham woods are located 5km north-west of Oxford City and cover 415ha of woodland and grassland in a loop of the River Thames. The woods were gifted to the University in 1942 by the wealthy Mr and Mrs Raymond William ffennell in memory of their only child Hazel ffennell who died in 1939, aged 34. At first the woods were managed by the University Forestry Department who nearly ruined their ecological value, the saviours being some pioneer stalwarts of British ecology who happened to be lecturers at the university: among them David Lack, Charles Elton and George Varley. This book is mainly about the research carried out in Wytham, enriched by interludes about the history of the science of ecology.

As might be deduced from the number of editors, the book has a complicated structure and a multiplicity of authors. The biographical notes list nineteen of them, including the four editors. Following an Introduction by Perrins, there are chapters dealing with the physical environment, woods ancient and modern, land-use history, the woods in the modern landscape and the trees themselves (including veteran trees), the flowers of the forest, the ecology of a grassland area called Upper Seeds where an old field succession experiment was conducted, invertebrates, birds, mammals, conservation management, and Wytham in a changing environment. Each chapter is a summation of a great deal of research, separated into numerous sub-headings, such that each section provides a mini-essay. Just the chapter on vertebrates runs to over 45 pages, with sections on ecological survey (be thankful to have 'Recorder' and not have to sort data on punch cards), habitat specialisms, abundance and diversity, ecological energetics, the origins of behavioural ecology and the story of the winter moth. The chapter on birds focuses especially on the Wytham tit survey, although personally I associate Wytham bird studies more with Mick Southern and his studies of tawny owls and small mammals. There is much in this that members of the Scottish Native Woodlands Discussion Group would surely find of interest, such as the chapter on conservation management, the importance that the size of a wood may dictate on the variety of techniques to be tested and the likely effects of climate change on biodiversity.

There are lots of histograms and black and white photographs and a central section of 14 half page coloured plates. They are OK but not outstanding when compared to some other recent books of this sort, although I was glad to find a photograph of a young George Peterken with E.W. Jones who taught forestry at Oxford. A slightly curious arrangement is the scatter of one page biographies with a photograph of key players in the Wytham story: three about early foresters, Osmaston, Jones and Dawkins; about E.B. Ford (1901-1988) the ecological geneticist and author of two early New Naturalist books on butterflies and moths (and terrifying lecturer on statistics); on kindly Sir Richard Southwood (1931-2005), part author of the Wayside & Woodland Series *Land and Water Bugs of the British Isles* and author of Ecological Methods, Vice Chancellor of the university between 1989 and 1993 and promoter of Wytham for undergraduate teaching; G.C. Varley (1910-1983) who researched the winter moth and other insect population studies and who became the Hope Professor of Entomology in the Oxford Museum; David Lack (1910-1973), Head of the Edward Gray Institute and biographer of robins and swifts; H.N. 'Mick' Southern (1908-1986) whose research embraced mammals and birds; C.S. Elton, head of the Bureau of Animal Population, author of several classic books on ecology and first editor of the *Journal of Animal Ecology;* and D. H. Chitty (1921-2010) specialist in mammalian population ecology and author of that extraordinarily honest book *Do Lemmings Commit Suicide?*(1996, OUP). There are over twenty pages of references.

However, notwithstanding suggesting this review, I do not expect many *BRISC Recorder News* readers to order a copy for their own shelves but would very much recommend that they persuade their local university to buy a copy (despite the heavy price) so that they can then borrow it, as I have done from my daughter. For ecologists it really is an important book, not just for the backward look to past seminal research but also for the summaries of research currently being conducted in Wytham and about its future management. Earlier this year a notice from the British

Entomological Society Forest Ecology Group went the rounds about a one-day meeting in Wytham Village Hall on 29 April to launch the book, including a morning's mini-talks on the greats of the past and field excursions after lunch to explain current projects. The organisers kindly invited my daughter, who often walks in Wytham, hence her being able to buy a copy of the book at a considerably reduced price and to meet Kitty Paviour-Smith (Mrs Southern), one of the few from my time at the Bureau still alive. Indeed, being reminded of the loss of so many old colleagues has been something of a downer to writing this review but as John Krebs concludes as a reminder of good times past, Wytham is not just a source of ecological data, but also a place of great beauty. The August 2010 issue of the "BES Bulletin" has a report by Alan Crowden on the meeting at Witham Village Hall, warmly recommended to supplement this review.

Thomas Huxley

*At second hand, I am told that consideration is being given to a paperback edition which should, of course, be cheaper.

Goulson, Dave (2010). *Bumblebees: behaviour, ecology and conservation.* Second edition, Oxford University Press. Hbk ISBN 978-0-19-955306-8 £65; Pbk ISBN 978-0-19-955307-5 £29.95

This excellent survey by our leading bumblebee biologist covers all aspects of the life of these fascinating insects – evolution and life cycle, thermoregulation, mate selection, predation, parasites (over 100 species of other groups have been found in their nests), foraging behaviour dealt with in five chapters, competition, their economic value as pollinators, and problems of conservation.

The expert will surely find much to admire, and the non-expert like myself much to learn that is lucidly explained. It is a second edition of a popular text first published in 2003, brought up to date. The weight of its authority may be judged by a bibliography of 69 pages containing over 1300 papers and books, but the text itself is fewer than 240 pages, reader-friendly with technical terms explained.

Coverage is world-wide. The United Kingdom currently has 24 species (Scotland only 19), but in places in Poland up to 16 species may occur in a single site. Bumblebees are found across Asia and in both Americas, but are absent from most of Africa, from India and the Antipodes. The greatest diversity is in the mountains of central Asia, where 60 species occur.

For the general naturalist, the chapters on conservation problems are particularly interesting. Bumblebees are in decline over much of the world, and certainly their numbers have plummeted wherever modern farming, with pesticides, monocultures and silage, has replaced systems based on flower-rich meadows and weedy corn, or natural grasslands. They are a particularly fragile group, the number of reproductively active individuals being far fewer than the number of bees that we notice around us, and once they start to go, the decline can be very rapid. Those bees that are most successful in Britain today, like *Bombus terrestris* (buff-tailed bumblebee) or *Bombus pratorum* (early bumblebee) probably evolved in woodland or on woodland edge, for which gardens make a fair proxy. Those that are least successful are the bees that evolved in grassland, and Goulson is not optimistic about the future of those that have declined so steeply in this country since the second world ware, including *Bombus distinguendus***,** our own great yellow bumblebee, now driven to the Hebrides, Orkney and the north Highland coast.

The decline of bumblebees not only has serious implications for the pollination of certain crops, but also for the biodiversity of wild plants that is likely to change its composition and to diminish overall, when this critical group of pollinators is excluded. One of the most interesting discussions relates to the perils of translocating bumblebees. *Bombus terrestris* in Tasmania is spreading rapidly from one, or possibly two, queens accidentally shipped to Hobart, and is likely to favour the spread of non-native plants to which they are pre-adapted pollinators, much as has happened in New Zealand already.

Worse still, bee pathogens can be accidentally moved, easily and catastrophically. Certain American native bees were moved to Europe, raised in greenhouses with *B. terrestris*, and their progeny returned to the USA. Within a couple of years, three widespread and abundant species were wiped out from much ot their range, and a fourth, rarer one, is probably now extinct. This is equivalent to losing, say *terrestris*, *lucorum* (white-tailed bumbebee) and *pascuorum* (common carderbee), and a rarer bee from the UK. It can only have been the result of an imported virus. The incident makes one doubt the wisdom of the contemporary attempt (not at the moment successful) to reintroduce *B. subterraneus* (short-haired bumblebee) from New Zealand: what might come with it?

This is a very sobering book, a story not only of past human responsibility for biodiversity decline, but also of current lack of controls on the potentially disastrous movement of insects. There are a million hives of *B. terrestris* in captivity, with precious little effective national or international control over where they go or how they are used. To the question, 'will we ever learn?', the clear answer seems to be 'no'.

Chris Smout

DATES FOR THE DIARY

27 October – Scottish Woodland History Discussion Group. Birnam Institute, Dunkeld. 'Woods as cultural and working landscapes, past and present'. NWDG members £28, non-members £35. See http://www.nwdg.org.uk/ for programme and booking form or contact Mairi Stewart at mairi.skye@hotmail.com

30 October – Scottish Butterfly Conservation Members' Day 2010 at the Battleby Centre, Redgorton, Perth. £20. Contact Shona Greig on Tel: 01786 447753

5-6 November The Highlands Biodiversity & Climate Change Conference. Inverness Highland Council Chambers. £20 including the fieldtrip on 6th. To book go to http://www.cifalfindhorn.org/index.php?option=com_content&view=article&id=157:biodiversity-and-climate-change-conference&catid=1:training-programmes