

Recorder News

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2010 it had been recorded in 22 countries across Europe and was first found in the UK in early 2012. How and when it reached our shores is up for debate. It is known that infected ash trees have been imported from Holland and planted here but there is a strong possibility it also reached the UK by natural means. *Chalara fraxinea* has spread across Europe at a rate of 20-30km per year, by fungal spores carried in the wind, mist and rain. The map (on p.3) of known infections in the UK shows clusters of infected sites found in the wider environment along the east coast of the country. It would be rational to surmise from this that these east coast clusters have arrived here naturally and quite possibly have been in existence for some time without being detected.



Initial symptoms of Ash dieback (photos from the internet)

ASHES TO ASHES: CHALARA ASH DIEBACK

By Andrew Fairbairn

Chalara ash dieback is a serious disease which has the potential to cause the loss of up to 90% of our ash trees. The impact could be disastrous for the landscape and the environment in terms of the high ecological value of ash. Dieback is caused by a fungus, *Chalara fraxinea*. It causes leaf loss and crown dieback and usually leads to the death of infected trees (for symptom guide see www.forestry.gov.uk/chalara).

According to government figures, there are 5,000 hectares of pure ash wood in Scotland but it is a significant component of other mixed broadleaved woods (62,000 hectares) and common in parks and gardens.

The disease is thought to have originated in the far east with the first European record noted in Poland in 1992. By November

The UK Government brought forward a plant health order banning imports and movement of ash trees on 29 October 2012 in an attempt to stem the flow of infected trees coming into Britain. Subsequently, the Scottish Government has agreed an interim control plan for the next few months, before the infectious stage of the disease becomes active.

As this article is written there are 26 confirmed and many potential cases of ash dieback in Scotland, but is this the only tree-related pest or disease we should be concerned about? The answer to that is a resounding NO. The Forestry Commission's list of 'top' pest and disease threats already in Britain is a long one. Not all of these are present in Scotland, however, of the 15 listed some are familiar, for example, *Dothistroma* needle blight and pinetree lappet moth affect Scots pine and *Phytophthora ramorum* is increasingly affecting larch.

Continued on p.3.



Chair's Column

BRISC Conference

The first thing I want to talk about is our Annual Conference, which took place in late October down in Dumfries. There is a report of the event elsewhere in this newsletter, but I would like to say how enjoyable and interesting it was. Mark Pollitt did an excellent job of organising it and the venue at the Crichton Campus was excellent. I greatly enjoyed Barbara Mearns's talk about dragonflies as I seldom get to listen to one because I am usually the speaker.

Our keynote speaker was Professor Alastair Dawson from Aberdeen University and he was talking about Scotland's weather "One thousand years of Scotland's weather and climate" to be precise. There was some fascinating information in his talk, such as;

- Pre 1400 the North Atlantic was much less stormy as well as being colder,
- Peak North Atlantic storminess was in the 1880s. From lighthouse records one year had over 300 gale days.
- In the 1880s it was possible to see the sea ice from the hill behind Torshavn in the Faroes.
- The cold water produced by this forced the herring shoals southwards and the whales followed them.

His book "*So Foul and Fair a Day: A History of Scotland's Weather and Climate*", Birlinn Press, will be on my Christmas wish list.

Our other talks were also very interesting, and there is more about them in Sarah Eno's report elsewhere in this issue. The day ended with field trips to various local sites. I visited Kirkconnell Flow, a nearby Lowland Raised Bog, where I was fortunate enough to see an immature hobby chasing an unidentified thrush; not to be outdone one of the other groups saw a female merlin at Caerlaverock NNR.

Guide to Citizen Science.

This new publication is a practical guide on how to develop, implement and evaluate citizen science projects to monitor the UK's environment. It is available at (http://nbn.org.uk/nbn_wide/media/Documents/Publications/GuideToCitizenScienceVersion2InteractiveWeb.pdf). The aim of the project "Understanding Citizen Science and Environmental Monitoring" was to learn lessons from past citizen science projects. 234 projects at a variety of scales were reviewed. What aspects of these projects that really worked were teased out and are in the guide, some are not rocket science but others are less obvious.

It is useful to have a review such as this as citizen science is a buzzword and has attracted funding for example SEWeb (<http://www.environment.scotland.gov.uk/default.aspx>), but actually what it achieves and what it cannot achieve is not perhaps that clearly thought out. Some figures from the report made interesting reading, "During one year alone, volunteer observers for biodiversity surveillance in the UK were estimated to contribute time in-kind worth more than £20 million." However, despite relying on volunteers, citizen science is not free. The analysis carried out showed that projects providing data relevant to policy development typically have annual running costs of between £70k and £150k, spent, for example, on website or smartphone app development, publicity material, data management and event costs, on top of the in-kind contribution of volunteers. So do have a read of this.

Since it is now the New Year, my resolution is to try and get up to speed with some of the new websites, such as iRecord (<http://www.brc.ac.uk/iRecord/>) and the apps available for biological recording.

I wish you all the best in 2013 and let us hope we have a decent summer!
Jonathan Willet

Copy Deadline for the next issue is 15 March 2013.
All material preferably in electronic format. Please see contact details for the editor under BRISC contacts.



Editorial

The natural environment usually only makes it into the national news when some disaster or other has occurred. Most recently has been the dire threat of the Ash dieback, and I am grateful to Andy Fairbairn of the Woodland Trust for giving us his view of this potential disaster and other threats to our trees and countryside.

This morning, however, as I was about to start writing this editorial, something positive and most amazing was announced: on Radio 4's 'Today' programme. Millions of rare flame shells *Limaria hians* had been found in Loch Alsh, the sea inlet between Skye and the mainland. Apparently these molluscs had previously been recorded here but no one had any idea of the size of the population till the present survey found it to be a staggering 4.6 square miles (75 hectares). The discovery was made as part of a larger programme of eight surveys during 2012, coordinated by Marine Scotland, the Scottish Government's directorate responsible for the integrated management of Scotland's seas, to identify new Marine Protected Areas (MPAs). Flame shells have a similar shape to scallops with many bright orange tentacles that help to create a living reef which also supports hundreds of other species. Read more about this exciting discovery on p.13 of this newsletter.

It is another example of the amazing richness of the seas around Scotland. The Scottish Government has recently applied to the European Union to designate an area in the north-east Atlantic as a conservation area. Hatton Bank, near the Isle of Lewis, is around 9,752 sq miles and features a large volcanic bank, which is home to a large variety of corals.

Another new and positive discovery that I find astonishing is that the mystery regarding the migration of the painted lady has finally been solved. Until recently no one knew if this butterfly made the return journey at the end of the summer - like the closely related red admiral - or died in the UK. Now, with the help of 60,000 public sightings across Europe in 2009 (citizen science!), and radar images tracking butterfly movements from southern Finland, it has been revealed that painted ladies do indeed migrate south each autumn but at a high altitude of 500m on average, and they can clock up an amazing 50kph. It has also been worked out that the species makes an extraordinary 9000-mile round trip from tropical Africa to the Arctic and back - not by a single individual insect, but by individuals of six successive generations.

This issue is packed with much interesting reading: Do not miss the brilliant and scholarly article by Alan Taylor on the mysteries of a genus of agaric fungi; a full report of our recent conference and a photo gallery, minutes of the AGM, and a report on Plantlife's vigorous response to the recent Review of the Scottish Biodiversity Strategy by Deborah Long. There is much information on the Gateway and NBN, and details of this year's courses at Kindrogan are listed in full.

Importantly, we are also launching another year of bursaries offered towards the cost of one of the Field Studies Council professional taxonomy courses. Do advertise these bursaries where you can. There is no age limit, but applications have to be in by 31 January. One of last year's bursary recipients writes about the hoverfly course she attended.

Finally I am very pleased and grateful to announce that Sarah Eno has agreed to be Assistant Editor. For starters she has produced a great report of the conference. See p.8
Anne-Marie Smout

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Confirmed sites as by 11 December 2012 – from FC’s website

Observed climatic trends show a change towards warmer and wetter weather that is quite possibly enabling new pests and diseases to thrive in the UK where previously the conditions may not have been suitable. Adapting to future climatic change will mean adapting to the existence of pest and disease. In addition, it is hard to ignore the risks involved in indulging in the global trade of horticultural plants, trees and timber products. The UK is unsurprisingly among Europe’s largest importers of timber products, with 85% of domestic demand coming from overseas. So the risk of new pests and diseases arriving on our doorstep remains high.

So what can be done? The first thing to do is to try and limit the impact of the pests and diseases that are already here. The Woodland Trust is working closely with the Forestry Commission and many other stakeholders to use research and experience from around the globe to minimise the effect. The Trust will organise an international conference in 2013 to agree an action plan on the way forward. We plan to work with tree nurseries to ensure that all of our planting stock is grown in non-affected areas within the UK. And we aim to involve the public, specialists and scientists in a monitoring project to ensure that the extent of the disease is known and acted upon. Alongside this, some form of international regulation on the movement of disease free plants, trees and timber products will be required if the risk of introducing pests and diseases is to be reduced.

To finish, what can BRISC members do to help? It is known from mainland Europe that the ash trees with most resistance to Chalara ash dieback are the old growth trees. The ancient and veteran ash appear to be less affected. There is some hope that

seed from resistant trees will enable ash to remain a part of our landscape. So we need to know where such trees are. The Woodland Trust’s Ancient Tree Hunt has 300 old and gnarled ash trees already recorded but there must be many more out there. To make a record a grid reference, girth at 1.5m and a photograph are required, so if you know of any old ash trees I would really like to hear about them!

For more information please see: www.ancienttreehunt.org.uk

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WHERE ARE ALL THE *CORTINARIUS*?

By Andy Taylor

Cortinarius is the genus of agaric fungi that form symbiotic ectomycorrhizal associations with the roots of a wide range of plants in Scotland. The latter include our native forest trees, Scots pine and birch, and the introduced conifers that make up the bulk of our forest timber trees, species of spruce. The fungi colonise the roots of the host plants where they exchange soil-derived nutrients for photo-synthetically produced sugars. The association is obligate with neither partner being able to survive and proliferate in the absence of the other. In Scotland, there are ca. 130 species of *Cortinarius* recorded, but this is dwarfed by the estimated 900 species that are thought to occur in Scandinavia. Some of the potential reasons why the Scottish component of *Cortinarius* may be so de-pauperate are presented in this short article.



Figure 1. *Cortinarius balteatocumatilus*. The filamentous cortina linking the cap edge and the stipe is clearly visible

Traditionally the taxonomy and identification of *Cortinarius* species is based upon morphological features of the reproductive structures – the fruiting bodies (Fig. 1). These are often produced in abundance in the late summer and autumn in our woodlands. Members of the genus are characterised by the presence of a filamentous partial veil – the cortina (Fig. 1) – that links the edge of the cap and the stem or stipe. The fine threads of the cortina function as a protective mechanism reducing fungivory (the process of organisms consuming fungi) on the developing gills and spores. All species of *Cortinarius* also produce rust brown spores. The identification of *Cortinarius* is notoriously difficult with many species delimitations based upon nuances of colour hues that can be difficult to describe and interpret, especially under artificial light, and just to make it more difficult these often fade after collection.

There is also a major issue with LBJs – *little brown jobs*. The largest subgroup within *Cortinarius*, Telamonia, contains numerous small brown species with few distinguishing characters. When these turn up in a foray basket they frequently become ‘yet another flying *Cortinarius*’ – an expression I recently heard used by an experienced mycologist who shall remain nameless.

These LBJs highlight perhaps the greatest challenge to recording *Cortinarius* in Scotland, that of the lack of specialist taxonomists with the necessary experience in dealing with this difficult group of organisms. However, a number of Scandinavian mycologists have made great advances in recent years using a combination of detailed morphological and molecular approaches. One clear result from these studies has been that there are still a large number of undescribed species. These are not always rare or cryptic species that can only be recognised using molecular data. Many are commonly encountered and have undoubtedly led to confusion and frustration in attempts to key them out in the past. DNA sequence data have greatly strengthened traditional species concepts and allowed an evaluation of the suitability of traditional characters and the recognition of new ones. Much of the recent work has been included in the recently published *Funga Nordica*. This is a comprehensive compilation of keys and descriptions of macrofungi in Northern Europe and has greatly facilitated the identification not only of *Cortinarius* but most basidiomycete fungi in this region.

The existence of sequence data from verified collections in a public access database called UNITE (<http://unite.ut.ee/>) has also greatly helped in the verification of unknown or doubtful records. The UNITE database is an ongoing effort to provide a curated source of fungal sequences to allow identification of sequences derived from environmental samples. Each fungal group is assigned to one or more researchers who work on the group and have responsibility for assessing the authenticity of new data. Due to the huge diversity of species in *Cortinarius*, researchers in four different countries share the responsibility for this genus. Recent collections of three *Cortinarius* species (*C. paragaudi*, *C. quarcticus* and *C. suberi*, Fig. 2) thought to be new to the UK have been verified by sequencing and comparison with data in UNITE. These species were all found on the same day in September 2012 during a search in Abernethy pine forest for rare BAP fungal species.



Figure 3 Unknown *Cortinarius* sp. The white threads on the left are the ectomycorrhizas formed by this species and *Betula nana*.

Another factor which has contributed to our low number of *Cortinarius* records is the low coverage of the habitats in which the species occur. We have recently been assessing the ectomycorrhizal fungi associated with a number of upland and alpine plants in Scotland. These hosts include *Arctostaphylos uvi-ursi*, *A. alpinus*, *Betula nana* and *Salix herbacea*. The diversity of the associated fungal communities have been a great surprise, not least because around one quarter of the taxa seem to be new to science (Fig. 3). This is truly remarkable given that these are not microfungi or based on just sequence data derived from soil samples but based on fruit bodies collected over the last 3 years. The other big surprise is that we have found supposedly spruce specific ectomycorrhizal fungi associated with these alpine plants. The full significance of this is explained below in relation to spruce never making it back to the UK after the last glaciation.

An examination of the ecology of ectomycorrhizal fungi and their hosts in Scotland also highlights a number of issues that have undoubtedly contributed to the low number of *Cortinarius* species recorded. Although the extent of the former Caledonian pine forest may be controversial, it is clear that the 80-odd fragments we have left today are, with one or two exceptions, a poor legacy of former grandeur. The fragmented nature of these remnants means that extinctions of species can occur more readily and it is likely that we have lost a number of species through this process. In addition, larger areas of woodland would also support higher numbers of fungi (as well as other organisms) because they cover greater diversities of habitats. The distribution of ectomycorrhizal fungi is known to be affected by a number of environmental variables, including soil pH. We have very few ectomycorrhizal woodlands left that occur on base rich parent



Figure 2 - (above left) *Cortinarius paragaudi* Like the birch associated *C. armillatus* but banding less intense red and under conifers
(above right) *Cortinarius suberi*; -
(below) *Cortinarius quarcticus*



material. Hence we lack the huge diversity of species that occur in the mixed conifer/hardwood forests growing on the glacial limestone deposits around the western Baltic in Sweden.

If we go further back to glacial times, Scotland was largely wiped clean by ice sheets – although there may have been refugia that escaped permanent ice cover. When the ice sheets retreated, Scotland had to be recolonised, which became much more difficult once the land bridges from the UK to the continent were severed. One casualty of this was Norway spruce, an important ectomycorrhizal host in continental Europe, which never made it back to the UK after the last glaciation. There is fossil evidence and, indeed mycological evidence (as outlined above), that it was here during the last interglacial. When trees expand into new areas they are accompanied by ectomycorrhizal fungi, not only generalists that will colonise a range of hosts but also specialists that only colonise a limited range of hosts, usually a genus or subgenus. So because, historically, spruce never migrated with its specialists fungi into the UK, we have very few ectomycorrhizal spruce specialists. This situation raises another issue – why, despite the fact that there are over half a million hectares of spruce planted in Scotland, do we still have so few spruce specialists? Fungal spores are known to travel long distances and remain viable, so why have not spores been carried from conifer forests on the continent to our spruce forests here? The continued absence of spruce specialists would suggest that there is limited spore rain from the continent into Scotland. The prevailing SW winds may largely account for this. It is not only the absence of ectomycorrhizal fungi that support this assertion. There are many species of saprotrophic (aid decomposing) fungi that are very widespread and common on the continent but which are absent from the UK even though their habitat requirements seem to be just as widespread here.

Another contributing factor to our paucity of *Cortinarius* species may be the levels of chronic nitrogen (N) deposition in the UK. Species within the genus that are normally found in ecosystems where most soil N is bound in organic form are known to be highly sensitive to increased levels of soil mineral N. In studies of ectomycorrhizal fungal communities in boreal forests after the addition of N fertilizer, it is *Cortinarius* species that decline most rapidly and disappear from treated plots. Similar declines have been shown near point sources of high N deposition e.g. intensive animal farms. Recent work at the James Hutton Institute in Aberdeen has also found an effect of N deposition in structuring ectomycorrhizal communities in native Scots pine woodlands. Given the sensitivity of *Cortinarius*, it is therefore possible that some species may have been lost because of the elevated N levels being experienced by our forests.

In summary, we have a great diversity of ectomycorrhizal fungi in Scotland with just over one tenth of them belonging to the genus *Cortinarius*, though with recent advances in combined morphological and molecular taxonomic studies this proportion is likely to increase. However, we have a long way to go before we catch up with the rest of Nordic Europe in terms of species richness.

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References

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BRISC PROJECTS

Want to Study Wildlife?

Once again BRISC (Biological Recording in Scotland) and GNHS (Glasgow Natural History Society) are together offering four bursaries towards attending a training course in natural history field studies skills. The bursaries will be for up to £200 or 75% of the cost of the course, whichever is lowest. For details, see www.brisc.org.uk/bursaries or www.gnhs.org.uk/bursaries

Further information:

- Bursaries are open to anyone living in Scotland.
- Please state whether you have asked your employer (if any) or other funding body to fund this course.
- Courses should be run by FSC www.field-studies-council.org or similar professional development courses run by universities etc.
- Courses should be completed before 31 October 2013.
- Applications for topics where there is a shortage of taxonomic expertise will be looked on preferentially.
- Indicate what you intend to do with the field observations you will generate with your newly acquired skills.
- The successful candidates are required to write a short article (300-400 words) on their course experience for *BRISC Recorder News* and/or the *GNHS Newsletter*. £15 of each bursary will be held back until receipt of the relevant article.

All applications should be submitted **electronically** to bursary@brisc.org.uk by **31 January 2013**

Identification of Hoverflies

By Laura Whitfield

In August I was able to attend a hoverfly identification course thanks to a bursary from BRISC/GNHS. After the summer we have had here in Scotland I was glad that it was being held at Preston Montford FSC in Shropshire. It actually allowed for us to spot and identify a good variety of hoverfly species in the sunshine! Even though I have been a ranger for coming up to seven years I never really knew much about insects apart from the usual suspects: butterflies, dragonflies and bumblebees. It seemed the natural progression to move on to hoverflies as they always seem to be 'hovering' about the place. I currently work for the Scottish Wildlife Trust down at the Falls of Clyde and this ancient woodland site will, according to my excellent tutors Stuart Ball and Roger Morris, support around 80 of the ~200 species that we find in Scotland. These little insects are great environmental indicators, many of which spend their larval stages in places such as rot holes in deadwood or burrowed deep in the stems of thistles.

Stuart and Roger are the founders of the Hoverfly Recording Scheme and there is little that they do not know about hoverflies. The course itself consisted of a few different talks about how to identify hoverflies, where to find them, how to collect and process them. Identification began with firstly keying out to tribes and then later we moved onto keying to species. Hoverfly ID involves a fair amount of microscope work but it is possible to identify many species in the field. As a conservationist I did find it hard at first to come around to the idea of actually killing these wee beasties. However, in

order to find out what they are they do need to be pinned, so that you can see such things as hairy eyes and spines on legs. One of the more easily recognisable species found in Scotland, which can be identified in the field, is known as the Heineken hoverfly (*Rhingia campestris*); it has a very pronounced projecting face!

(below) Stuart Ball with a pooter



Once you know what a hoverfly actually is and how to differentiate them from all the other flies (they have false vein running through their wings) you begin to spot them everywhere you go. Since completing the course I have been out a few times catching and recording on the reserve where I work. In just over an hour on quite an overcast day I managed to catch eight different species (only 72 to go!). I also recently attended the weekend course at Rowardennan, which has further improved my knowledge on these fascinating flies. I think if you are looking to expand your entomological knowledge from the usual suspects but are not sure what direction to take then I would urge you to consider hoverflies. It is possible to record over 50 species in your garden alone.

Below are some useful sources of information on hoverflies and identification:

- (www.buglife.co.uk) – for a general overview of hoverflies
- (www.dipteristsforum.org.uk) – a forum dedicated to Diptera, lots of useful help, advice and information on upcoming meetings and training courses
- (www.hoverfly.org.uk) – Home of the hoverfly recording scheme, it has a handy tool that allows you to put in your postcode to find out the recorded species in your area
- *British Hoverflies*, by Alan Stubbs & Steven Falk – This is the definitive book on identifying hoverflies, a 3rd edition is due to be published soon so I wouldn't bother getting a copy until the new edition comes out



Three different hoverflies (from left) *Eristalis* sp. *Helophilus pendulus* and *Leucozona lucorum* (pinned) © Laura Whitfield

CORRESPONDENCE

Response to Peter Quelch – (*BRISC Recorder News* 86 & 87)

We feel moved to answer Peter Quelch's review (*BRISC Recorder News* 86) and subsequent comments that Peter made on the letter from Bill Bourne (*BRISC Recorder News* 87). In his reply to the question of the importance of hazel nuts to early man, Peter states we (the authors) "constantly play down the

influence by man in plant distribution or woodland structure." We feel this is unfair. The role and influence of man in not only the distribution but the structure of Atlantic hazel woods is certainly acknowledged in the book, for example, on page 12 and again on page 82. The point to bear in mind is that the subject of the book is **Atlantic** hazel – not hazel that occurs everywhere in the British Isles, but hazel particularly found and associated with the wet coastal woodlands of western Scotland, and to a lesser degree in Wales, SW England and Ireland. And as regards the use by man of hazelnuts – yes, we are aware of this and it is a subject we are very keen to follow up. We have been in correspondence with Prof. Steven Mithen of Reading University; Mithen (2010) has been researching Mesolithic settlement sites on the Hebridean islands for the last 25 years, and has come across vast middens of burnt hazelnut shells. These are often the only surviving dateable artefacts (and only the burnt shells survive) (<http://www.educationscotland.gov.uk/scotlandshistory/earlypeople/staonsaighhazelnuts/index.asp>)

The question is, why are there hazel nut middens on these western isles where today hazel is either absent or extremely rare? Did (as some people suggest), Mesolithic man take hazels with him to these islands, or indeed, were hazels growing there in groves? One of the future aims of AHAG (Atlantic Hazel Action Group) is to organise an international symposium to encompass as many aspects of Atlantic hazel as we can – including archaeology and cultural uses. So, Peter will have an opportunity to demonstrate that Atlantic "hazel stands, like many other semi-natural woodland types, are a form of our biocultural heritage."

We must also say that the Appendix in the book (for assessing the condition of Atlantic hazel stands), was of course, field tested before publishing. And, it was tested by non-lichenologists – by members of SAC and SNH officers amongst others.

It is interesting that Peter felt "The book is unashamedly promoting the habitat because of its lichen (and bryophyte) richness..." When attempting to put the book together, we struggled about not over-emphasising the importance of the habitat for lichens. We are lichenologists, and worried that if we gave lichens too much prominence, then we would be accused of being biased. So, if anything, we under-played the role of lichens. But suddenly, the light dawned – the Atlantic hazel habitat is important for lichens! We should give them full acknowledgement, we should unashamedly admit that this habitat is of international importance for lichens – we would not hesitate to say if the habitat was important for Fritillary butterflies, or red squirrels, so why be coy about saying the lichens are important? And the lichens are stunning, so varied, so beautiful, the colours, the textures and co-existing with the lushness of the bryophytes, the ferns and the mysterious fungi – the habitat is a real delight.

The point that the book was attempting to make is to encourage people to look beyond simply regarding hazel as a coppiced shrub. If you walk into a hazel wood, most people would instinctively say "ahh, hazel coppice". What the book attempts to show is that hazel is naturally a multi-stemmed shrub, and it grows that way without being coppiced. It also grows as a multi-stemmed shrub if it is coppiced. And herein lies the difficulty – how can you tell if a stand of hazel has been coppiced or not? They both appear the same, but the difference in biodiversity of epiphytes (lichens and bryophytes growing on the hazel stems) will soon tell you which has been

coppiced, and which is growing as a result of long-term low-disturbance management. Undoubtedly, Atlantic hazel was and still is utilized by man (see e.g. insert on Brian Wilson, thatcher and spar-maker by Ullapool, p. 85), but certainly in some 'core' areas, it seems there was so much hazel, that stems were simply selected and cut from the stand, rather than the whole stand being clear-cut, or coppiced in the English tradition. The use of the Atlantic hazelwoods as sheltered grazing continues to the present day.

The book does deal in some detail about the long tradition of coppice with standards that was carried out for centuries, especially in southern England, and the value of the "underwood", the coppiced product. There is a very revealing quote from Rackham (2003), where he qualifies the benefits of coppicing, acknowledging that it is purely a management device, but adds "Coppicing has not created hazelwoods, which have existed throughout prehistory, but has enabled hazel to be commoner in mixtures than it would otherwise be."

As for the subject that seemed to vex Peter most, was that of whether hazel was pollarded, and he refers to the picture we included of a veteran hazel tree in Stonethwaite, Cumbria (not in the 'Atlantic' hazel zone, but unfortunately we had no photos of good enough quality to use examples from Glenfinglas). Peter says: "I feel the book is on weak ground showing clearly what is a hazel pollard in Stonethwaite, then more or less attributing its tree-form to natural causes only." In fact, what we said of this example is this:

"The old hazel pictured is a survivor; it has managed to maintain a presence here when other hazels have seemingly succumbed to constant grazing pressure. It has deviated from its normal multi-stemmed form as a result of continual browsing of the basal shoots. The surviving 'stem' (or trunk) has gradually thickened over the years and the canopy proliferated above grazing height, forming a classic 'hazel tree'.

What is interesting about this example is that there appears to be a 'bolling' (a swelling at the top of the trunk). Bollings are characteristic features of pollarded trees (usually oak or ash), and are formed as a result of repeated pollarding, or cutting away of fresh branches from above browsing height. So, was this hazel 'tree' pollarded?

There are two opinions on this. There is no doubt that this looks like a classic example of a pollarded hazel. And there is no reason why hazel would not have been pollarded. On the other hand, there are also numerous examples of old hazels like this where old extensions of the 'trunk' break away because of the strain and weight of the canopy, leaving a stump end which sometimes heals over and will appear as a rounded swelling. New stems will always be put up to maintain the canopy, thus giving the appearance of a 'pollard' growth form. It would be interesting to date the canopy branches (by coring). If they were less than 50 years old it would tend to discount pollarding – although it would be useful to tap into memories and recollections of local people, as to whether they remember this practice being carried out locally."

It is always good to keep an open mind, to question assumptions, and explore options.

In his review, Peter mentions George Peterken's Foreword, and we were very grateful to the honest appraisal that George gave to

the book; he recognised the importance of being able to define a previously unrecognised or overlooked habitat, and stated: "Important groups of woodlands have been almost ignored before" and goes on to talk about lime woods, and more recently, wood-pasture, and the fact that 17th–18th century oak woodlands (established as plantations for producing coppiced products) "were scheduled as SSSIs, whilst remnants of older wood-pasture were ignored." George Peterken goes on to say that in recognising a previously overlooked habitat: "The key seems to be in coining a name, conferring an identity, and at the same time increasing our understanding, thereby increasing public and professional interest and fostering greater willingness to look after the survivors."

Peter appears to have somewhat missed the point in the discussion about 'scrub' vs 'woodland'. The recent rapid expansion of hazel on the Burren (which seems to have occurred as a result of changes in farming practices), is not 'relegated' to scrub as Peter implies. The importance of 'scrub' is discussed, with reference to recent reassessment of the scrub habitat, as important for biodiversity in its own right. The distinction between long-established hazel woodlands, with recognisable features attributed to an ancient woodland ground flora (primroses, wood anemones, bluebells, dog's mercury, let alone the epiphytic bryophytes and lichens), was made. These 'indicator species' are not found in recently-expanded woodlands – one would not expect to find them, whether the woodland expansion was of hazel or any other woody shrub or indeed tree. Being able to describe a habitat – give it a label – so that it is recognisable to other people, and includes all aspects of the habitat, its structure, composition and history, is always difficult. Peter mentions various attempts that have been made with British vegetation over the last 100 years or so – all in good faith; just so have we attempted to describe what to us is a distinctive habitat, that has significant biodiversity value and is indeed particularly important in European terms. Yes, the Atlantic hazelwoods do have cultural significance, and yes, these are Scotland's special woodlands. It would be a tragedy to lose Scottish Atlantic hazelwoods through lack of knowledge and misguided management.

And finally, to finish with a comment from Dominick DellaSalla, author of *Temperate and Boreal Rainforests of the World*, after he visited the Atlantic hazelwoods recently:

"If European rainforests are to take their place alongside better-known rainforests, biologists will need to become better storytellers to justify their continued existence. Giving meaning to rainforests in places like hazel woodlands begins with seeing the rainforest for the lichen, small but important cogs in nature's verdant wheel that connect worlds within a world."

Sandy and Brian Coppins

Ref.:

- Mithen, Steven (2010) *To the Islands: an archaeologist's relentless quest to find the prehistoric hunter-gatherers of the Hebrides*. Two Ravens Press
Rackham, Oliver (2003) (New Edition) *Ancient Woodland, its history, vegetation and uses in England*. Castlepoint Press.

[Please note: *This correspondence has now been drawn to a close – ed*]

CONFERENCE REPORT

BRISC ANNUAL CONFERENCE NOV 2012

By Sarah Eno

The BRISC annual conference for November 2012 was held in the lovely grounds and old red sandstone Victorian buildings of the Crichton Campus in Dumfries. (The following summary owes 90% of its source to Natalie Harmsworth for her excellent notes but any mistakes are mine!).

The conference started with a riveting keynote address from Prof Alastair Dawson. Based on a range of sources including diaries, paintings, lighthouse keeper records, long term data sets, weather modelling, garden weather records and Greenland ice cores, Prof Dawson described 1000 years of climate perturbations and their impacts on the landscape and cultural, social and economic life of Scotland.

The Medieval period was comparatively warm and calm, helping the Vikings extend their activities across the north Atlantic including starting to farm in Greenland. Sometime from the 1400s increased storminess in the north Atlantic resulted in some huge sand depositions along the Scottish coast forming, for example, the Culbin Sands in Moray and blowing far enough inland to destroy agricultural crops in the Orkneys. By the 1700s the well-kent cold period had set in and Edinburgh Skating Club got going. Other fascinating snippets include a dramatic picture of the southerly extent of the arctic ice sheet, which cut off an Eskimo who appeared in Aberdeen, and pushed herring shoals further south and affecting northern fishing. Weather and climate are fascinating and Prof Dawson's talk showed that over a short period (geologically speaking) there has been some amazingly significant changes and impacts. With factors such as the oceanic thermohaline conveyor belt, storm tracks, land and ocean temperature affects and the eleven year sunspot cycle amongst many influences, it is also a complex subject. It is impossible to do justice here to his well illustrated talk so I recommend anyone interested to read the full story in his book *So Foul and Fair a Day: A History of Scotland's Weather and Climate* (2009).

Barbara Mearns followed by asking whether climate change is affecting dragonfly distribution in Dumfries & Galloway, given that at least six new species have been recorded in recent years adding to the usual 13 known species. Of course they could have been missed previously, except some like the emperor dragonfly is expanding northwards as the new atlas, due out next year, will show. Other new records included the keeled skimmer, the migrant hawk, the southern hawk (also found further north but there is a gap in records in southern Scotland), the broad-bodied chaser and the beautiful iridescent banded demoiselle. Meanwhile what might be the future for the azure hawk, an arctic species at its southern limit here? Might global warming mean this species also moves north?

Leisler's bat (*Nyctalus leisleri*) is common and widespread in Ireland and central southern England but has been rarely recorded in Scotland although it is known to be resident, turning up at times in bat roost boxes in Wood of Cree woodland near Glen Trool. John Haddow of Central Scotland Bat Group described how he finally got more to grips with this elusive mammal after a roost with eight Leisler bats was found in the roof of a school near Newtown Stewart in Wigtonshire.

John and volunteers managed to catch three males and fit minute radio tags. Radio tracking showed each occupying separate territories and foraging in about one square km. Leisler's bats

are unique in emitting "songflight" calls which may also be heard by human ear. Using this as a sonic lure and mist nets they managed to catch one female and radio tag her. This showed she travelled much further, visiting all three male territories, probably prospecting for potential mates. Studies in Ireland show females travelling up to 15km. Further work around Culzean Castle found three Leisler's roosts in Scots pine holes. Since then John has been able to determine a distribution confined to west of the M74 and as far north as Stirling. The range overlaps the noctule which is, however, more common in south-eastern Scotland whereas I believe, Leisler's bat has not been recorded in the south-east so far. So Leisler's bats in Scotland are probably much less rare than originally thought, but under-recorded. No nursery roosts have been found yet either.

Chris Catherine (Caledonian Conservation Ltd) presented an almost forensic examination of all known records for grass snakes (*Natrix natrix*) in Scotland. In 2010 while in a loch looking for great crested newts in D&G Chris recorded a grass snake. This prompted him to search sources for any records, because the expert view is that grass snakes are not native to Scotland despite the ecological conditions being apparently suitable. Grass snakes occur high up in Sweden, so they are not limited by low winter temperatures for example.

Chris's aim was to determine whether grass snakes have a natural range in Scotland and how recent it might be. Chris compiled a total of 95 records for Scotland including the 1995 survey by Arnold, which found most sightings around the central belt to Dundee. Chris talked with the original recorders, checked with local herpetologists and eliminated records in the Arnold survey based on evidence of non-wild grass snake releases around population centre. There are also difficulties arising from naming confusions with local names for slow worm being grass snake and in some cases even adders called the same. Finally Chris narrowed down locations of verified sightings to three places in D&G and a possible further eight elsewhere which might be reliable.

His hope is that further searches will be made and records expand. Grass snakes are shy creatures but they might be more common than we think. They are most active around May. The website for information and records is (www.scottishgrasssnakes.org). You can also access Chris' poster which gives more details of the above work.

After the AGM, lunch and raffle, members divided to go to one of the three field trips. I went to Kirkconnell Flow, a 142ha raised bog just 5km south of Dumfries. The site has been owned by Scottish Natural Heritage since 1998 and is protected under national and European legislation. It is also a National Nature Reserve. In 2001 a serious programme of restoration commenced using European funding, and about 84ha of the primary bog dome was cleared of mature Scots pine and 18ha of the fringing trees were thinned. In total about 62,000 trees or 9000 cubic metres of timber were felled, showing how dense the woodland had been. The felling and damming of drains should help re-wet the peat body, so monitoring of the water table occurs and fixed point photography records vegetation.

On our visit the central area appears to be well colonised with peat-building sphagnum and cotton grass amongst the typical dwarf shrubs, and the drain is filling with *Sphagnum cuspidatum* (the first to colonise open water). Of course seedling pine and birch are moving in and until the bog is really wet, ongoing work will be needed to remove these. It

was lovely to find cranberry (*Vaccinium oxycoccus*) and bog rosemary (*Andromeda polifolia*). A small fast moving raptor was spotted, stimulating a discussion about just what species it actually was. The NNR has a good car park and obvious and well used paths in the pine and birch fringe but it is most rewarding to follow the old floating road into the open area and experience the real raised bog. See [www.snh.gov.uk] for further information on Kirkconnell Flow.

There were two other excursions, one went to Lochwood - an SSSI which is a wonderful ancient oak woodland with superb old pollards – lead led by Peter Norman, Biodiversity officer; the other went to Caerlaverock NNR.

BRISC AGM
27 October 2012 at 12.00
Easterbrook Hall, The Crichton, Dumfries

New and existing members were welcomed to the conference and AGM

Apologies: Richard Sutcliffe, Craig MacAdam, Glenn Roberts

Present: Alastair Dawson, Amy Murray, Andy Swales, Andy Wakelin, Anne-Marie Smout, Barbara Mearns, Brian Walker, Catherine Barlow, Chris Cathrine, Chris Smout, Christine Johnstone, Claire Seymour, Colin Brydon, David Lampard, Deirdre Holding, Duncan Davidson, Graeme Wilson, Graham Smith, Ian Richardson, John Haddow, John McKillop, Jonathan Willet, Joyce Cooper, Keith Bland, Louisa Maddison, Mark Pollitt, Mike Beard, Natalie Harmsworth, Patrick Milne Home, Peter Robinson, Richard Mearns, Richard Weddle, Sarah Eno, Stanley Tanner.

Annual Report

This had been mailed out to members in September, and extra copies were available. Jonathan Willet (chair) reported:

- We had a successful AGM in 2011 despite a low turn out due to clashing with other events.
- The BRISC website now hosts a calendar which shows major events of other organisations/societies so hopefully we can prevent diary clashes in the future. It was suggested that an online calendar was used to allow sharing and updates.
- The committee has met three times since the last AGM. The main focus has been the Scottish Biodiversity Information Forum (SBIF), and the projects that result from this will shape how we move forward. SBIF had their first meeting in May 2012, with BRISC running a discussion seminar beforehand to give suggestions for progression.
- We gave a loan to the Highland Biological Recording Group (HBRG) for publication of their Mammal Atlas which will be repaid soon.

- The bursary scheme continues in partnership with Glasgow Natural History Society (GNHS). There were many applications this year, and thanks to an anonymous donor we were able to assist with funding five courses.
- The National Federation for Biological Recording (NFBR) are becoming more of a lobbying group. See their website for meeting minutes and the “Join the Dots” strategy <http://www.nfbr.org.uk/>

Membership & Financial Report from Duncan Davidson:

- Outgoings have been higher than usual due to the loan to HBRG and holding a separate conference and AGM last year.
- Membership trends are generally static
- The treasurer reported the loss of many membership payments due to Bank failure re standing orders. This has given us a much reduced income, and efforts to resume membership payments are continuing.
- The accounts were proposed Richard Weddle, seconded by Anne-Marie Smout.

Committee Election

- Any one who would like to join the committee is more than welcome, and can discuss this with Jonathan Willet chairman@brisc.org.uk
- Similarly anyone wishing to assist Anne-Marie Smout with editing Recorder News should get in touch.
- All existing committee members were proposed to retain their positions. This was proposed by Mark Pollitt and seconded by Ian Richardson.
- Thanks were given to all the committee members for their hard work, to Mark Pollitt for organising the conference and speakers, Anne-Marie Smout (newsletter editor and help with organising the conference), Duncan Davidson (treasurer and membership), Louisa Maddison (minutes secretary), Andy Wakelin (website) and of course Jonathan Willet (chair).

AOCB

- Claire Seymour expressed thanks on behalf of Scottish Natural Heritage (SNH) for BRISCs e-petition which led to the creation of Scottish Biodiversity Information Forum (SBIF), as well as organising and running discussion sessions prior to the inaugural forum meeting. It is hoped that the success of SBIF will lead to improved data flow and more data in the future.
- The future of BRISC will tie in with progress of SBIF. We will engage with this as much as possible and are already involved e.g. the BRISC website is currently hosting information on the forum, and Craig Macadam, deputy chair of BRISC, chairs the steering group. We will offer funding to assist with the co-ordinator post to allow us remain up to date with progress of the project. LM



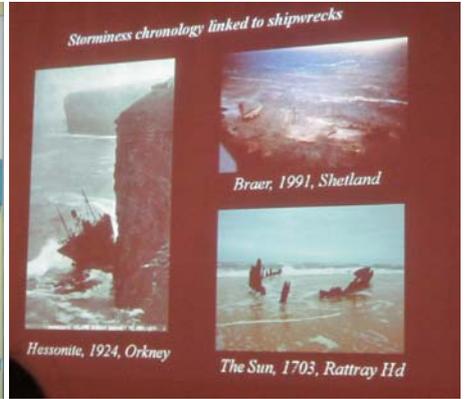
BRISC 2012 Conference at Crichton campus in full flow



Jonathan opens the proceedings



Prof. Alastair Dawson on weather – Arctic winters in 1890s



ferocious storms are not new



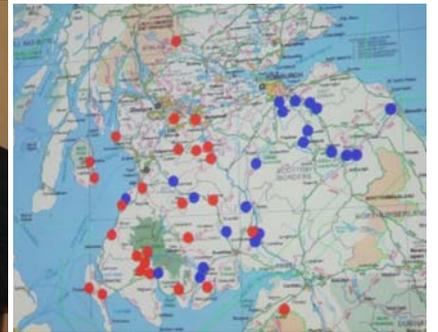
Barbara Maerns on dragonflies



and colander-ing



John Haddow on bats



and Leisler's Bats (red): Noctule Bats (blue) 2012



Chris Catherine



our Grass Snakes are the sub species *helvetica*



Mark Pollitt with his quiz – most of us did very badly!



Lochwood SSSI – Peter Norman explains about the site; two images of some of the old oaks;



Sunday morning outing to Caerlaverock was cold and wet but the café was lovely dry and warm

NBN Gateway news

New NBN Gateway version 5

Version 5 of the NBN Gateway was released in December 2012. However, some of the enhanced functionality of the new Gateway will be rolled out in stages during 2013, in order to provide time to carry out final testing and produce user guides explaining the new features. This will also give users a chance to familiarise themselves with the new access controls and download facilities before they go live – a link to a prototype system will be posted on the NBN website. The December release contained the core features of the Gateway, such as the interactive map, grid map, site report and grid square report, but did not allow log-in, access requests or data downloads. These facilities will be made available in 2013.

In the meantime, the original NBN Gateway will remain accessible and in a functional state but with the access controls frozen so it will not be possible to request or grant access to data on the original Gateway – access levels will remain as they were at the last data upload on 26th November.

Web services will continue to be run from the original Gateway, but will be gradually migrated to Gateway V.5 in the new year by the technical team. Web service users will not notice any change in performance and do not need to take any action.

Data loading recommenced in January, with new and updated datasets being loaded onto Gateway V. No new data will be loaded onto the original Gateway.

Information on the changes to the Gateway and the access controls can be found here: [Hwww.nbn.org.uk/Share-Data/Data-access-controls.aspx](http://www.nbn.org.uk/Share-Data/Data-access-controls.aspx)

We are sure that when the rollout is complete, the new functionality will enhance your experience of using the NBN Gateway, but we would welcome any feedback, comments or suggestions over the coming months – please contact us on Haccess@nbn.org.uk

New data provider: the Hebridean Whale and Dolphin Trust

We are delighted to welcome the Hebridean Whale and Dolphin Trust to the ever growing number of organisations who have chosen to share their data via the NBN Gateway to ensure it can be used for conservation, education and other public benefit purposes. The Hebridean Whale and Dolphin Trust is dedicated to enhancing knowledge and understanding of Scotland's whales, dolphins, porpoises and the Hebridean marine environment through education, research and working within Hebridean communities as a basis for the lasting conservation of local species and habitats. Their dataset of visual sightings of cetaceans from 2003-2012 was uploaded to the NBN Gateway in November 2012 and comprises over 6,500 records of cetaceans as well as turtles, basking sharks and sunfish. The records are fully publicly available and have already been used in a number of publications, reports and postgraduate student projects. Further information can be found on their website – www.whaledolphintrust.co.uk/research-publications.asp

iRecord is delivering data...quickly!

In the last issue we told you about the new website for online recording and verification, iRecord (www.brc.ac.uk/iRecord), which was launched in July with the aim of making it easier for wildlife sightings to be collated, verified and made available to support research and conservation, while enhancing the recording experience for users. Since its launch, iRecord has shared nine datasets of verified records, some appearing on the NBN Gateway within a week of being made! The datasets are administered on the Gateway by the organisations that provided the verification expertise, who include the Botanical Society of the British Isles, the Conchological Society of Great Britain and Ireland and the Marine Biological Association.

NBN News

Honorary Membership of NBN Trust

We were delighted to present John Newbould with Honorary Membership of the NBN Trust at the NBN Conference. John Newbould may be known to you, through his work at the Yorkshire Naturalists' Union (YNU) and the National Federation for Biological Recording (NFBR). Without the contributions made by John, over many years, both the YNU and NFBR would not have flourished. In particular, he has been prepared to take on tedious administrative duties that are essential to the success of voluntary bodies. But he is also still an active field naturalist. John is a prime example of the life-blood of the NBN – amateur naturalists that are committed to studying natural history, sharing their results and promoting enthusiasm in others.

Did you know?

A new practical guide on how to develop, implement and evaluate citizen science projects to monitor the UK's environment has been published.

Scientists from the NERC Centre for Ecology & Hydrology and the Natural History Museum were commissioned by the UK Environmental Observation Framework (UK-EOF) to undertake a review of citizen science. The aim of the project "Understanding Citizen Science and Environmental Monitoring" was to learn lessons from past citizen science projects.

The guide is based on conclusions from a comprehensive report reviewing more than 200 citizen science projects from the UK and around the world.

The full report can be downloaded (from the UK-EOF, CEH and NHM websites) and can be distributed for non-commercial purposes.

NBN Conference

If you were unable to attend the NBN Conference which took place on 23rd November at the Royal Society in London, a report of the day and the presentations are now available on the NBN website. For the first time the Conference was also recorded so you can see all of the presentations too! Visit [Hhttp://nbn.org.uk/News/Latest-news/NBN-Conference-2012-review-and-presentations.aspx](http://nbn.org.uk/News/Latest-news/NBN-Conference-2012-review-and-presentations.aspx)

In Practice

Data from the NBN Gateway help in the fight against ash dieback.

In an article published in Nature, personnel from the Royal Botanic Garden Edinburgh, used data from the NBN Gateway (specifically British Lichen Society data) to demonstrate that 536 lichen species (corresponding to some 30% of UK lichens) occur on ash. Of these, 84 are categorized as under threat in Britain using International Union for Conservation of Nature standards.

For at least six of these threatened species, more than half of the records on the Gateway are for specimens found on ash trees. This includes *HFuscopannaria ignobilis*H, a lichen that receives the highest UK legislative protection status under Schedule 8 of the 1981 Wildlife and Countryside Act, and *HWadeana dendrographa*H, for which the United Kingdom has international conservation responsibility.

NBN Gateway data have also been used to help inform the Chalara control plan, produced by Defra.

NBN Trust staff on SBIF working groups

The Scottish Biodiversity Information Forum (SBIF) has set up two working groups to improve biodiversity data flow and data sharing in Scotland and to facilitate commercial use of biodiversity data. Paula Lightfoot, NBN Trust Data Access Officer is chair of the data flow and data sharing group along with Graeme Wilson of the Wildlife Information Centre and Dan Chapman of the Centre for Ecology and Hydrology. Geoff Johnson, NBN Trust Business Analyst, is chairing the commercial use group along with Chris Cathrine of Caledonian Conservation Ltd. The working groups will meet this winter and will report their actions and outputs to the SBIF steering group. If you would like to be involved in either group, contact Paula on Hp.lightfoot@nbn.org.uk or Geoff on

FLAME SHELLS AT LOCH ALSH



Photo of the strikingly coloured Flame shells @Graham Saunders– from BBC News webpage.

Flame shells (*Limaria hians*) are beautiful bivalve molluscs about 4cm long. They are also known as file shells. They live completely hidden on the seabed inside nests, which they build from shells, stones and other materials around them. Hundreds of these nests can combine to form a dense bed, raising and stabilising the seabed and making it more attractive for lots of other creatures. In one study in Loch Fyne, six nest complexes supported 19 species of algae and 265 species of invertebrates.

Flame shell reefs are good hunting grounds for young fish, and offer good attachment for scallop spat, as they settle from the plankton.

Scottish Natural Heritage comments that flame shell beds are vulnerable to mechanical disturbance, particularly from bottom trawls and dredges, and extensive beds are now rare. Primarily associated with areas of accelerated tidal streams the best known examples occur within a number of sea lochs on the west coast of Scotland - Lochs Fyne, Sunart, Carron, Creran, Alsh, Broom and lower Loch Linnhe.

The MarLIN map below shows areas where they are found.



The newly discovered huge colony in Loch Alsh covers an area of 75ha.

Scottish Environment Secretary Richard Lochhead said: "The seas around Scotland are a hotbed of biodiversity and the clean and cold waters support many fascinating and beautiful species.

"With Scottish waters covering an area around five times bigger than our landmass, it is a huge challenge to try and understand

more about our diverse and precious sea life.

"This important discovery may be the largest grouping of flame shells anywhere in the world. And not only are flame shells beautiful to look at, these enigmatic shellfish form a reef that offers a safe and productive environment for many other species."

Dan Harries, of Heriot-Watt University's School of Life Sciences, who helped to carry out the survey on behalf of Marine Scotland said: "Too often, when we go out to check earlier records of a particular species or habitat we find them damaged, struggling or even gone. We are delighted that in this

instance we found not just occasional patches but a huge and thriving flame shell community extending right the way long the entrance narrows of Loch Alsh. This is a wonderful discovery for all concerned." (quotes from BBC's website)

Importantly, if you see have seen any flame shells, MarLIN (Marine Life Information Network) is keen to have the record. There is an easy way to submit records of the flame shells and any other marine life on their website. Just go to (<http://www.marlin.ac.uk/>) and follow the link to "Recording Marine Life". Ed.

CHALLENGE 2020:

The review of the Scottish Biodiversity Strategy. A partial view from Plantlife Scotland.

By Deborah Long

In July 2012, the Scottish Government published a consultation on the draft of their review of the Scottish Biodiversity Strategy. Scotland, along with all other countries in the world, is failing to meet its target to halt the loss of biodiversity. Biodiversity is the foundation of all life on earth and its continued loss has been called "Europe's silent crisis"¹. It is resulting in declining well-being and is exacerbating poverty². The ongoing decline in diversity, at species, habitat and ecosystem levels and the decrease in habitat ecosystem stability is resulting in loss of supporting, provisioning, regulating and cultural services³. While these services are increasingly recognised as having significant economic value to Scotland, over 80% of services provided by Scotland's biodiversity are showing deterioration or equivocal changes⁴. Continuing to lose biodiversity is not an option in a sustainable Scotland.

Plantlife Scotland, along with other eNGOs, submitted a detailed response to the review. The problem for biodiversity, as we see it, is that biodiversity has no champions in the Scottish Government. The services it provides are taken for granted. These services are not just the obvious ones like flood control, soil fertility and pollination services but also the less obvious ones, such as resilient and robust ecosystems and a wild and beautiful landscape that draws visitors and keeps Scotland's morale high.

We believe that success now depends on all organisations and businesses delivering for biodiversity, and recognising that increasing their positive contribution to nature and landscapes can help them better to meet their own corporate priorities and performance.

Challenge 2020 needs to provide a vision, as well as guidance and leadership on what needs to be done to alter our current trajectory, to reverse rates of change and to build wider public support. Against this background and the need for urgent, coordinated and effective action, the current review of action to deliver the conservation and enhancement of biodiversity in

¹ <http://www.publicserviceeurope.com/article/1425/loss-of-biodiversity-europes-silent-crisis>

² Millennium Ecosystem Assessment (2005). *Ecosystems and human well-being: Biodiversity synthesis*.

³ Cardinale *et al* (2011) The functional role of producer diversity in ecosystems. *American Journal of Botany* 98, 572–592.

⁴ UK National Ecosystem Assessment (2011) *The UK National Ecosystem Assessment*

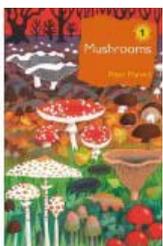
Scotland¹ needs to be well designed and ambitious. It needs to identify key steps required for Scotland to make progress towards our biodiversity targets. To be world leaders in this area and to match the international reputation of our wildlife and landscapes, Scotland needs to achieve much, much more.

Plantlife Scotland supports Scottish Environment Link's Wildlife Forum's response to the consultation <http://www.scotlink.org/public/work/taskforce.php?id=2>. The forum also wrote a briefing for the new Minister for the Environment: <http://www.scotlink.org/public/publications/parliamentary.php>

The review is due to be presented to Cabinet for signing off in January 2013. We hope that it will step up to The Minister for the Environment and Climate Changes' ambition to make 'a step change in what we aspire to do for biodiversity and ecosystems.' Having sign off at cabinet level is a great start to this new step change. Let us hope the review lives up to it.

Dr Deborah Long
Programme Manager, Plantlife Scotland

BOOK REVIEWS



Marren, Peter (2012). *Mushrooms*. British Wildlife Collections 1. British Wildlife Publishing, Dorset. Hbk ISBN978-0-9564902-3-0 £24.95

In the text in the inner flap of the beautifully illustrated dust jacket it is announced that this is the first of a major new series of books on British natural history. Quite a claim, so is the

book up to this? The author, Peter Marren, may be well known to you from his regular columns in *British Wildlife*. His witty, outspoken and sometimes acerbic style can seemingly even be found in his reports when he worked for the Nature Conservancy Council in North East Scotland. That is my bit of trivia, so on with the review.

The Foreword makes clear that it is not a field guide on fungi or a text book on mycology, but rather a personal account of "the wonderful world of fungi". This is perhaps what the new series of books is all about. Rarely do books on a natural history subject have a role for the author beyond a fair-minded corral'er of the facts, such as the New Naturalist Series. As we all know, we engage with the biodiversity around us and our favourite species with the heart as well as the mind, so maybe the literature is starting to reflect this. The popularity of the Flora, Birds, Bugs Britannica books showed that our interaction with wildlife were just as interesting as the stories about the wildlife itself.

First of all I have to say that the pictures in the book are fantastic, they are all captioned with the common and Latin names. The author is making a bit of a comment here about the current vogue for just using common names. I think it works well and does not take up too much space or confuse the reader.

My favourite chapter was the one on names. The Jew's ear fungus which is commonly found on elder is now called the 'brown ear fungus' in many books as the old name is seen as racist. However it should really be Judas's ear, as it is said that

Judas hanged himself on the elder tree when full of guilt and remorse after betraying Jesus. The fungus is a reminder of this act.

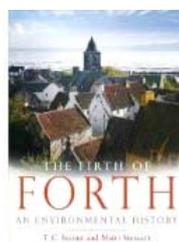
The other chapters can be grouped into classification, identification (with an excellent short review of the best current field guides), and where fungi are found in the wild as well as close to us. Then fungi as biological indicators: why are some rare and some common. Then Fungal Forays - collecting and eating. All these chapters are shot through with historical facts and context that helped me construct a narrative of fungi and the scientists and amateur experts who discovered them, or things about them.

On page 249 there is a picture of Ian Evans and Bruce Ing, a stalwart of biological recording in the Highlands and a world expert on slime moulds respectively. Just last month Bruce gave a talk to the Highland Biological Recording Group on slime moulds and this book does have a few pages on them, even though they are not fungi. So: well done to the author for including that.

The last chapter is a little dispiriting as it highlights how little nature conservation has done for or considered fungi. A parallel can be seen with soils as a habitat. As fungi have most of their structure underground and spend most of their life invisible to us it is hard for us to get too 'het up' about them: "out of sight out of mind". But the world of the soil is the foundation of our above-ground habitats, and we have not really done a good job of thinking about its importance and how and what we need to conserve as a priority. The author does strike a note of bittersweet optimism at the end of this chapter, noting that more and more people are appreciating fungi but there is a lack of nature reserves, a red data list and enough young, trained mycologists coming through. The author is very supportive of Plantlife's efforts, as this is a charity that is actively championing the cause of fungi, so much so that there is a contribution to Plantlife from each book sold.

I certainly enjoyed this book, learnt new facts and was entertained by the style of writing. I will dip into it again for a bit of information or just to look at the pictures; the Devil's fingers is a cracker. The combination of enthusiasm, personality and knowledge do give this book a different tone and certainly made it very accessible. It is a great read and you can not say much better than that for a book. I eagerly await the next book in the series.

Jonathan Willet



Smout, T.C., & Stewart, Mairi (2012) *The Firth of Forth: An Environmental History*. Birlinn Edinburgh. Pbk. ISBN 978-1-78027-064 7 £14.99

As a St Andrews University alumnus whose strongest undergraduate memories include wandering its shores and poking around the fishing communities of Fife's East Neuk, I jumped at the opportunity to review this eco-biography of the Firth of Forth, in which a founding father of UK environmental history ventures beyond his traditional terrain of land and the trees and dips into the watery domain of coast and sea. After examining the pre-historic environment

¹ Scottish Executive (2004) *Scotland's biodiversity: it's in your hands*

and lives of hunter gatherer communities, the authors¹ adopt a thematic approach, covering, in turn, fish and fishing in a bountiful Firth; oyster ‘wars’ since the 16th century; plentiful and lean times for herring and associated fisheries between the 1820s and 1950s; advances in the technology of the catch, from lines and trawls to estuarine traps and nets; the results of pollution of fresh and saltwater from household and industrial sources; the reclamation of intertidal lands since the Middle Ages for agricultural and industrial purposes; the Bass Rock which houses 11.5 percent of the world’s gannet population; the Isle of May with its additional seabird colonies; and, finally, the controversy over seal numbers. Throughout, the central theme is the genuinely two-way interaction between human activities and wildlife, whether fish, shellfish, fowl or marine mammal.

This may be a regional history, but the vantage point is anything but parochial. As befits a body of water that opens up onto the wider world and attracts outside attention (a procession of illustrious naturalists visited the Bass; pressure on local fish and oyster stocks intensified due to escalating demand from burgeoning London and regions as distant as Eastern Europe), the authors’ perspective is consistently outward-looking (as befits the view from the window of Professor Smout’s house on the Firth). While exploring topics such as the collapse of the ‘Winter Herrin’ run, the depletion of once abundant oyster scalps and the recovery of the grey seal, the authors engage with Garrett Hardin’s influential notion of the ‘tragedy of the commons’, advances in scientific understanding, the growth of government regulatory power and changes in public sensibilities. Besides, for better or worse, the outside world impinges on the Firth and its residents, human and non-human, in political form (the consequences of EC membership and mass protests against harp seal culling in 1970s Newfoundland, for example) and environmental form (repercussions of global rise in sea levels). The inescapable international context for the Firth (and any other local place) is the recently identified Anthropocene, a distinctive epoch in which humanity has arguably assumed a transformative power over the earth and its atmosphere tantamount to that of a geological force.

This book, which pulsates with the pleasures of being an historian, is consistently absorbing (particularly memorable is the coverage of the long-running dispute over the identity of the sprat vis-à-vis the young herring). Unsurprisingly, it is grounded in wide-reaching research, which makes particularly effective use of the copious data and insights contained in a series of reports by Victorian royal commissions of inquiry into the state of rivers and marine resources - that contain nuggets of information which make ‘the historian’s day’ (p. 296). The highly readable text is enhanced by a series of helpful maps and a generous complement of handsome images, some of them in colour and many sourced from Special Collections at St Andrews University Library. The captions are a joy too, sprinkled with wit and further detail. (Two images that stick in my mind are: the photo of Pittenweem fish market in the 1930s, when it was still safe to lay fish on the flagstones without fear of now-ubiquitous gulls snatching them; and a 1959 photo of a woman hauling water directly from the River Almond in a bucket suspended from a rope, in a throwback to pre-polluted times.) This book is clearly a labour of love, and draws on thirty

¹ Though Smout wrote the entire book apart from the chapter on land reclamation (in other words, 10 of 11 chapters, as well as the Introduction and Conclusion), it was co-researched with Stewart and is described as a joint venture ‘in every sense’

years’ waterfront residence in Anstruther. It also taps into a wealth of experience as an historian of Scotland (social and economic as well as environmental) and an equally impressive grasp of Scotland’s natural world – an accumulation of knowledge thick as the accretion of guano on the Bass. Smout ventures that the late 19th-century irrigation meadows at Craigentenny, near Edinburgh, enriched with human waste, must have been a terrific attraction for breeding and migrant birds, though ‘no early Scottish ornithologist seems to have been hardy enough to find out’ (p. 150). I like to think that Smout would have braved the smells without hesitation had he been around back then!

Firth of Forth will dispel any lingering doubts there may be out there that environment history is history with its most important ingredient – people – left out. Smout’s and Stewart’s book is replete with a cast of human characters as diverse as the floral and faunal denizens of the Forth’s shores and waters: from the redoubtable fishwives of Musselburgh to the first fisheries scientist employed at a British university (William M’Intosh) and his antagonists, the St Andrews fishermen who disputed his views on trawling’s impact on fish reproduction.

This environmental history of the ‘great gaping mouth of Scotland’ (page 1) is a sterling example of what top quality environmental history is capable of achieving. *Firth of Forth* ranges across social, economic and political history as well as the histories of technology, science and natural resource exploitation - seasoned with a generous dollop of ecology and up-to-date coverage of the most recent developments shaping this place, such as enactment of the policy of ‘managed retreat’ from traditional sea defences at the RSPB’s Skinflats reserve. The book also supplies an inspirational template for future eco-regional studies, whether terrestrial or non-terrestrial, in Scotland and beyond. Not least, it offers an example of what can be done when environmental historians approach past relationships between humankind and the rest of nature as more than just a doom and gloom-laden story of abuse and decline. The Firth, like many other places, is awash with examples of profligate resource extraction and once bustling fishing centres like Crail effectively reduced to trawling for nethrops (prawns) and creeling for crabs and lobsters. Yet environmental change is a complex mosaic of gains and losses and winners and losers that often defies explanation. (Why does the grey seal flourish again in today’s Forth, whereas the harbour seal remains thin on the ground?) There is cause for optimism (the spurling’s return) as well as apprehension (potential threats from local petrochemical and nuclear installations).

Just as no human history is complete without the input of environmental history, nor is any natural history complete without its input. J. G. Gurney’s 1913 book on the gannet is sub-titled *A Bird with a History*. Thanks to this latest book and previous works by Smout, the notion that there might be a fish or a tree *without* a history is no longer tenable.

Peter Coates,
Professor of American and Environmental History
University of Bristol ²

² Prof. Peter Coates next book is *A Story of Six Rivers: History, Culture and Ecology* (Reaktion, 2013).

Natural History Courses at Kindrogan for 2013

Course Title	Course Level	Tutor	Dates
<u>Introduction to Mosses and Liverworts</u>	Open for Everyone	Theo Loizou	Fri 29 March - Mon 01 April
<u>Lichen Identification</u>	Intermediate	Rebecca Yahr	Fri 05 April - Fri 12 April
<u>Special Spring Moths</u>	Open for Everyone	David Brown	Mon 08 April - Sat 13 April
<u>Scottish Spring Birds, Flowers and Butterflies</u>	Open for Everyone	Russell Nisbet	Fri 19 April - Fri 26 April
<u>Sphagnum Moss</u>	Intermediate	Nick Hodgetts	Tue 23 April - Sat 27 April
<u>Mosses and Liverworts</u>	Intermediate	Nick Hodgetts	Sat 27 April - Sat 04 May
<u>GPS Training 2 Day Course</u>	Walking Level 1	Jim Butcher	Fri 03 May - Mon 06 May
<u>GPS Training 2 Day Course</u>	Walking Level 1	Jim Butcher	Mon 06 May - Wed 08 May
<u>GPS Training 2 Day Course</u>	Walking Level 1	Jim Butcher	Wed 08 May - Fri 10 May
<u>NVC: Woodlands</u>	Intermediate	Ben Averis	Fri 10 May - Mon 13 May
<u>Big Tree Country: Introduction to Tree Identification</u>	Beginners	Jerry Dicker	Fri 10 May - Sun 12 May
<u>Big Tree Country: Tree Identification for Improvers</u>	Intermediate	Jerry Dicker	Sun 12 May - Thu 16 May
<u>Entomology for Anglers</u>	Open for Everyone	Craig Macadam	Fri 17 May - Mon 20 May
<u>Journey to the Edge of the World - An Island Trip to Lewis and Harris</u>	Walking Level 1	Martyn Jamieson and Jeff Clarke	Sat 18 May - Sat 25 May
<u>Identifying Freshwater Invertebrates</u>	Open for Everyone	Craig Macadam	Mon 20 May - Sat 25 May
<u>Plants and Herbal Remedies</u>	Open for Everyone	Leila Mayne	Fri 31 May - Mon 03 June
<u>Birds by Character for Beginners</u>	Beginners	Jeff Clarke	Fri 31 May - Mon 03 June
<u>Birds by Character for Improvers</u>	Intermediate	Jeff Clarke	Mon 03 June - Fri 07 June
<u>Flora and Fauna for Hillwalkers</u>	Walking Level 1	Russell Nisbet	Fri 07 June - Tue 11 June
<u>Freshwater Algae</u>	Intermediate	Eileen Cox and Elliot Shubert	Fri 07 June - Fri 14 June
<u>Identification of Highland Plants</u>	Open for Everyone	Bob Callow	Fri 14 June - Fri 21 June

<u>Aquatic Plants</u>	Intermediate	Nick Stewart	Fri 21 June - Fri 28 June
<u>Mammal Identification</u>	Open for Everyone	John Haddow	Fri 21 June - Sun 23 June
<u>Plant Communities of the Scottish Highlands</u>	Open for Everyone	Bob Callow	Fri 21 June - Fri 28 June
<u>Wild Orchids of Scotland</u>	Open for Everyone	Martin Robinson	Tue 25 June - Sat 29 June
<u>Spiders: An Introduction to their Identification</u>	Beginners	Alastair Lavery	Fri 28 June - Mon 01 July
<u>Discovering Mountain Flowers</u>	Open for Everyone	Theo Loizou	Fri 28 June - Mon 01 July
<u>Journey to the Edge of the World - An Island Trip to Lewis and Harris</u>	Walking Level 1	Martyn Jamieson and Jeff Clarke	Sat 29 June - Sat 06 July
<u>Discovering and Identifying Wild Flowers</u>	Beginners	Martin Robinson	Mon 01 July - Fri 05 July
<u>Fern Identification</u>	Intermediate	Heather McHaffie	Fri 05 July - Mon 08 July
<u>Grass Identification</u>	Intermediate	Judith Allinson	Fri 05 July - Fri 12 July
<u>Introduction to NVC</u>	Open for Everyone	Ben Averis	Fri 19 July - Mon 22 July
<u>NVC: Grasslands</u>	Intermediate	Ben Averis	Mon 22 July - Thu 25 July
<u>Identifying Sedges and Rushes</u>	Intermediate	Fred Rumsey	Mon 05 August - Sat 10 August
<u>NVC: Heathlands</u>	Intermediate	Ben Averis	Fri 09 August - Mon 12 August
<u>Highland Butterflies and Moths</u>	Open for Everyone	David Brown	Sat 17 August - Sat 24 August
<u>Invertebrate Surveying Techniques</u>	Intermediate	Jeff Clarke and Paul Hill	Tue 20 August - Sat 24 August
<u>A Weekend with the Weather</u>	Open for Everyone	Alison McLure	Fri 23 August - Mon 26 August
<u>Scottish Mammals</u>	Open for Everyone	John Haddow	Fri 23 August - Mon 26 August
<u>Identifying Fungi</u>	Intermediate	Liz Holden	Fri 06 September - Fri 13 September
<u>Harvestmen Spider Identification and Ecology</u>	Open for Everyone	Mike Davidson	Fri 27 September - Mon 30 September
<u>Small Mammals</u>	Open for Everyone	Jeff Clarke	Fri 04 October - Tue 08 October
<u>Autumn Birds and Migration</u>	Open for Everyone	Russell Nisbet	Wed 09 October - Wed 16 October