

Notes

The Atlas of Living Scotland has been made possible by the partnership formed by Scottish Natural Heritage (SNH), Scotland's Environment Web (SEWeb), the Atlas of Living Australia and the Commonwealth Scientific and Industrial Research Organisation of Australia (CSIRO), Scottish Environment Protection Agency (SEPA), the National Biodiversity Network (NBN) Trust, RSPB and the Scottish Biodiversity Information Forum (SBIF), with funding from the SEWeb LIFE+ project and SNH.

It was created by the Atlas of Living Australia team at CSIRO using the open source code and biodiversity data infrastructure that they developed over the last five years. The user interface was created by a team in Scotland in conjunction with a user group of people across the country.

Links

Atlas of Living Scotland: www.als.scot

Send user feedback and comments to: info@als.scot

Scotland's Environment Web:

<http://www.environment.scotland.gov.uk/>

ALERT

NOMINATIONS FOR NBN AWARDS

DEADLINE 31st JULY

See page 13 for details

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All articles preferably in electronic format. Illustrations welcomed preferably as separate jpegs. Please send to the BRISC editor.



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Recorder News

CONTENTS

Surveying Reptiles at Loch Lomond.....	pg 1
Acting chair's page.....	pg 3
Editorial.....	pg 4
Tigers and Elephants – the magic of moths.....	pg 6
Bursary reports.....	pg 8
Book review.....	pg 11
NBN June News report.....	pg 13

THE CLOSER YOU LOOK, THE MORE YOU SEE: SURVEYING REPTILES AT LOCH LOMOND

I have been monitoring reptile numbers at a site on the shores of Loch Lomond to understand their numbers, distribution and biology. This has revealed higher densities than was previously known, and demonstrates the importance of Loch Lomond in Scotland for reptiles; this will, I hope, inform approaches for protecting them in the National Park. The survey work also formed the basis of a conservation

of a hydroelectric scheme. Thus this monitoring, on multiple levels, is an example of the usefulness of biological recording, as promoted and supported by BRISC.

I have had a long-term interest in all forms of natural history, though largely focused on birds, mammals and plants. Being lucky enough to live near Loch Lomond and visiting it regularly I had heard anecdotal reports that three species of reptiles, European adders *Vipera berus*, slow-worms *Anguis fragilis* and common lizards *Zootoca vivipara*, were occasionally seen at various sites.

I decided to monitor their presence more systematically, using standardised published methods (Sewell *et al.* 2013). This involved choosing a Loch Lomond site where reptiles had been reported, and placing artificial cover objects (ACOs), made of roof felting about 50 x 50 cm in size, at suitable locations. The mats were distributed in March 2012, and within a week located reptiles. The first mat revealed a male adult slow-worm and a juvenile adder (Fig. 1), with a number

of other reptiles seen on the same day, located above ground while basking in the early spring sun.

This initial success encouraged me and I learnt to visit the site when most likely to find reptiles, typically 7-10am on sunny days. The site was monitored about once a week, until late October, when no reptiles were seen, as animals had entered hibernation. In total I made 36 visits in 2012, with the results described in McInerny (2014a).



Fig. 1 Adult male slow-worm and juvenile adder, revealed under an artificial cover object (ACO), March 2012, Loch Lomond.

The survey work continued in subsequent years with the site monitored 47 times in 2013, 58 times in 2014, 45 times in 2015 and, so far, 24 times in 2016. This intensive and systematic surveying revealed many reptiles of all three species.

[Editors note - the graphs of the reptile counts are difficult to display here. They can be seen in detail in McInerny 2016b].



Fig. 2 Adult male adder, February, Loch Lomond

Increasing numbers of adders were counted during the study period, from a minimum 40 individuals in 2012, to a maximum 148 in 2015 (Figs. 2,3). This included a record day count of 26. In total over 200 different adders were recognised by their head patterns, which are unique to each individual, during 2012 to 2015. Large numbers of slow-worms were also counted, with a minimum 77 day counts in 2015 to a maximum 149 in 2013; and smaller numbers of common lizards,



Fig. 3 Adult female adder July, Loch Lomond

Continued on page 5

the funding opportunities that made it possible for the Scottish Atlas to be developed as the first in the UK.

Dave Martin, from the Commonwealth Scientific and Industrial Research Organisation (CSIRO), and the developer of the Atlas of Living Scotland, demonstrated some of the functions of the Atlas. He outlined the overview, image gallery, records listing and maps that result from a search by species and expertly demonstrated the statistics that can be extracted from the records. Dave then showed how it is possible to explore by area, map by different filters, map using grid squares rather than points, and map species lists in combination with spatial layers.

Ella Vogel, NBN Projects Development Officer, expanded on data sources and capabilities of the Atlas, focussing in particular on the spatial layers and ways of mapping the data. Ella gave a step-by-step demonstration of how to map greenshank against blanket peat soils, followed by the mapping of great spotted woodpecker against ancient woodland. The Atlas will make available data on protected areas, habitats, soils, climate, landscape and geology for analysis against species records.

Gill Dowse, Knowledge and Evidence Manager at the Scottish Wildlife Trust (SWT), provided a user's perspective on the new opportunities for data delivery and analysis offered by the Atlas. For an organisation such as SWT the servicing of data requests to staff and volunteers can be very time consuming. The potential for simplification of the data flow by using the Atlas was ably demonstrated, and an additional bonus with this approach is that all available NBN data will be utilised in the request, not just SWT data.

In the final talk, Jo Muse, Principal Policy Officer, SEPA, looked at the next steps for Scotland's Environment Web (SEWeb). The development of SEWeb has brought together environmental and statistical data from different sources for analysis and use in decision-making. SEWeb has facilitated the development of a family of data sites including Scotland's Soils and Scotland's Aquaculture.

The creation of the Atlas of Living Scotland as part of that family has made possible the analysis of species records against environmental layers, and offers more opportunities for further development.

The event concluded with a short panel discussion involving all the speakers. Questioners asked the panel to consider the role of the Atlas in Natural Capital discussions. They also suggested additional uses for the data including the identification of under-recorded grid squares, and also the monitoring of change over time. We were encouraged to extend our connections to data partners such as land managers, and the acronym "TCNCS" was coined (to mean Taxonomically Complex Non-Charismatic Species, such as spiders, harvestmen and pseudo-scorpions); it was suggested that more of these groups be included. We were also reminded of the importance and value of developing links from the Atlas website to museum and herbarium collections.

The day provided a suitable launch for the Atlas and it is hoped that the audience went away inspired to explore the interface themselves and to continue to send their comments and feedback. You can also send feedback to info@als.scot

Please send your completed nomination form to: support@nbn.org.uk

Nominations close on 31st July 2016.

Successful nominees will be notified by the end of October and invited to attend the awards ceremony.

Awards presentation

The awards will be presented at a special ceremony on the evening of 17 November 2016 as part of the two-day NBN Conference in Edinburgh on 17 – 18 November 2016.

We are delighted that these awards will once again be sponsored by Swarovski Optik UK.

NBN Conference

We are excited to announce that this year's NBN Conference will be held in Edinburgh on the 17th and 18th November 2016.

The theme of the conference is 'Going with the flow: Supporting the NBN Data Flow Pathway' – focusing on the stages of the data flow pathway throughout the two days.

More details on the Conference programme, tickets and booking will be released at the end of July but, in the meantime, please make sure you save the date!

Launch of the Atlas of Living Scotland – May 2016

The Atlas of Living Scotland, a new online biodiversity database built to educate, to inform and to promote Scotland's remarkable natural world, has officially been launched.

The Atlas will become the country's largest collection of biodiversity information, bringing together species records with other environmental data such as soils,

climate and habitats, allowing online analysis and interrogation. Data are held under Creative Commons licences to encourage innovation and collaboration.

Forty-five people attended the launch of the Atlas at the Royal Botanic Gardens, Edinburgh (RBGE), on the afternoon of Friday 27th May 2016. This milestone event was attended by people from a variety of backgrounds, and many had travelled from across Scotland to celebrate the creation of this innovative website.

The event was introduced by Elspeth Haston, Deputy Herbarium Curator at the RBGE, with the welcome address being given by Ed Mackey, (Head of Knowledge Management, Scottish Natural Heritage (SNH)). Ed paid tribute to the late John Sawyer, and his vision to develop the Atlas as the National Biodiversity Network (NBN) platform.

Following the welcome address, six speakers, representing the project partners and the Atlas of Living Scotland user group, presented talks on different aspects of the Atlas. The Keynote Address was given by Dr Jo Judge, Chief Executive Officer, NBN Trust. Jo positioned the Atlas at the heart of the NBN's Strategy and Action Plan 2016-2020, and emphasised the importance of the NBN partnership for data sharing. The biodiversity data infrastructure of the Atlas of Living Scotland is a major step forwards towards implementing that strategy in Scotland and is also a pilot for similar initiatives to develop the same data infrastructure for the entire United Kingdom.

Roddy Fairley, NBN's Trustee in Scotland, and Strategy Manager for SNH, described the development of the Atlas in Scotland, from the first meetings with the developers of the Atlas of Living Australia, through the creation of the Scottish partnership and



Acting Chairman's Column

It is June so I must be returning from guiding on Shetland. The wildlife on Shetland was great as always, with some interesting

records. Seeing a dark Honeybee was one. There are a few hives in Lerwick and it certainly looked like one of the northern Honeybees some of you may have read about. The Shetland frog was another new one for me, alas not a new species but a Common Frog on Shetland. Introduced in the late 1800's and now widespread. I always have to remind guests that the Shetland archipelago is far from other land and some species just didn't get there.

Up on Unst we visited Halligarth House and Woods. A partially consumed Starling was found and soon after a Sparrowhawk sighted. The house was the home of the Edmondston and Saxby families. The NTS owns the site and is undertaking some work on the grounds and hopefully the house. The collection of the Edmondston and Saxby families will be housed there in the future. Dr Henry Saxby (1836-1873) was a famous ornithologist and added 60 species to the Shetland bird list, he married Thomas Edmondston's sister Jessie. Thomas Edmondston was a famous botanist who unfortunately died aged 20. By that time he had discovered the endemic (to Unst) Edmondston's Chickweed (aged 12!), aged 20 he was appointed Professor of Botany at Anderson's University in Glasgow (now University of Strathclyde) and before the age of 21 he died on the voyage of HMS Herald retracing the voyage of the HMS Beagle. Before the voyage he was in

correspondence with Charles Darwin. He packed quite a lot into a short life.

Back to mainland Scotland and the BRISC Committee have found a Chairman to replace me. I will be formally standing down at the August meeting though staying involved with BRISC as the representative on SBIF. My spare time seems to have dwindled and is now dominated by work so I don't seem to generate as many records as I used to. But I am running my first British Dragonfly Society field trip in five years, this July. A start...

I have been very proud to be the Chairman of BRISC and to work with the committee and other organisations. I am so pleased that SBIF has continued to progress, maybe not at the speed that everyone wanted it to, but it is moving forward and the links with the NBN and the SBIF Coordinator post morphing into an NBN Scotland Officer was a great move. There is a great deal going on at the grass roots as ever and by creating regional structures that support volunteers and data management and mobilisation we can encourage more people to get involved. These two objectives are the major tasks ahead of BRISC and all the other SBIF partners.

As ever BRISC has punched above its weight and delivered several key outputs over the years. Hopefully we can get some more funding to expand the successful bursary scheme we and the Glasgow Natural History Society have run over the past few years. BRISC has made a difference and I am sure under the new Chairman it will continue to do so. Best wishes to you all and have a great summer of biological recording.

Jonathan Willet



Editorial

Firstly, there will be a new Chair by the next issue. Secondly, those of you receiving hard copies will see a black and white version. The costs of colour printing

are getting too high to sustain but you can get one in colour! Just print off your own from the link you are sent. And thirdly, starting from 2017 we are proposing a trial year, during which there will be three instead of four issues of the Newsletter. This means they will probably be published for the beginning of February, June and in October in time for the annual conference. Please feel free to make comments on all these changes!

The BRISC committee, is getting the autumn Conference organised. It will take place in central Scotland, possibly Falkirk or Stirling and the subject is around Biological Recorders and Local Sites. Full details and will come in the October issue.

There are three good bursary reports in this issue, the last for this year's intake. I think the diversity of experience gained and the attitude of the students is most entertaining and encouraging! The NBN News report is a bit longer than usual, there being a lot to report, not least the launch of the Atlas of Living Scotland in Edinburgh in May. Note that we no longer have a SBIF column as Christine has become the NBN Scottish Liaison Officer and she continues to work on behalf of all of SBIF's supporters. The move has clarified the roles and tasks being done and has been a successful transfer. More on the background to this can be found at <https://nbn.org.uk/news/aligning-work-sbif-brisc-nbn/>

Meanwhile I have am working on a Butterfly Conservation Trust project in the Yarrow valley (Scottish Borders) to get Northern Brown Argus (NBA) breeding sites appropriately managed under an agri-environment scheme from 2017. This year it means checking the food plant (Rock Rose *Helianthemum nummularium*) condition; counting the adults and then a bit later, the eggs. Luckily this species lays a single shining white egg on the upper surface of a leaf and once you get your eye in its quite easy to spot. Once we have good data we can proceed with the convoluted Scheme applications if land managers are willing.

Another lepidoptera job I took on is the BCT national Butterfly Transect on the Whitlaw Mosses SSSI as there are no longer SNH funds to support a 24 week survey. It started in 1989 so there is a good run of data which would be a shame to stop. Seven volunteers use a 'Cloud' based Excel spreadsheet which is accessed over the internet by any of the team. It is used to book the week for which they will be responsible and everyone can see this. The system works well and avoids any one person having to spend time organising the others. We have set it up for the NBA project as well – with a lot more information – as there are about a dozen volunteers spread out over SE Scotland!

Essentially the spreadsheet is a synchronisation tool for multi-users. See Microsoft Onedrive "Store, sync, and share work files in the cloud using Microsoft OneDrive for Business, which comes with SharePoint Online" It appears to be included in Microsoft Office 2013 but we go through a local college portal to access the programme.

I hope you enjoy this issue. All the best for the rest of the summer.

Sarah Eno

NBN News: June 2016

New look newsletter launched

At the start of May we launched a new look electronic newsletter, Network News. Previously called NBN eNews, we have given it a fresh new look, in keeping with the new NBN website. It still carries the Network's news stories and updates and information on upcoming events, it just looks better – we think so, anyway!

We'd love you to send us your own news items for inclusion, just make sure we receive them by the end of each month in order to make the publication date, which is the first week of the month.

If you don't already receive Network News, you can sign up here: nbn.org.uk/news-events-publications/latest-stories-from-our-network/enews-sign-up/

UK Awards for biological recording and information sharing – who will you nominate?

The National Biodiversity Network (NBN) is now accepting nominations for the 2016 UK awards to celebrate biological recording and information sharing.

These awards have been developed by the NBN, the National Forum for Biological Recording and the Biological Records Centre.

Following the success of last year's awards, when we received 53 nominations overall, we are excited by the prospect of even more nominations for amazing people in 2016!

Award categories

We have made one change to the awards, by adding in a separate group award, so there are now five categories:

- Gilbert White youth award for terrestrial and freshwater wildlife

- Gilbert White adult award for terrestrial and freshwater wildlife
- David Robertson youth award for marine and coastal wildlife
- David Robertson adult award for marine and coastal wildlife
- Lynne Farrell group award

Nominations

If you, or your organisation, know of any individuals or any groups of people that have made an outstanding contribution, make sure you nominate them for the relevant award.

The awards committee will consider the significance of the contribution (voluntary or otherwise) made to biological recording and/or improving our understanding of the UK's biodiversity. This could include filling geographic or taxonomic gaps in our knowledge, encouraging and facilitating participation, verifying records, teaching or mentoring recorders, or creating and sharing tools and resources to support biological recording and increasing participation.

Please include as much relevant information as possible, on how your nominee is making a difference and the impact of their involvement in biological recording, to a maximum of 500 words.

You can nominate one person for different categories using the same form. If you wish to nominate more than one person or group please use a separate form for each nominee. Unfortunately, you can't nominate yourself!

Nomination forms can be downloaded from: nbn.org.uk/news/uk-awards-nominations-open/

Over 100 species are described in the **species accounts**, with grasses taking up over 50% of this section, but a selection of sedges and rushes are covered. The author helpfully includes pointers on recognising the different grass genera as well as the individual species. Recognition of characters of different grass genera should make identifying species not covered by the book a bit easier. Flicking through the pages of a book of this size to find the desired species does not take long, but an index would have been beneficial.

The selection of species covered by the book is generally good; it must be hard to decide what to keep in or leave out and species with limited distribution are generally described as such. However, I was not convinced by the choice of Bent grasses (*Agrostis* spp.) in particular. Bristle Bent (*Agrostis curtisii*) was described and illustrated in full, with the account stating "especially in west", but the BSBI Distribution Database shows that this species is only found in south-west and southern England and in south Wales, so is not really relevant to Scotland or indeed large parts of England. Velvet Bent (*Agrostis canina*), which is frequent to common throughout the UK, is listed under 'other [*Agrostis*] species' and not illustrated, whereas Brown Bent (*Agrostis vinealis*) – until recently regarded as a subspecies or variant of *A. canina* – is illustrated. The possible confusion between *A. canina* and *A. vinealis* is not mentioned.

The book includes some memorable descriptions, including ones I had not come across before. For example Carnation Sedge (*Carex panacea*) is delightfully described as having "a few chocolate-lime swollen fruits" and Common Bent (*Agrostis capillaris*) is referred to as "Tickle grass" due to its fine feathery panicles. The photographs are generally excellent and often

show the plant in situ as well as focusing on particular parts of the plant that are diagnostic. One error I did spot was the photographs of Tall Fescue (*Schedonorus arundinaceus*) and Meadow Fescue (*S. pratensis*) appear to be the wrong way round!

If I was nitpicking (which I am), I would say that there are a few typos, which ought to have been picked up during proofing, but hopefully these minor points will be addressed in any subsequent reprint. They certainly do not take anything away from the enjoyment of using the book. If the aim of the book is to demystify identification of this group of plants, it certainly achieves its goal. Overall, I would recommend purchasing the book, but in addition to, not instead of, a more comprehensive field guide.

Natalie Harmsworth

Ecologist, The Wildlife Information Centre

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Continued from pg 2

(Fig.4) with a minimum 23 day counts in 2013 to a maximum 39 in 2014.

The survey work at the site and elsewhere around Loch Lomond also gave information on reptile distribution and habitat preferences in the National Park (McInerny, 2014a; McInerny, 2014b; McInerny, 2016b). All three reptiles were found at highest densities at lowland sites, sometimes in close proximity to human habitation, but always in areas associated with stands of bracken *Pteridium* spp., gorse *Ulex* spp. or bramble *Rubus fruticosus* agg., with scattered small trees and bushes.

was proposed at the survey site, with the development passing through the area with highest reptile densities. However, knowledge of the presence of the reptiles resulted in changes to the development to minimise negative impacts, and the instigation of a management plan to protect them. The hydroelectric scheme was completed in 2014, and surveying of reptiles during and afterwards suggests that the conservation project has been successful, as reptile numbers have persisted at the site (McInerny 2016a).



Fig.4 Adult male common lizard, March 2015, Loch Lomond.

The surveys also allowed many observations concerning reptile life cycles (McInerny, 2014a; McInerny, 2016b). Reptiles were active from mid-February to late October, with mating in late April and May, and young appearing in August and September.

In conclusion reptile surveying at Loch Lomond has resulted in a number of positive outcomes. First, it has revealed high densities of three species at, which appear to be of national importance (McInerny and Minting, 2016). The knowledge will I hope encourage the Loch Lomond National Park to value and protect this native fauna. Second, it has provided much new Scottish specific information about the biology and life cycles of these animals, again important for conservation. Third, it has provided evidence to modify a hydroelectric

As well as giving information on numbers, distribution and biology, the recording also resulted in the implementation of a conservation project (McInerny, 2016a). By coincidence, a hydroelectric scheme

development to minimise its environmental impact. All of these positive outcomes confirm the significance and relevance of biological recording, and the role that BRISC plays in this process.

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Tigers and Elephants – the magic of moths

I'm a newcomer to the post of Biodiversity Officer for City of Edinburgh Council, although not a stranger to Edinburgh's biodiversity, having worked for nearly 20 years as a countryside ranger in the Pentland Hills and across natural heritage sites in the city.

As a ranger my specialism was being a generalist. I was expected to know a little about a lot and in some cases, a lot about a lot! I've always had a passion for wildlife and the countryside and started out as a birder then gradually branched out to learning more about fungi, reptiles and amphibians, dragonflies, bats and butterflies. Moths were not an interest; to me they were brown, drab and boring. However my interest was piqued by a Hummingbird Hawkmoth nectaring on lavender in my garden and I was hooked. Acquiring a moth trap was the next step and the first moth in the trap was a Swallow-tailed Moth (the flying 'post-it' note) – further proof to dispel the myths of drab, brown and boring. (See <http://www.mothscount.org>)

I've continued to put a moth trap in my garden and never ceased to be amazed. With around 900 macro moths and 1600 micros in the UK there is a lifetime's world of discovery. Every time the trap goes out there is a keen sense of anticipation.

Enthusiasm and engaging with others is a key part of my work as a Biodiversity Officer. An assortment of characters from Quakers and Carpets, Pugs and



Book Review

A Field Guide to Grasses, Sedges and Rushes by Dominic Price.

Dominic Price's new book (publ. April 2016) was Summerfield

Books' June "Book of the

month". At 72 pages long, ring-bound, with colour photographs throughout, it is an easily portable and attractively presented book. The cost (£9.99 on NHBS) seems about right, with all proceeds going to The Species Recovery Trust's conservation programme.

The publication is aimed at the beginner or intermediate botanist. It will not enable you to identify every grass, sedge or rush you encounter in the UK. It will however make these groups more accessible, by providing "a way in" to studying this fascinating group of plants, and will help increase your familiarity with over 100 regularly encountered species.

Species by habitat: This section of the book provides lists of the most commonly encountered species in seven native habitat types (neutral grassland, calcareous grassland, heath/acid grassland, wet heath & mire, woodland and wetland). By listing species by habitat type and focusing on the most common ones the number of different species the botanist need consider is reduced, so the list becomes more manageable. I am not certain whether a beginner would always be able to identify the habitat they were in (especially some grassland types) and therefore which page to look at in the first place, but reading the

habitat descriptions should help. It might have been clearer if the lists were organised by group, with grasses, sedges and rushes listed separately, rather than using a single alphabetical list, but lack of space may have prevented this. I think it would also be good to highlight in some way which species are habitat indicators e.g. calcicoles (lime-loving) or calcifuges (lime-hating) to distinguish them from species that have broader habitat tolerances.

Alongside the species lists are **flowcharts** designed to aid identification. The flowcharts are not intended as proper keys, rather short cuts to identification – with conspicuous or distinctive characters focused upon that can be readily observed in the field. Happily, the author recognises the value of vegetative as well as flowering characters for identification and uses both in the flowcharts. Some of the memorable characteristics described include the "stripy pyjamas" of Yorkshire Fog (*Holcus lanatus*) and the "hairy knees" of Creeping Soft-grass (*Holcus mollis*). There are occasional inconsistencies, with species included in the flowchart but not in the species list for the same habitat type and vice versa e.g. Annual Meadow-grass (*Poa annua*) and Common Bent (*Agrostis capillaris*) are included in the flowchart but not the species list for neutral grassland, whilst the reverse is true for Tall Fescue (*Schedonorus arundinaceus*).

The section on **grasses grouped by inflorescence type** is very useful for the beginner and divides inflorescences into three simple categories: drooping, open (panicles) and pointed (spike-like) inflorescences. My main criticism is the lack of scale bars with photographs, which might cause confusion when looking at specimens in the field. Also, beginners might prefer the use of common names as well as scientific ones beneath photos.

lecturer, Ian Cheeseborough, I was learning from my mistakes and my success rate was steadily rising. I thoroughly enjoyed the course and, gifted with a copy of the key, I am excited about developing my skills further and feeding records back to my local biological records centre.

This year I will be assisting with the delivery of a community wildflower nursery at Pollok Country Park (a partnership between Glasgow City Council, TCV and Grow Wild) and I look forward to sharing my newly-acquired knowledge with numerous volunteers; working to improving nesting and foraging opportunities for solitary bees throughout Glasgow.

Stephen Porch

TCV Natural Networks Project Officer

Introduction to Mosses and Liverworts

As part of my BSc Environmental Science degree, I have recently completed my Honour's project investigating the effects of grazing on upland flush communities in Ben Lawers. This involved identifying graminoids, forbs as well as bryophytes. However, because it was difficult to identify mosses and liverworts in the field, I collected samples and sought someone to help with identification. It was then, I realised there are not many professionals specialising in the bryophyte flora, even though they play a crucial role in ecosystems.

Expertise is needed for the conservation of bryophytes. The bryophyte flora is not only fascinating and essential to biodiversity, but bryophytes act as pioneers to establish

plant communities where other vegetation seems to be practically impossible.

Thanks to the bursary provided by BRISC, I was able to take part on a weekend long course provided by FSC in Kindrogan, which has given me the essential skills needed for identifying a variety of different bryophytes.

It has been a very enjoyable experience working with experts within the field, who have shown a real passion for discovering bryophytes of various different habitats. Additionally, the opportunity to work in the laboratory was extremely valuable to me, as it has provided an important insight into the practice of recording. After completion of this course, I purchased my own copy of Mosses and Liverworts in Britain and Ireland: a field guide and I have been successfully able to identify some of the bryophyte flora surrounding me.

I would like to share the skills I have gained, with conservation organisations, such as the National Trust for Scotland, where it would prove valuable to have more people able to identify bryophyte species in order to conserve declining species and protect Scotland's expansive peat-bogs, which are extremely important for locking up carbon, thus countering climate change. I would also like to assist students and encourage them to include bryophytes when conducting experiments related to plant ecology and assist projects researching bryology.

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Kittens to Daggers and Darts – means there is fantastically rich seam of names to mine. Scientific names can put some people off discovering more about wildlife but if the name can provide an *aide memoire* with an interesting story attached, then this can be a great help. I like the fact that the hawkmoth family is *Sphingidae* referring to the sphinx-like position that some of the caterpillars adopt when alarmed as the head rears up.

In my new role I've some ideas about introducing biodiversity to a wider audience and bringing nature into the office, literally. I recently brought in a moth trap, leaflets and literature as well as the stars of the show, moths, into the Council's headquarters at Waverley Court. There was a good level of interest and some puzzled expressions, as well as the inevitable questions about clothes moths. However, most people were genuinely surprised at the beauty of the Elephant Hawkmoth, Clouded Border and Small Angle Shades on show and to hear about the part moths play in the ecosystem as food for birds and bats as well as pollinators. The moth profile was boosted by a feature on the previous night's BBC Springwatch programme.

Recently, I ventured north in search of glory – Kentish Glory. The weather however was not conducive to moth watching, more suitable for Arctic conditions as a blizzard swept in. However, our searching was rewarded by finding Rannoch Brindled Beauty and Rannoch Sprawler (see photo)

Alongside this, encouraging members of the public to record what wildlife



they see around them is another vital area of the Biodiversity job. New technology has made recording much simpler and streamlined, index cards out and apps in.

The next phase of the Edinburgh Biodiversity Action Plan has just been launched and continues apace (see www.edinburgh.gov.uk/biodiversity)

Surveying, monitoring and recording remain at the heart of the Plan and the sterling work of the TWIC team (see <http://www.wildlifeinformation.co.uk/>) make a real difference to the delivery of improvements to Edinburgh's biodiversity through projects such as evaluating Local Biodiversity Sites, providing information about European Protected Species and local rarities, species identification and supporting data collection and analysis.

So I'll continue to put the trap out and learn more about these fascinating insects every time.

Susan Falconer

Biodiversity Officer, City of Edinburgh Council

BURSARY REPORTS

Microfungi Course

After completing a Master's in Ecology I was feeling optimistic about my new employability skills. This diminished quickly; graduate Ecologist jobs are rare. My studies had focussed upon broad-scale environments such as biomes of arctic tundra, so it was alarming to see the small-scale precision required of professional ecologists. The few jobs demanded specialist knowledge of at least one taxon.

I decided the best course of action was to take advantage of local training opportunities, volunteer and get involved in recording. I soon came across the bursary offer from BRISC. It was ideal solution to the Catch 22 whereby courses by renowned organisations are only affordable to existing professionals. It was advised that bursary applications to study unattractive taxa would have a higher likelihood of success. I opted therefore, for the Spring Microfungi course with the Field Studies Council (FSC).

The focus was the Myxomycetes, a.k.a. slime moulds; a specialist area of the course leader. We began the weekend with an introductory evening session where I learned that slime moulds were neither moulds nor slimy. They weren't unattractive either. The first field trip was an awakening. We never ventured more than a couple of minutes' walk from the field centre and found a whole range of microfungi without effort. A frequently used x30



Fiulio septica or Dog Vomit slime mould. Photo courtesy of wikipedia

magnification hand lens transformed the world to a vastly different place. We gathered samples and headed back to the lab where I learned how to prepare bark samples in a damp petri-dish to encourage the fruiting bodies to grow. It was inspiring to see a professor with 50 years' experience of microfungi getting excited about the day's findings under the microscope.

The course was unusual in comparison to other introductory courses taking place that weekend, as it required a degree of prerequisite knowledge of lab procedures and the biology of fungi. I was initially intimidated but I decided to speak up and ask for help on the basic levels such preparing the microscope slides. I then proceeded to feel slightly stumped about where our guides to basic microfungi identification were. There weren't any of course; the world of microfungi is much too much rich to have such tools. Even the amount of diversity found within a few metres from the field centre was immense.

As a group we found samples of species that had rarely been recorded in the UK, but those records will be left to the expert. For myself, I'm investigating the genus *Hymenoscyphus*, which are not one of the Myxomycetes, but are an Ascomycetes which I found repeatedly on my final field trip into damp environments. My main port of call in future will be iSpot as confidence in identifying microfungi could take decades. I expect I may join the other FSC addicts who return to the same course year upon year and gain new insight each time. Until then, I'll be getting better acquainted with the wonders of fungi and the world under a microscope. I have a lot of homework to do before going back on the course.

Jennifer Wardle

Editorial note - *Hymenoscyphus* includes the fungus causing ash-die-back, which most of us will know as 'Chalara'.

An Introduction to Solitary Bee ID

Since the Second World War, through increased development and agricultural intensification, Britain has lost around 97% of its wildflower habitat; with recent studies showing a strong relationship with the decline of wild bees. As the main reproductive mechanism in 78% of our flowering plants, pollination by insects is essential to maintaining genetic diversity; but when most of us think of pollinators, solitary bees are often over-looked (and somewhat neglected) in favour of their larger, fluffier, relatives. Of the 267 bee species found in the UK, only 25 are of the social genus *Bombus*, while the other, mostly solitary species, remain widely under-recorded.

With financial support from BRISC and GNHS, I was able to attend a Solitary Bee Identification course at the FSC centre in Shrewsbury, Shropshire. Unfortunately, the good weather took a turn for the worse, and a weekend of heavy rain meant some unsuccessful field visits. However, this allowed for some precious time on the microscopes which, to differentiate between the 230 species of solitary bee, is absolutely essential. Using the recently published (and highly recommended) "Field Guide to the Bees of Great Britain and Ireland" by Steven Falk, we learned how to key out individual specimens down to genera, then species level. The number of segments in the antenna can separate males from females, hairs along the eye margins might help to define genera, while the number of sub-marginal cells and venation arrangements in the wing might help to distinguish some species from others. When the individual is only 5mm in size, you can see why a microscope would come in handy! With no previous



A tiny *Andrena barbilabris* male; only recently recorded in Glasgow.

experience, it was difficult to identify a number of these key features, and I had as many failed attempts as I did successes.

However, as the weekend progressed, with support from class mates and our amazing