

Website design and maintenance

The website uses a template and builder software provided by our hosting company, 123-Reg.co.uk and requires the Website Manager to change the content on each page as required by the committee.

The regular updates are to the news section which displays the up-coming training courses, conferences, and job vacancies which are usually received via email.

Website visitor statistics from Google Analytics is reported to each committee meeting.

Email Support

The hosting package provides a number of email addresses and email lists which are used by members of the committee. These need to be kept up to date as requested by the committee.

Members Emails

Notice of each newsletter is sent to all those members who nominate to get them electronically. The newsletter itself is held on the website for members to download and obtained from the editor in PDF format.

Notification of the BRISC Conference is sent to all members with email addresses.

Please contact Andy Wakelin with any questions and offers

postmaster@brisc.org.uk

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COPY DEADLINE

April issue - March 14th 2020

Articles are welcomed but also snippets of interesting recording news and details of events. Book reviews welcome too. Please include a picture of the cover, plus all the title details and price if available.

Please send articles in Word or Open Office format. Photos are welcomed but best as jpeg files and less than 800kb in size. If larger send them via wetransfer or similar. Please do not embed photos in your text as it sometimes can be hard to extract them!

Please send by email to the editor.



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Recorder News

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Have you seen these slugs?

Imogen Cavadino

Slugs – very few people are a fan of these slimy creatures, particularly those who would like to have hostas or lettuce in their gardens. However, of the 40+ species of slugs found in Britain and Ireland, only 9 are considered serious plant pests. Many of the remaining species prefer to feed on decaying plant material, fungi, lichens and algae, and may actually be beneficial to gardeners in their role as detritivores and nutrient recyclers. Some species of slug are predatory, with the shelled slugs (Testacellidae) among those that live underground and feed on earthworms. Other elusive slugs such as the Lemon Slug (*Malacolimax*

tenellus) are even more specialised, being restricted to ancient woodland where they appear to feed only on fungal fruiting bodies and hyphae. Many species are omnivorous and polyphagous, opportunistically feeding on whatever they come across; including a vast range of live or dead plant material, dead animals, or animal waste.



Yellow Cellar Slug (*Limacus flavus*)

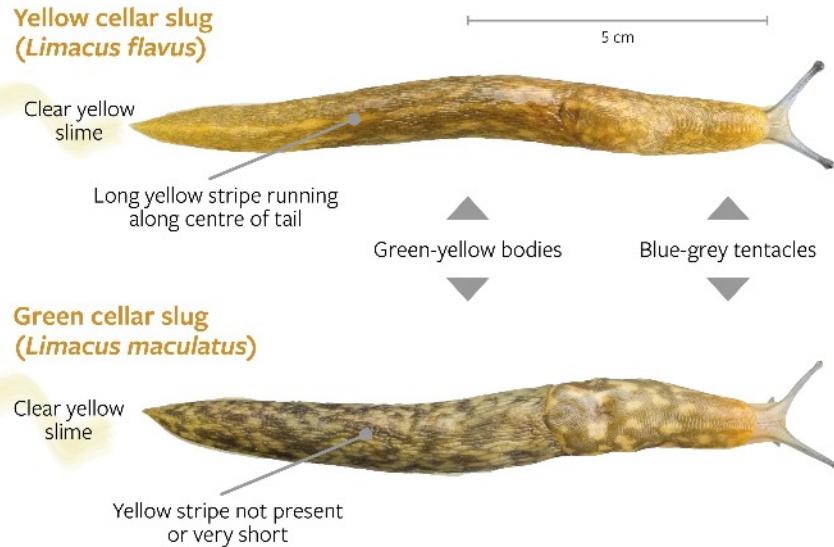
© RHS/Emma Griffith

In March 2019 the Royal Horticultural Society (RHS) launched a survey asking members of the public to head out into their gardens and see if they can spot the elusive yellow cellar slug (*Limacus flavus*). This species was first recorded in Britain in the 1600's, but over recent decades, the

species appears to have gone in to decline, with records being few and far between. In the late 1960's the green cellar slug (*Limacus maculatus*) was recognised as being present in mainland Britain, since then spreading rapidly, becoming very common and appearing to replace its similar looking cousin.

As detritivores, preferring to feed on

The yellow cellar slug has always been strongly associated with human habitation and considered a common garden species, while the green cellar slug is also able to inhabit woodland and other natural habitats. There is evidence that the two species are able to hybridise, with the green cellar slug proving genetically dominant. However, environmental conditions, habitat



Yellow Cellar Slug and Green Cellar Slug - part taken from RHS & Amgueddfa Cymru – National Museums Wales

decaying plants, fungi, lichen, algae and mould both these *Limacus* species are potentially beneficial for the garden. They often appear to be encountered around compost bins, walls, paved areas and indoors. In fact, they are so efficient at consuming mould that a man in Australia used to keep some in his bathroom intentionally to clean the grout around his tiles. He reasoned it was less effort to clean off the slime than the mould. He also rarely saw his bathroom helpers, as the species are nocturnal and rarely active in light conditions.

and competition may also have a role to play. For this reason, the survey also seeks to gather information on the types of garden and management styles to identify any commonality in where these species are found in gardens.

These slugs are among some of our larger species, reaching a size of 80 – 130mm extended length when crawling. Both cellar slugs are distinctive looking, with yellow-green heavily mottled patterned bodies and blue-grey tentacles. The yellow cellar slug can be separated from the green cellar slug

The licence fee applies for the duration of the financial year (1 April 2019 to 31 March 2020) and will give users access to dictionary updates and any new releases.

The 2019-20 fee for existing users is: Organisations with full-time paid employees: £250, to cover all the organisation's copies of Recorder 6.

Individuals and voluntary organisations without full time paid employees: £25 per copy of Recorder 6.

The licence fee has been introduced to ensure Recorder 6 users can continue to manage and use their data-holdings effectively, now and in the future. It has been set in line with the average 'willingness-to-pay' expressed in responses to the Recorder 6 consultation. It will need to be reviewed in future as the number of Recorder 6 users paying for updates, users' requirements, the costs of maintenance and development, and other potential funding sources becomes clearer.

Current users can continue to use existing versions of Recorder 6 without paying the licence fee, but won't be able to access dictionary updates or new releases.

Payments are being handled by the NBN Trust, on behalf of the Recorder 6 Steering Group. To purchase your licence and to find out more, please visit: <https://nbn.org.uk/join-or-donate/recorder6/>

NBN Trust Honorary Membership 2019

We are delighted to announce that we have awarded two Honorary Memberships in 2019. The work of the two nominees relates primarily to Recorder 6 software and the awards have been given to - Mike Weideli and Sally Rankin.

<https://nbn.org.uk/news/joint-nbn-trust-honorary-membership-2019/>

FAIR Data Principles

One of the NBN Conference 2019 Knowledge Exchange Sessions was about FAIR Data Principles. Its aim was to introduce the Principles and explore how they can be applied to the access and use of biodiversity data.

A summary of the discussions and outcomes from the session can be found on the NBN website: <https://nbn.org.uk/news/fair-data-principles/>

NBN Trust Annual Report 2018/19

The NBN Trust Annual Report for 2018/19 has now been published. The latest Report focuses on "Our Year" and not only highlights the work of the NBN Trust, but also reinforces the Network, our partnership ethos and our work as a member organisation to support the NBN Strategy 2015 – 2020.

The Report, which has an all new, interactive format, can be viewed and downloaded at <https://nbn.org.uk/tools-and-resources/publications/reports/>

BRISC Website Manager

BRISC are seeking a new website manager. Applicants should have an interest in building and maintaining websites and should be conversant with email clients and their settings. An interest in Biological Recording would be useful but is not a requirement. This post is voluntary.

The main components of the job are:

1. Website design and maintenance
2. Email support for committee and deal with all general enquiries received via email
3. Email members with news of newsletters and other items

contd next page

Scientific names follow the same format as on the UKSI of Name + Authority + Attribute

3. The species dictionary was updated with the latest version of the UKSI on 14th October. The main name changes in the update were to the Fungi.

4. We have added the field 'vitality' to indicate whether the organism was alive or dead at the time of the occurrence. It is possible to filter records on this field, but at the moment we have very few records with an entry in the vitality field.

Spatial layer update

Apart from holding species data, the NBN Atlas can also hold spatial data layers such as boundary, habitat and environmental data layers. These spatial layers provide the background information that enables the selection of species records by specific features, such as protected areas.

Recently added layers:

- Belfast Hills Partnership boundary
- Burial grounds (selected) (England)
- District Council Boundaries (Northern Ireland)
- National Forest Estate boundaries (England)
- Network Rail's regional route study areas
- Water Framework Directive River Basin Districts and Sub-Basin Districts (Scotland)

Recently updated layers:

- Marine Conservation Zones (England)
- Marine Protected Areas, SACs and SPAs (for Scotland)

The full set of spatial layers can be accessed through the NBN Atlas spatial portal. Navigate to the spatial portal from the NBN Atlas home page by selecting the

'Analyse' tab. Go to the 'Add to Map' dropdown in the top left corner and choose 'Layers' to reach the 'Add Layer' dialogue box. Layers are categorised by country and broad topic, and the metadata can be reached via the information (i) button alongside each layer name.

NBN Sensitive Species Policy

Following the annual review of the NBN sensitive species policy, the NBN Trust has decided, after consultation with the individual nature conservation bodies, to continue to use the sensitive species lists as supplied by each country's nature conservation body. This is due in part to the amount of work required to liaise with the different organisations to agree any changes.

The NBN Trust will continue to use the UK and Isle of Man Agency lists (i.e. Scottish Natural Heritage, Northern Ireland Environment Agency, Natural England, Natural Resources Wales and Manx National Heritage), which are based on specific sensitivities in each country. The NBN Trust will assist and support data providers and other interested parties in requesting changes to the individual country lists to each country Agency. Please contact the NBN Trust (support@nbn.org.uk) if you would like to discuss submitting a request for changes to the sensitive species lists.

You can view the updated NBN sensitive species policy on the NBN website <https://nbn.org.uk/news/nbn-atlas-news/nbn-sensitive-species-policy-review/>

New maintenance & development arrangements for Recorder 6

A new software licence for Recorder 6 is now live. This will fund new maintenance and development arrangements and will be funded and steered by users.

by the presence of an unbroken line of yellow along the centre of the tail from tip to mantle edge (saddle shaped area near a slug's head). Both species are pale underneath and exude a clear to yellow-orange mucus. As these species of slug are nocturnal, people are being asked to grab torches and step out into their gardens after dark in the hope of recording them. You may also encounter these slugs during the day, huddled in groups under heavy objects or inside compost bins, an unusually sociable behaviour common in these two species of slug thought to be a moisture saving tactic. Both species will huddle together in mixed groups. These huddles are dynamic, with slugs jostling throughout the day for the best position in the middle of the huddle. Cellar slugs are believed to have a homing instinct, usually returning to the same resting sites each day.

Since the survey started, over 250 records have been submitted to the survey. However, only 12 of these are confirmed as yellow cellar slugs, indicating that it is indeed a scarce species in Britain. So far records from Scotland have been few, with a handful of green cellar slug records from Glasgow, Edinburgh, Stirling, and the Outer Hebrides. One record of particular note is the green cellar slug (*Limacus maculatus*) from the Isle of Lewis as it is the first record of this species for the island, and appears to be only the second recorded occurrence of this species in the Outer Hebrides.

Records like this are important in understanding the spread and reach of slug species within a relatively short number of years. Scotland is still very much a blank space for mapping the distribution of these species, with no confirmed records of the yellow cellar slug (*Limacus flavus*) received in the RHS survey yet.

According to NBN atlas, historically the yellow cellar slug has been recorded in 21 of the 41 vice counties in Scotland, with a total of 93 records of the species in Scotland between 1890 and 2017. In contrast, the green cellar slug has been recorded 468 times between 1965 and 2018 in Scotland in 34 of the 41 vice counties. Over recent decades, the green cellar slug is more frequently recorded than the yellow cellar slug in Scotland.

I would like to set BRISC newsletter readers the challenge of submitting the first records of *Limacus maculatus* or *Limacus flavus*. Records of these species from areas already recorded are still most welcome, but we are keen to fill the large blank gaps on our map of Scotland. You can find out more about how to get involved and how to submit your records through iRecord via our custom form at www.rhs.org.uk/slugsurvey. You can also find the survey on Twitter: [@UKslugsurvey](https://twitter.com/UKslugsurvey)

Records of other slug species can also be submitted via the main iRecord page, and are important in helping us understand the fauna better. All data is being shared with other iRecord partners, including the Conchological Society of Britain and Ireland, to help inform further research, understanding and mollusc conservation efforts.

This survey is part of a PhD project, supervised by the RHS, Newcastle University and the Centre for Ecology and Hydrology, seeking to better understand the diversity of slug species in gardens and help encourage good garden stewardship.

The full ID chart which includes the Leopard Slug is available at:

<https://www.rhs.org.uk/science/pdf/Slug-ID-guide.pdf>



Chairman's Column

Chris McInerny

A very happy New Year to all members of BRISC.

It was a very successful BRISC annual conference in Edinburgh, October 2019. It focused on 'Museums, Collections & Biological Recording', with a number of speakers giving excellent talks, including presentations by Ashleigh Whiffin (entomology, National Museums Scotland), Elspeth Haston (botany, The Royal Botanic Garden), Richard Sutcliffe (museum collections, Glasgow Museums Resource Centre), and Bob McGowan (National Museums Scotland). We also had short talks by Jess Mason on mosses and liverworts, Apithanny Bourne on leaf mining moths, and Alexander Paterson on marine mammals, who each received bursaries to attend BRISC sponsored courses. It was lovely to meet BRISC members at this very enjoyable day. (a few photos opposite)

I continue to monitor an urban population of Stock Doves *Columba oenas* near my home in the West End of Glasgow. This is the only known urban colony in Scotland (*Scottish Birds* 38: 141-142). Interestingly I am now finding that birds are present



Editors piece

Sarah Eno

Since this is a bumper issue I am saying little, other than please note the various requests - pgs 3, 5, 6, and **JOB VACANCY Webmaster for BRISC** - see Job Description on pages 15-16. I hope you find this is a good post festive read.



2019 Conference photos © David Palmar



throughout the year, with courtship and mating even in December! We have still so much to learn about the natural world, and biological recording is a way to enable this. Best wishes, and good biological recording through 2020.



NBN Conference 2019 review and 2020 – save the date!

160 delegates attended the 2019 NBN Conference. It was held at the Albert Hall, Nottingham, on 13 and 14 November. Many organisations were represented, as 20 presentations and an afternoon of Knowledge Exchange Sessions made for a full programme and a lively two days of discussion and networking.

All of the presentations and an overview of the two days via social media can be found on the NBN website:

<https://nbn.org.uk/news-events-publications/nbn-conference-2/nbn-conference-2019/nbn-conference-2019-review-and-social-media/>

We are pleased to announce that the NBN Conference 2020 will be held on 18 and 19 November at the Open University in Milton Keynes.

It will run in collaboration with iSpot which will be rounding off its 10 year anniversary celebrations. There are plans for an iSpot seminar / workshop on 17 November and more information on all the events will be brought to you in due course.

NBN Atlas - Development updates

Here are some of the more important ones:

1. Records supplied in the data file with the UKSI Taxon Version Key for the common name are now correctly matched to the scientific name. Previously the names were unmatched on the NBN Atlas and the dataset had to be resupplied with the TVK of the scientific name

2. The name attribute has been added to the scientific name, e.g. synonyms in the genus *Neomyia*:
<https://species.nbnatlas.org/search?fq=idxtype%3ATAXON&q=Neomyia>.

NBN News - December 2019

NBN Award winners

The winners and runners up of the NBN Awards for Wildlife Recording 2019 were announced at the Albert Hall, Nottingham on Wednesday 13 November.

These national Awards recognise and celebrate the outstanding contributions adults and young people are making to wildlife recording and data sharing, which is helping to improve our understanding of the UK's biodiversity.

The winners in the five Award categories are:

- NBN Young Person's Award (open to individuals aged 11-20) – Michael Sinclair, age 15, from Glasgow
- NBN Newcomer Award (open to individuals 21 years +) – Sue Taylor, from Hertfordshire
- NBN Award for wildlife recording – Marine – Dawn Watson, from Suffolk
- NBN Award for wildlife recording – Terrestrial – Ian Wallace, from Liverpool
- NBN Group Award – Joy of Wildlife, from Shropshire

More information on the winners and runners up can be found on the NBN website: <https://nbn.org.uk/news-events-publications/uk-awards-biological-recording-information-sharing/winners-2019-nbn-awards-wildlife-recording-announced/>

required to differentiate between confusion species: for example the abdomen of Treble-bar and Lesser Treble-bar, or head-on views of Smoky Wainscot and Southern Wainscot.

At the back of the book is a list of suggested further reading, related journals and useful websites. This is a nice feature that can open up lots of new avenues. There are separate indices for scientific and common names, something that I am afraid that I have never understood – an index in alphabetical order should be easy enough to use with separating it into different categories! Another minor, trivial and personal gripe.

As a standalone guide, this is a superb publication, designed for true field use – pocket sized, well laid out and with beautiful and accurate drawings.

Most of the above comments apply equally to the first edition, so do we really need a second edition? What does it add?

The introduction to the second edition has been expanded to include the information about life-cycles, distinguishing moths from butterflies and other insects and some example of micro-moth species. These are useful reference additions.

The first edition was based on the 2003 edition of the Field Guide. In the last 16 years there have been tremendous advances in moth recording. Literally millions of records have been accumulated, not least by Butterfly Conservation's National Moth Recording Scheme, started in 2007. The collation and analysis of these records has given us a much greater insight into distribution and their changes, changes in status and in flight seasons. This new information is reflected in the second edition.

The second edition is also brought up to date with an additional 23 species

illustrated. Admittedly, most of these are rare immigrants such as the African, the Goldwing, the Grouville Dart or the Wedgeling, that few of us are likely to encounter, but for the sake of completion, it is right that they should be there. There are also some additional forms illustrated and additional views to help identification. For example, there is now a side-on view of the Lesser-spotted Pinion and under-wing illustrations of Tawny Pinion and Pale Pinion. There is also a new head-on view of Heart and Dart clearly showing the distinctive "Noel Gallagher" mono-brow, as well as enlarged antenna drawings and additional underside features for Great Oak Beauty and Pale Oak Beauty for example.

Perhaps the greatest change in the last few years has been the complete reorganisation of the British checklist, published by the Royal Entomological Society in 2013 (Agassiz et al. 2013) with corrections and additions in 2016 and 2019. This is the result of advances in taxonomical techniques including a wider use of DNA and a greater understanding of the relationships between species. This most recent checklist changes the order that families appear, the order of genera within families and the order of species within genera. Some moths have moved between genera and in some cases although common names might remain the same, some or all of the scientific name might have changed. All these changes are reflected in the second edition - quite an upheaval, and all the more reason to include the old and new checklist numbers perhaps?

Despite the points raised, I think we did need a second edition and this pretty well ticks all the boxes both as an update to the first edition and as a stand-alone guide.

Definitely one for the knapsack.

Mapping Species Rich Grasslands

Apithanny Bourne



I am working on a project at SNH to identify and map undesignated species rich grasslands. It's estimated that Britain has lost 97% of its meadows in less than a century and currently, only half of Scotland has been mapped for this vulnerable habitat. Identifying remaining fragments of SRG is the first step in protecting sites from the threat of development and forestry. Whilst the project will mainly focus on remote sensing techniques and satellite imagery, I'd also like to explore a citizen science approach to gathering data.

Enthusiastic naturalists and botanists often have the best and most up to date knowledge of their local areas. A form has been created, allowing volunteers to submit information about undesignated grassland sites they know of. It includes some simple guidance and I would greatly appreciate it if you could share with anybody you think may be interested, include in your regional mailing lists or perhaps even take part yourself.

Collected data will be incorporated into SNH's Habitat Map of Scotland, a publicly accessible tool used by ecologists, local authorities, developers and conservationists.

Please contact me for the form apithanny.Bourne@nature.scot

Bursaries for field courses in 2020

Since 2009, BRISC and GNHS (Glasgow Natural History Society) have offered bursaries for studying wildlife in Scotland. Costs are awarded for up to £200. SNH (Scottish Natural Heritage) have been contributing to bursaries with us since 2017, specifically targeting those aged 25 or under. In 2019 the Inverness Botany Group joined the bursary scheme with a contribution from a member's bequest, offering funding for courses studying plants in the Highlands.

BRISC are pleased to be working with our partners in providing bursaries to improve the taxonomic skills of people all over Scotland, and are also especially thankful to our members who have provided donations over the years to support this work.

Visit our website for the application form for bursaries in 2020; applications should be received by 31 January.

You may also be interested in the grants shown below from other organisations.

The Botanical Society of Scotland fieldwork grants

Founded in 1836 as the Botanical Society of Edinburgh, the Society grew to become the Botanical Society of Scotland in 1991 which reflects the expansion of the Society's interests. The BSS promotes the study of non-flowering plants and algae, fungi and lichens as well as flowering plants.

Support for Student Fieldwork is available for both Fieldwork Projects and Fieldwork Courses with a botanical theme. Grants for fieldwork projects (up to £400) for which financial support is sought:

- should not form part of a university or college course.
- should be undertaken in the British Isles, preferably in Scotland.
- may be carried out by individual students or groups of students.

Grants for fieldwork courses are also available for individual students (up to £200).

These courses:

- should not form part of a university or college course.
- should be undertaken in the British Isles, preferably in Scotland.

Applications must be received by April 30th in the year for which support is requested. A short report, suitable for publishing in the BSS News, should be sent to the Society after the project is completed. Further information and contact details for applications can be found at: <https://www.botanical-society-scotland.org.uk/content/support-student-fieldwork-0>

The Malloch Society bursaries

The Malloch Society was formed in 1988 by a group of Scottish Dipterists. The society is named in honour of John Russell Malloch (1875 - 1963) one of Scotland's most eminent Dipterists. The aim of the society is to improve the knowledge and awareness of Diptera (two winged flies).

The Malloch Society has the opportunity to give small grants to individual entomologists, up to a maximum of £500 per applicant. This offer, the David Robertson Memorial Fund, is in memory of a founder member and former treasurer of the Society. Preference will be given to dipterological research projects in Scotland that would lead to the formal publication of results.

Please visit the BRISC website for details on how to apply to any of the bursaries:

<http://www.brisc.org.uk/Bursaries.php>

Museum collections – a resource for us all

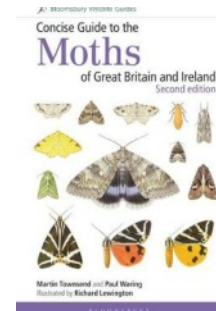
Louise Maddison

At this year's BRISC conference, we had excellent talks focusing on the role of museums and collections in biological recording. The three venues can be visited if you have an interest in a particular element of the vast collections, and there are general tours as well. Read the following information and check the websites for more details on how to book a visit. If BRISC members would like to visit one (or more!) of the stores as an organised group, get in touch with BRISC to discuss – if there is enough interest we can arrange a trip.

The National Museums Collection Centre at Granton, Edinburgh, provides a home for many objects and specimens that are not currently on display in the NMS museums. From butterflies to dinosaur bones, motorbikes to traction engines – the material gathered here is as diverse as it is vast.

On our guided tours of the Collection Centre, you'll discover how staff access, research and prepare collections not on display, meet specialists from curatorial and collections care teams to learn more about how the internationally important collections are cared for.

National Museums Scotland welcomes formal and informal research enquiries about collections and specimens that are on display at the four museum sites or held at the store. If you wish to research or



Concise Guide to the Moths of Great Britain and Ireland – Second edition. Martin Townsend and Paul Waring, illustrated by Richard Lewington. 2019.

Bloomsbury Press

Review by Duncan Davidson

Up until 2003, the only guides available for moth identification were those showing pinned specimens with their wings spread as if for display. Wonderful as these guides were, I recall as a beginner how difficult it could be to relate these pictures to the live moths in front of me. Then came the publication of Paul Waring and Martin Townsend's Field Guide to the Moths of Great Britain and Ireland with life size illustrations of moths in their natural resting positions by Richard Lewington. This effectively revolutionised macro-moth identification and contributed to the explosion of interest around that time. However, even the paperback edition did not easily fit in one's pocket for field use and so the Concise Guide to the Moths of Great Britain and Ireland was born in 2007, as a companion to the Field Guide. It had all the same illustrations, but with reduced text against each species and had a spiral binding for ease of use in live field conditions.

Following a second edition of the Field Guide in 2009 and a third in 2017, we now have a second edition of the Concise Guide.

The introduction describes the content of each species account and provides keys to status categories, distribution abbreviations and habitat abbreviations used in the accounts. It also has annotated pictures of

moth anatomy, showing for example what is meant by the kidney mark, the trailing edge or the basal cross-line. There follows a description of the moth life cycle and some simple guidelines for distinguishing moths from butterflies and other insects. Finally, there is a short section about the division of moths into macro-moths and micro-moths and illustrations of some of the micros that could be confused for macros.

The species accounts cover 150 pages, and are ordered by family in accordance with the most recent British Isles check list and updates (Agassiz et al, 2013, 2016a, b, 2019). All 897 recorded species of macro-moth are included. At the start of each family, there is a very brief description of family characteristics, such as shared resting posture for example. Each species account is on the page facing the illustration, so with the book open, the species account is on the left hand page and the illustration is on the right hand page. The spiral binding allows the book to be laid flat so that all the required information on any species is easily viewed. The species account starts with the common and scientific name. The checklist number is not included and I feel that this is a needless omission – I am sure that many enthusiasts share my love of numbers and lists and it seems that it would have been so easy to include these without having to change the layout or add to the volume, but this is a very minor gripe.

The species name is followed by abbreviated status and distribution, forewing length and a brief description of key identification features, along with reference to any possible confusion species. Each account closes with a note of the flight season and associated habitat.

For a small number of species, there are additional illustrations of key features

common mines found on Beech and Hazel. These each support only 4-5 species of leaf mining moths. After a morning of practising on both trees, we quickly grasped how to identify these mines, making us confident enough to start tackling other trees. Dave suggested that bramble, buckthorn, sycamore, field maple and ash were good species to move on to, steering clear of oak mines, which require a good degree of experience and confidence. Using the excellent website www.leafmines.co.uk (the mine key for each British tree species) it became easier identify new mines.

During the course I retained my leaf samples sealing them in plastic bags to keep them fresh. Since returning home they have all been laminated alongside species labels, which I am finding particularly useful as I search for mines in my own garden. So far, I have added several new moth species to my garden list! I'd recommend attending this course or any others at Juniper Hall, where I also added Silver-spotted Skipper to my British butterfly list. A Jersey Tiger moth (Fig.3) on the last evening was also a wonderful bonus – despite being there especially to look at leaf mines, moth-ers just can't resist bringing along a moth trap!



Fig. 3

SBIF Update

Rachel Tierney

Since our last SBIF update, the SBIF Advisory Group has been focussing on finalising the Investment Programme for Scottish Government, for submission by Christmas.

Implementation of the Recommendations has been broken into two tranches, framed as a Programme of work to be under undertaken over five years (with a further five years for benefits realisation).

The first project in Tranche 1 will undertake all necessary feasibility studies and project development prior to two further projects establishing the regional, national and UK level capabilities and capacity needed to provide Infrastructure support and services (and community funding to grow participation and open provision of data) across Scotland.

In Tranche 2, the newly established National and Regional Hubs will undertake three projects to facilitate high levels of sector awareness and improved data flows, development of value-added services in each sector, and capacity building with recording groups and community groups to maximise participation.

We have continued to make the case for sufficient sustainable public funding to transform the Infrastructure and catalyse long-term funding from other sectors and we now must wait for the formal response from Scottish Government.

We will update you all as soon as we know our plan for the next year ahead.

Contact:
rtierney@Scottishwildlifetrust.org.uk

view specimens from a particular collection you can use the website to book an appointment in advance.

www.nms.ac.uk/collections-research/research-facilities/national-museums-collection-centre/

The Royal Botanic Garden Edinburgh's (RBGE) Herbarium numbers approximately three million specimens, representing half to two thirds of the world's flora. It is a leading botanical collection, with researchers from around the world visiting to study specimens in a well-designed and user-friendly setting. This unique working reference collection brings species from all over the world together into one place to be discovered, described and compared.

The specimens cover over 300 years of biodiversity, the oldest specimen collected in 1697. The collection is still one of the most active in the world, receiving up to 30,000 specimens each year. A major digitisation programme has imaged nearly half a million specimens which are freely available online.

The collections are used for a wide range of research purposes and can be accessed physically by visiting the collections. Visits are encouraged from researchers from scientific institutes and their students, artists and other researchers wishing explore the Collection. Visits can be made in tandem with those to the RBGE Library and Archives.

www.rbge.org.uk/science-and-conservation/herbarium/

Glasgow Museums Resource Centre (GMRC) is the store for the museums' collections when they are not on display. The 17 purpose-built and environmentally controlled storage 'pods' house around 1.4

million objects. It is a vast building with rooms full of fantastic objects, from animals to armour, and fine art to fossils. The main collections stored here are Art and Painting, Arms and Armour, Natural History, Technology and World Cultures.

GMRC can be explored through a wide range of tours, talks and activities for all ages, including school visits and events for families with children. You can also arrange to see particular objects and collections by contacting the venue.

www.glasgowlife.org.uk/museums/venues/glasgow-museums-resource-centre-gmrc



Above - Jeff Boddy, Ranger addressing BRISC conference at Holyrood Park. Below - out on Salisbury Crags. photos © David Palmar



BURSARY REPORTS

Identifying Sphagnum mosses

Stephen Inglis

Being in upland habitats of Scotland in recent years has seen me develop an interest in their ecology and species. Sphagnum mosses have played key roles in the formation of our peatlands and although I had acquired some knowledge on their ecology, my ability to ID different species was quite poor. So it is thanks to the BRISC and GNHS bursary project that I was able to attend the FSC Sphagnum moss course at Blencathra in the Lake District near Keswick in October of 2019. The course was hosted by the extremely knowledgeable Nick Hodgetts and with his assistance we visited two local peatland sites to record and collect specimens in order to learn the key identification features.

One was Eycott Moss where a mix of acid and base-rich flush species could be found and on the second day we went to blanket bog above Great Wood where we sought one bog-forming species in particular –

Sphagnum magellanicum. We were fortunate to find 20 species out of the 35 recorded in the UK. A key message from the course was taking ID as far as possible in the field using the features which can be seen with a hand lens – overall plant size, colour, branch leaf shape, stem leaf shape and orientation. Specimens can then be divided into one of the 6 different sections: *Sphagnum*, *Rigida*, *Squarrosa*, *Subsecunda*, *Cuspidata* or *Acutifolia* before being further identified to species. Some species exhibit



variation between individuals and some specimens require a more thorough analysis back in the lab. The extra power of a dissecting microscope can enable unique cellular patterns and shapes to be seen.

Over the past few years I have been recording and monitoring wildlife at a site in East Renfrewshire called Shieldhill Farm. This is adjacent to Whitelee Windfarm and has a similar variety of habitats. I try to record as many species as I can although my focus is on the bird species at present. With good areas of peat bog and wet heath I have been aware of the range of *Sphagnum* species but I never put much effort into recording or working out which species were present. All I had were a few photographs from which I've retrospectively been able to identify some species. However, I now plan to use my new identification skills to generate a species list for



Sphagnum magellanicum in bog

the site as well as map out where key bog-forming species such as *S. magellanicum* occur. I hope that by doing this I might be able to gain an idea of where the best areas of peat bog remain.

Since the course, I have been collecting and recording specimens during my regular visits to the site so that I can continue to practice my ID skills. Using my phone I am recording the grid references of all records to eventually develop a rough site map with the intention of using it to identify variation in habitats and quantify habitat quality.

Learning Leaf Mines

Apithanny Bourne

The winter months are a difficult time for us lepidopterists - most butterflies have long abandoned us, and our moth traps become increasingly empty as the year draws to a close. This was part of the temptation of delving into the world of leaf mine identification. A promise of extending the mothing season well into late autumn and even into winter. That, and the allure of recording a group of insects which are so often overlooked.

Whilst moth trapping has been steadily increasing in popularity for a while now - even the seasoned moth-ers amongst us



Figure 1

are guilty of turning a blind eye to micro moths. Micros are difficult. Many of them require dissection to confirm identification and more still aren't attracted to light at all.

However, examining the mines left behind by moth larvae as they eat their way through leaves, offers a solution. Different species use leaves in different ways. Some leaf miners form a long winding "gallery" mine between the upper and lower epidermis of the leaf (Fig.1), others create a "blotch" mine on one side (Fig.2) and



Figure 2

some even outgrow their mines completely, choosing to fold over a leaf edge instead. Whatever the technique, leaf miners have adapted interesting ways to avoid predation and the signs they leave behind can help us to identify their presence. Recording leaf mines requires some knowledge of botany and an understanding of fieldcraft which offers an extra dimension to mothing.

Few people record leaf mines and so studying them involved a trip down to the beautiful Juniper Hall field centre in Surrey, support of the bursary.

Led by Dave Grundy, a regular on the mothing circuit, the weekend-long course offered a brilliant hands-on foundation in identifying leaf mines. Dave's course is well structured and first involved learning the