GLASGOW NATURAL HISTORY SOCIETY NEWSLETTER

November 2019

Next Newsletter Deadline 10 January 2020

GNHS is a Registered Scottish Charity Web-site: www.gnhs.org.uk

David Palmar (Newsletter Editor)

dpalmar2000@yahoo.co.uk

Norman Lugton Storie (1946-2019)

Roger Downie and Richard Weddle, with contributions from Isabel Coombs and Tabby Lamont

Norman Storie, who died suddenly in early September, was a member of GNHS since 2008 and joined the Society's Council in 2012. He acted as independent examiner for the Society's accounts for some years and was ornithology convenor from 2013. He made valuable contributions to the Society, as well as to the wider wildlife conservation community in greater Glasgow, and is a considerable loss.

Norman lived most of his life in Glasgow, and grew up with an interest in wildlife, especially birds, butterflies and moths. On leaving school, he moved immediately into employment with the Clydesdale Bank: it was still the case then that relatively few school leavers went on to higher education. Norman met his future wife Sheena at the bank, and they married in 1977. In the meantime, Norman had an interlude working in Shetland at the Lerwick branch where he gained experience of international trade-related banking, especially involving Russians, whose language he learned. The Lerwick posting also allowed him time and opportunity to further his ornithological interests and experience.

After 30 years in the bank, Norman retired early and studied at Langside College, which provided him with the qualifications to enter Higher Education. He studied Zoology at the University of Glasgow, graduating in 2001. Isabel Coombs, one of his university teachers, remembers him as an excellent student, full of interest in and curiosity about the natural world. He began his studies with an unusually great store of natural history knowledge, but appreciated the benefits of more formal instruction in science and scientific methods. Isabel recalls Norman bringing a bat detector to a field course at Rowardennan to the delight of staff and students alike. During fieldwork, Norman was able to compete with David Houston, regarded by the students as Glasgow's Attenborough, especially in plant identification. Becoming a student at 50 was a big step for the family, since the financial support for undergraduate students had been greatly reduced since the 1960s.

In 2003, Norman was appointed to what he regarded as his dream job: office manager for the RSPB's Glasgow office, where he could use his skills to improve the working of the office, but in an environment of wildlife and conservation enthusiasts.

He worked there till retiring properly in 2011. After that, as well as getting involved with GNHS, Norman volunteered for the RSPB at Lochwinnoch and also helped Butterfly Conservation. Tabby Lamont, site manager at RSPB Lochwinnoch writes that Norman volunteered there every Friday for the last five years. He was always known as the 'moth man', cheery and friendly, always ready with a smile and a story. Staff would make time, even when busy, to listen to Norman's stories, told with genuine and endearing humility and enthusiasm. They will particularly miss him when something unusual and interesting turns up in the moth trap or out on the reserve. As a result of these enthusiasms, Sheena asked that any donations made at Norman's funeral be given to the RSPB or Butterfly Conservation.

Norman made considerable contributions to biological recording in Scotland. He regularly trapped and recorded moths at his home in Clarkston and at Lochwinnoch, bumblebees and ladybirds in the Clyde area and on visits to St Andrews, and butterflies too. He noted purple hairstreak butterflies in the tops of oak trees in Rowardennan Woods in 2011, still the only record for the area. He found a harlequin ladybird larva on a tree beside the RSPB office in Park Quadrant, still the only record for Glasgow (published in *The Glasgow Naturalist* 25[3], 88-9, 2011), and wrote a note on bumblebees in the Glasgow area, noting the absence, till then, of the tree bumblebee, which was then rapidly extending its range north within the UK (*The Glasgow Naturalist* 25(4), 9-10, 2012): it has since arrived, recorded in Lennoxtown, 2013, Kelvingrove Park, 2015, and now common in Glasgow parks and local nature reserves. Norman also contributed three species accounts to the two-volume *Birds of Scotland* (2007): long-tailed tit, redwing, and green woodpecker.

2020 Subscriptions

Richard Weddle

Subscriptions fall due on January 1st 2020 (except for those who have joined since the start of the winter session). A subscription renewal form is enclosed with the newsletter for those who don't pay by Standing Order; email recipients will receive a separate reminder by email; and those who do pay by SO will, of course, not receive a reminder. We would be grateful if you could pay your subscription as soon as possible, to save us having to send further reminders.

GNHS/BRISC bursaries

Richard Weddle

As in previous years, GNHS & BRISC (Biological Recording in Scotland) and other organisations are offering bursaries towards attending a training course in natural history field studies skills.

The bursaries will be for £200 or 75% of the cost of the course, whichever is the lower. The closing date for applications is January 31st 2020; full details, an application form, and full details of the bursaries on offer will be available at www.brisc.org.uk/Bursaries.php at the end of November. GNHS members will also be notified by email.

GNHS Indoor Meetings Winter Programme

Meetings will be held in the **Boyd Orr Building**, University Avenue, normally in Lecture Theatre 5C, except where otherwise indicated, and will begin at 7.00pm. Where there are two lectures listed for an evening, each will last about 30 minutes. At the start of most meetings there will be a short time when members can present their recent observations: these can be short talks (about 2 minutes), or interesting specimens, or photographs. It will be helpful if members intending to make such a presentation can let Roger Downie know in advance: roger.downie@glasgow.ac.uk.

November
Tuesday 12th
7.00pm Lecture 1: Plants, mycorrhiza and evolution; Jim Downie
Lecture 2: Wintering jack snipe in Glasgow; Iain Livingstone
Thursday 14th
7.30pm Bower (Botany) Building Seminar Room (jointly with Friends of Glasgow Botanic Gardens and the Glasgow Treelovers Society)
Lecture: A quest for trees; Tom Christian

December
Tuesday 10th
Christmas buffet dinner – see Newsletter for details and booking form; includes
Lecture: Amber – tears of the gods; Neil Clark

2020
January
Tuesday 14th
7.00pm Hunterian Museum (Main building): Exploration – from deep time to deep space; exhibition; visit led by Jeanne Robinson
Wednesday 29th
5.00pm Graham Kerr Building Lecture Theatre 1
Blodwen Lloyd Binns Lecture: A natural history of immune defences in this wormy world; Andrea Graham

February
Tuesday 11th
7.00pm Photographic Night: members' slides or digital slide shows, plus results of this year's PhotoSCENE competition

Excursion Planning for 2020 **Alison Moss**

I am delighted already to have received some very good excursion ideas and offers to 'lead' them. These range over a wide area of interest and are not all botanical! As usual, I will juggle dates and ideas over the winter and have a program in place by mid March for the April newsletter. I would welcome any additional ideas and offers of help. I notice that quite a number of offers fall on a Sunday. I appreciate that this does not suit everyone, so if anyone has a Saturday idea and offer, that would be particularly welcome. Please contact Alison

Excursion Reports Summer 2019

Newlands Park - Thursday, 16th May 2019 — Bob Gray

The fine weather ensured a turnout of 12 of us to this small park of some 19 acres (c. 7.5 hectares), which, despite its small size, contains many interesting trees. It was gifted to Glasgow in 1913 by Sir John Stirling Maxwell of Pollok.

Red oaks *Quercus rubra* [1]

We progressed in a clockwise direction from the Carlaverock Road entrance, near which grow three established red oaks (*Quercus rubra*)[1], planted by the Glasgow Tree Lovers' Society in 2006 in memory of Cardinal John Winning who lived in this part of the city. One of these oaks, in a poor state of health, is to be replaced soon. These oaks are native to the eastern side of North America from Nova Scotia to Texas and are part of the American "black oak" group which possess characteristics[2] different from the "white oaks" of Europe (including the British Isles).

Quercus rubra leaves [2]

Quercus macranthera leaves [3]

The latter is exemplified by a fine specimen of a Caucasian oak (*Quercus macranthera*)[3] growing nearby. The rare Caucasian oak with its whiskered buds is not to be confused with the more commonly planted Hungarian oak having no whiskers (see Tollcross and Pollok parks for the latter).

We then came across some Highclere holly (*Ilex x altaclarensis*)[4], a cross between a female Madeira holly and male common holly, and were able to compare differences with the adjacent common holly (*Ilex aquifolium*)[5].

Highclere holly (*Ilex x altaclarensis*)[4]

Common holly (*Ilex aquifolium*) [5]

Towards the northeast corner is a group of tall, close grown grey poplars (*Populus canescens*)[6]. In order to avoid the spread of woolly fruits these male trees are more commonly planted than their female equivalent.

Grey poplar (*Populus canescens*) [6]

Near the front of the cafe grows a fastigiate hornbeam (*Carpinus betulus* 'Fastigiata') which is fairly commonly grown in Glasgow's parks and streets. In the rockery to the east of the pond[7] and also south of the cafe grows a number of healthy Meyer's juniper (*Juniperus squamata* 'Meyeri'). These small glaucous trees, with long drooping branches

Pond and rockery [7]

are commonly grown but are increasingly subject to dieback caused by the fungus-like pathogen *Phytophthora austocedrae*. The rockery also contains a few variegated Western red cedars (*Thuja plicata* 'Zebrina')[8] with their pineapple-scented foliage.

Farther from the eastern boundary and into the southeastern corner grow smooth Japanese maple (*Acer palmatum*), native field maple (*Acer campestre*)[9] and Norway maple (*Acer platanoides*) which were easily compared with each other.

Western red cedar (*Thuja plicata* 'Zebrina') [8]

Field maple (*Acer campestre*) [9]

An uncommon and solitary variegated Lawson cypress (*Chamaecyparis lawsoniana* 'Albospica'), with brilliant white shoot tips, grows on the southeast boundary. In the south corner are two fine mature pedunculate oaks (*Quercus robur*).

On either side of the main NW to SE path grow four grafted golden sycamores (*Acer pseudoplatanus* 'Brilliantissimum'), quite a stunning sight in the spring.

Towards the west end of the park grow a number of lime trees (*Tilia* spp.) that include broad-leaved lime (*Tilia platyphyllos*)[10] and Crimean (*Tilia x euchlora*)[11] which enabled distinctions to be made. The Crimean with its distinctive shiny green leaves with big brown tufts under the vein joints is considered to be hybrid between the small-leaved lime (*Tilia cordata*) and the Caucasian lime (*Tilia dasystyla*). Its glossy foliage makes it relatively aphid proof, free from the production of honeydew and so more useful for growth in city streets than other limes.

Broad-leaved lime (*Tilia platyphyllos*)[10]

Crimean lime (*Tilia x euchlora*)[11]

Along the northwest boundary grow a number of common rowans (*Sorbus aucuparia*) with, at each end, some hybrid rowans (*Sorbus x thuringiaca*). This is a cross between rowan and common whitebeam (*Sorbus aria*). Also near here grows a Sargent's rowan (*Sorbus sargentiana*) with long stipules, long pointed leaflets and sticky buds.

South of the north entrance grows a group of 3 horse chestnuts (*Aesculus x carnea*), a cross that occurred in 1818 in Europe between horse chestnut (*Aesculus hippocastanum*) and the SE USA buckeye (*Aesculus pavia*). The former has white flowers, the latter red and the hybrid flowers are dull crimson [12].

The chromosomes of the cross have doubles and so the plant breeds true. Its bark however is very cankered. Just south of here grows an attractive dawn redwood

(*Metasequoia glyptostroboides*), famously discovered in 1941 in eastern Szechuan about the same time as some Pliocene fossils were being identified in Japan.

Horse chestnut (*Aesculus x carnea*) [12]

Seeds subsequently arrived at the Arnold Arboretum and from there in 1948 they were dispatched around the world.

Arizona cypress (*Cupressus arizonica* var. *glabra*) leaves [14]

Arizona cypress (*Cupressus arizonica* var. *glabra*) [13]

Finally we came to the climax of the evening – a smooth Arizona cypress (*Cupressus arizonica* var. *glabra*)[13] introduced in 1907. Although it originates where the summers are long, hot and dry it is very hardy and soil tolerant. It has bluish, wiry foliage[14] and long lasting male strobili and cones.

For such a small park Newlands contains a fine eclectic collection of interesting trees.

Redmoss Meadows, 14th July 2019 **Alison Moss**

Twelve GNHS members were joined by Matt Harding, the Botanical Society's recorder for the Stirlingshire vice-county. We had a superb day. The Redmoss Meadow area is a very diverse site just west of Milton of Campsie. It has old estate woodland, a range of different meadows and is added to by the Glazert Water, a tributary of the River Kelvin. This boundary offers more deciduous woodland and also some interesting riverine species. Another boundary is with houses which threw up some odd garden escapes. I believe, just within living memory, the main meadows area was indeed a hay meadow. Matt recorded over 220 species of flowering plant and ferns. This he checked against the last recorded data from 1998. Matt' s full plant list is available if wanted.

The sheer abundance of flowers was particularly colourful in the damp meadow where valerian was in full bloom.

Bronze shieldbug (Richard Weddle)

Greater butterfly-orchids were scattered throughout the site and recorded as indicators of a healthy meadow. Rose-bay willow herb was beginning rather to dominate some of the drier areas and will be watched for habitat loss. At the river there were the usual invaders - Himalayan balsam and Japanese knotweed, but also some nice remnants of old woodland, sanicle and broad-leaved helleborine.

All this diversity of plants produced an equal diversity of creatures. Myles noted 13 species of bird, including chiffchaff, whitethroat, great-spotted woodpecker and a buzzard in the sky. The variety of moths, spiders, and other invertebrates found by our insect enthusiasts was amazing. I was mesmerised by being shown a tiny, spherical bright green spider (cucumber spider) on the end of its thread of silk. Though there were generally few common insects such as butterflies, bees and hoverflies - as everywhere this year up to that point - we managed to find 20 species of moth (including a Shark), Richard found the rather uncommon bronze shieldbug (*Troilus luridus*), and what may be the first modern record of the solitary bee *Andrena fucata* in the west of Scotland, and Myles found the large horse-fly *Tabanus sudeticus* - one of the largest species of Diptera in the UK.

One reason Redmoss was chosen for our excursion was to record the biodiversity; in all we had 261 species (including the 220 previously mentioned). It is part of East Dunbartonshire, and like in so many other places, sites are being looked at for housing. We did find great diversity and also realised that the area and the official pathways network by the river were much used by locals. People out for a walk are curious when they see GNHS in action and there is general interest to find out from us more about familiar places. We learn from each other and our findings are much appreciated as sources of data upon which better informed decisions can be made. So thanks to all who participated in a most enjoyable day.

Whitelee Wind Farm, 11th August, 2019 **Alison Moss**

Sunday 11th August, 2019 was a very wet day. Four stalwarts braved the conditions and all credit to Kate Elliot of the Whitelee Countryside Ranger Service who led us from the Visitor Centre to Blackwood Hill, answering all our questions as we went along.

The site is huge with many different habitats and paths. We had hardly set out from the Centre when I spotted a large patch of Hare's Foot Clover (*Trifolium arvense*) just off the main track. This attractive clover seemed somewhat out of place. I

remember it from Findhorn and Fife, east coast locations on sandy soil, not the heights of Renfrewshire. Keith Watson's Flora has 2 rather random records from Howwood and Cowglen in 2005, but very rare in Renfrewshire. Possibly it had come in on some gravelly material used for the path. It was certainly thriving. Another odd plant was a patch of Small Cudweed (*Filago minima*), not sure which subspecies and easily overlooked.

Insects were largely taking shelter. However, Richard captured a large black beetle (*Pterostichus niger*) and Sue spotted an impressive caterpillar of the fox moth (*Macrothylacia rubi*). The habitats were there - wildlife ponds, peat bog, moorland, great patches with thistles, all the places where insect life should abound. Instead we had to be impressed with the array of lichens and a tiny fungus, orange moss cap (*Rickenella fibula*).

Undoubtedly, the site would merit many visits to different areas in better weather. Astonishingly, the car park was quite full on such an increasingly awful day. Indeed, Kate's summer season has largely been taken up with people rather than wildlife work, such is the interest and educational value of the wind farm.

Cashel Forest Bioblitz, 17th August 2019 **Alison Moss**

Cashel Estate is owned by the Royal Scottish Forestry Society. In 1996 it was decided to create a working forest on what was Cashel hill farm. The Forest Trust which runs the Estate held another bioblitz, a little later in the season than one I attended two years ago. This time, GNHS was represented by David and Janet Palmar, Ash-Lynn Tavener and me. All participants were made very welcome and their areas of speciality put to good use.

Adder (*Vipera berus*) – David Palmar

I was part of a Botanical recording group lead by Matt Harding and Carol Crawford. This time we concentrated on the new, planted woodland, now 15 - 20 years old and maturing nicely. There are varied habitats within this woodland, including ponds, moors, bogs, ditches, path edges and streams, and also some small grassy meadows. Consequently we recorded 175 species with an additional 13 from the group on the high moorland. This included water purslane, (*Lythrum portula)*, a new record for Stirlingshire Vice County and cranberry, always a nice find. In addition, I did record 16 species of fungi, including 4 species of Amanita, and orange and brown birch Bolete.

Young common lizard – David Palmar

However, possibly the highlight was watching a magnificent adder very close to our path and later, a slow worm and

young common lizards also enjoying the warm sunshine at the path edge. Those with moth traps and general insect recording kit had a good day too. Peacock butterflies were conspicuous in the sheltered grassy pockets where Devil's bit scabious and knapweed seemed to be their flowers of preference.

The on-going path upgrades made walking easier and seemed to be attracting more visitors to the way-marked walks. It was good to see so many families enjoying the day in the woodlands and the views. Cashel is rather underused for such an attractive area with good alternative walks and so much to enjoy compared to some very busy Loch Lomond sites.

Neglected rustic – David Palmar

It will be interesting to see how the biological records change as the forest develops. The trees planted were of Scottish and Northern English provenance. With the SSSI oak woodlands as part of Cashel and remnants of oak, ash, birch, alder rowan and hazel scattered throughout, it bodes well for a promising progress to maturity with associated native biodiversity.

Lists of species recorded include moths from Nick Cooke (16 species), plants from Matt Harding (187 species) and invertebrates from Sam Buckton (31 species). These are too long to print in this newsletter but are available on request.

Short Notes

A Year After the Drought — Paul Cobb

Much was being said a year ago about whether the drought would do long term damage to our wildlife, and now we are in a position to make an assessment of the situation.

It seems that, at least in the groups I specialise in, most species have survived successfully and some are thriving, but there are also many of our common species that have been in noticeably much reduced numbers this year, or they have appeared much later in the season than normal, while some have definitely suffered badly.

Not surprisingly, species with aquatic larvae have been particularly badly affected, and mayflies, stoneflies and caddis have been in very low numbers, with their large mating swarms being a rare sight this year.

The normally common galls of the nettle gnat *Dasineura urticae* on Stinging Nettle I have seen just twice this year, and not until October. Likewise, it was September before the even more common leafmines of the moth *Mompha raschkiella* on Rosebay appeared in noticeable numbers.

The leaves of Rowan support four common species of leaf-mining moths, as well as several less common, and normally any Rowan tree can be expected to host three out of the four. This year most Rowans had none of them. Hawthorn in contrast seems to have had its full complement of leaf-mines in even greater quantity than normal.

Worst hit by far are the gall wasps that cause oyster gall and the various spangle galls on Oak leaves (*Neuroterus* spp.). Usually they are all to be found in great abundance in autumn, but this year I have found just a very few of the Smooth spangle gall *N. albipes* a couple of times, and the Common spangle gall (*N. quercusbaccarum*) just once.

Atlas of Britain and Ireland's Larger Moths **Butterfly Conservation**

The Atlas of Britain and Ireland's Larger Moths is due to be published by Butterfly Conservation this month:

"Around 25 million moth records from Butterfly Conservation's National Moth Recording Scheme and Moths Ireland have been combined to produce this landmark publication – the first ever atlas of all macro-moths in Britain, Ireland, the Isle of Man and the Channel Islands. Atlas of Britain and Ireland's Larger Moths includes accounts for 866 macro-moth species, each with a distribution map showing current and historical occurrences, trends, status, a phenology chart and colour image. A further 25 species, which were former residents, but have not been recorded from 1970 onwards, have a distribution map.

Brief introductory chapters detail the long-standing tradition of moth recording and the development of the National Moth Recording Scheme, methods used to collect and analyse the data, an overview of trends since the 1970s and the environmental drivers of change in moth populations and distributions."

www.nhbs.com/atlas-of-britain-and-irelands-larger-moths-book

BloominAlgae **Dr Jan Krokowski, SEPA**

I wonder if it would be interesting for members to know about the 'BloominAlgae' smart phone app, to use as recording device for recording occurrence and frequency of cyanobacteria (blue-green algae). Details are provided in the link: www.ceh.ac.uk/algal-blooms/bloomin-algae

Glasgow HogWatch **Kirsty Crawford (TCV)**

'Glasgow HogWatch' is funded by The British Hedgehog Preservation Society from April 2019 – June 2020. It aims to monitor and map hedgehog populations in Glasgow and the West of Scotland by conducting torchlight surveys, a variety of events and training courses and implementing hedgehog friendly changes in the landscape.

There is an opportunity for Friends groups and individuals to become involved and to post the link (below) up on your groups, Facebook pages and web sites. Kirsty Crawford from TCV is kindly looking for every sighting of a hedgehog to be submitted to Glasgow Hogwatch and also for volunteers to assist with nocturnal surveys and other activities.

https://www.tcv.org.uk/scotland/discover/citizen-science/glasgow-hogwatch

If you have recently seen a hedgehog in your local park or had one visit your garden please email three simple pieces of information to kirsty.crawford@tcv.org.uk

•Date
•Location of hedgehog: postcode and address or grid reference
•Status: alive / dead / roadkill

As you might also be aware from the recent Channel4 feature on "The state of nature" emergency report 2019 published last week, the hedgehog population has collapsed and declined by 96% and is in dire need of action: www.mammal.org.uk/wp-content/uploads/2019/10/55654-1_RSPB_State-of-Nature-Report_ONLINE_AW3_v4-1.pdf

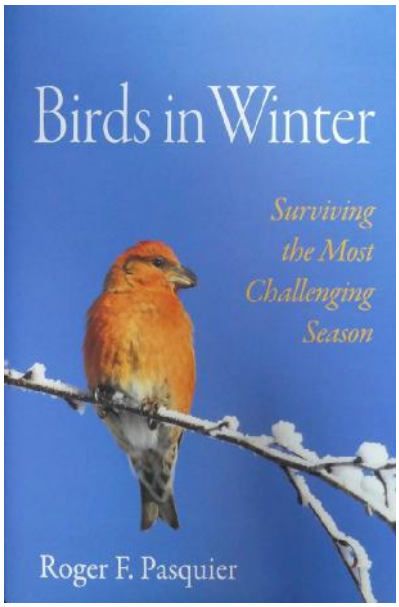
Tree of Hippocrates re-birth **Bob Gray**

Further to the piece in the last GNHS Newsletter Pat Thomson has taken photos showing that the Oriental plane (*Platanus orientalis*) re-planted in the grounds of the QEUH is now showing signs of growth. So the potential re-planting is no longer required.

Books received for review and GNHS Library Anthony Payne

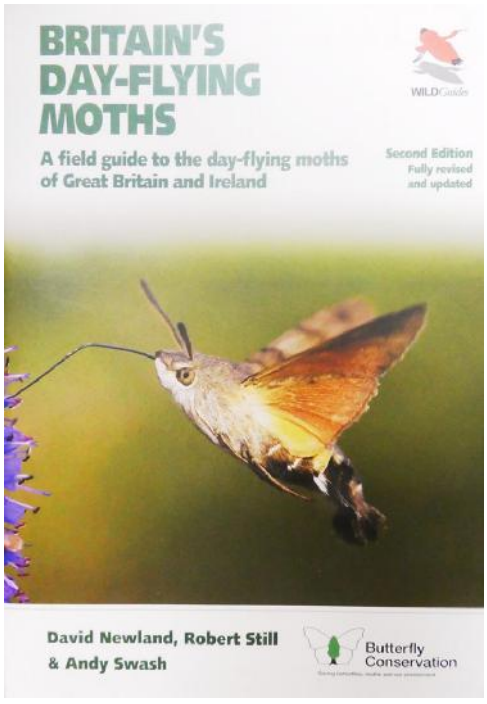
Two books have been received recently from Princeton University Press.

Birds in Winter by Roger F. Pasquier (2019) Princeton University Press; 304 pages HB £24.00
This scholarly book sets out to examine the most challenging time of year for birds, whether they migrate to avoid it or remain to endure it. "Winter" actually begins in late summer as birds prepare for it, and lasts until early summer in that it may affect breeding success. There are chapters on how birds know that winter is coming, and how they respond to this; on winter range and habitat in migratory species, as well as their behaviour in relation to the sedentary populations they encounter when they arrive at their winter destination. For those that remain to see the winter out, there are chapters on survival and what birds experience during a typical winter day. For migrants, there are the mirror-image issues of how they know that spring is coming, how they prepare for this and how they depart. All this is topped off by chapters on conservation and climate change. Throughout, examples are used from all around the world, but the author is American and a passing interest in New World species will be an advantage. The book is illustrated with charming line drawings by Margaret La Farge.



Britain's Day-flying Moths (2nd Edition) (2019) by David Newland, Robert Still and Andy Swash. Princeton University Press; 232 pages, PB £17.99.

This is a handy, pocket-sized guide to the moths which might be encountered by day in Great Britain and Ireland. It is one of the WILD *Guides* series published by Princeton University Press and is in conjunction with Butterfly Conservation. The authors take their remit quite broadly, including not only genuine day-flying moths but also moths which are "easily disturbed"; the book deals predominantly with macro-moths, but includes some micros. Each species is illustrated with one or two large photographs in a resting, natural pose and a brief description covering key identifying features, confusion species, a distribution map and larval foodplants. There is also information on status in the UK and flight season. This book will not only interest serious lepidopterists, but also those with a passing interest in moths they might encounter during a field trip or a day out in the country.



It is hoped that full reviews of these will appear in *The Glasgow Naturalist*.

Reports on activities which were partly funded by GNHS bursaries, or are contributions from new members

Cetacean Surveying on Great Cumbrae **Alexander Paterson**

I close my eyes and I am brought back to Cumbrae. I feel the survey vessel, the R.V. Actinia, beneath me gently rocking as it slices like a hot knife through butter over the summer seas.
We are set out on this day to survey seal behaviour; to be specific, vigilance. The boat's engines were switched off and we floated quietly, in groups of three and began our count. For a period of 5 minutes, we would identify and count the seals basking on the rocks, recording whether they appeared relaxed, or appeared aware of our presence. I remember with distinct frustration watching the seals disappear into the water, or change state between alert and asleep in a matter of seconds, making it difficult to know exactly how to count them. Still I valued this experience. I have gained a new patience and understanding as to what is required to survey live animals.

Looking for cetaceans at Keppel – Alexander Paterson

The second time we boarded the vessel, the day was just as fine, the sea even calmer than before - perfect conditions to observe cetaceans. The Firth of Clyde, where the Island of Cumbrae is located is a hotspot for dolphins, porpoises, and even whales, owing to its deep and brackish water. We were not disappointed.

As if on command, pods of Harbour Porpoise would wave their dorsal fins from the cold depths into the sunshine, as we followed the pre-set transect lines. Counting and identifying as we went, GPS readings and compass bearings were taken to mark the location of each sighting, so that the results could be plotted on a map. Another lesson was learned here – GPS cannot always be trusted.

Common dolphin and Porpoise off Great Cumbrae – David Palmar

My first attempt at plotting the data landed me somewhere in continental Africa. Not quite right. The second attempt, after adjusting the co-ordinates, landed me much closer, though still a few miles out of position. More practice is required I suspect.
From the warm, balmy glow of the sunshine outside, to the cold, austere hum of the laboratory, specimens were being prepared for examination. To the naked and untrained eye, fish bones are indistinguishable. Through a lens and with the aid of a key, however, identification can be a quick and engaging process. Vertebrae are

isolated, as they hold the most distinct part of a fish bone – prezygapophyses. These are the small ridges of bone on the spine, which are highly variable across fish species, and their size, angle and number all offer clues as to the name of the previous owner.

Also in the laboratories, an acoustics workshop was held. A sample of noise recorded from a hydrophone being dragged through water was listened to through headphones. Various sounds could be heard. A passing ship, a lightning strike, the haunting call of the humpback whale played, while a spectrograph was displayed on the computer screen, presenting the data visually.

My experience at the FSC centre of the Isle of Cumbrae was one of laughter, exploration, frustration and growth. Excellent lecturers aided our learning through lectures, and the rest of the staff at the centre were just as welcoming and accommodating. But most importantly, the skills and knowledge required to monitor and preserve our degrading marine environment are being shared, and the future is made brighter, one person at a time.

Learning Leaf Mines **Apithanny Bourne**

Image 1 – long winding gallery

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 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 their larvae as they eat their way through leaves, offers a solution.

Image 2 – "blotch" mine

Image 3 – folded over leaf edge

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 (image 1), others create a "blotch" mine on one side (image 2) and some even outgrow their mines completely, choosing to fold over a leaf edge instead (image 3).
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 – this offers an extra dimension to mothing, not experienced by simply leaving out a trap each night.

Few people record leaf mines and so studying them involved a trip down to the beautiful Juniper Hall field centre in Surrey. A large Victorian building with well wooded grounds and a walled garden. A journey which was completely worthwhile and would have been impossible without 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 common mines found on Beech and Hazel – which 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 next – steering clear of oak mines, which require a good degree of experience and confidence. By using the excellent website www.leafmines.co.uk (which provides a mine key for each British tree species) it became easier to narrow down new mines.

During the course I retained my leaf samples and sealed 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 and I'm looking forward to finding more in the months to come! I'd certainly 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 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!

Image 4 – Jersey Tiger moth

Bryophytes Course **Ash-Lynn Tavener**

Having done my BSc in Zoology I'm definitely something of a novice when it comes to identifying plants. Currently living in Glasgow and attempting to enter into a career in conservation, I've become aware that while many choose to spend their lives painstakingly recording and classifying the native birds, bees and butterflies this country has to offer, almost none seem to show any interest in a type of life both fascinating and prolific among us - bryophytes. These inconspicuous plants can be seen everywhere from the epiphytes that decorate the bark of our native trees, to the pioneering forms that have ventured out across rocks and even concrete paths. Having noticed this niche in biological curiosity, I was excited to discover I had received funding from BRISC to spend a weekend on an FSC course at Preston Montford in Shropshire, learning how to tell the difference between Pleurocarps, Acrocarps and Liverworts. I loved it!

FSC Preston Montford

In the field

The weekend was fascinating - long days spent knelt in the field, hand-lens to eye, desperately trying to measure the length of the nerve running through a 1mm moss leaf, and the expert advice and knowledge we gained on the course has since proved invaluable when trying some recording of my own.

The British Bryological Society provides downloadable record cards to help you get started and has contact details for both local groups and regional recorders. If, like me, you are still not confident in accurately identifying species then these contacts will no doubt come in handy!

In the lab

I have started noticing bryophytes everywhere I go and recently got into the habit of carrying spare paper in my coat pocket (this can be folded into a handy pouch for your moss samples). After collecting a small sample, it is important to write down where it was collected e.g. Ash tree, brick wall, boulder... the site it was collected from and of course the date. I've also found it handy to take a note of how the branches lay across the surface of the substrate, for example if they were prostrate, cushioned or standing up vertically. This can often be a key element in later classification.

On returning home and extracting the sample, it will of course have dried out, however it can be easily brought back to life with a few drops of water (it is advisable to keep some of the material dry for examination). It never ceases to amaze me how the dried-up plant springs instantly to attention, often unwinding its branches and leaves to soak up the moisture and finally resembling a miniature forest in the palm of your hand. Watching this transformation through a microscope or hand-lens is a must do on any naturalist's bucket-list!

Looking to the future, I am excited to get out and explore the bryophytes of Scotland, particularly in Shetland where I often spend time, and which is no doubt under-recorded for this taxon. I'm also keen to meet some fellow enthusiasts and benefit from their passion and expertise. As such I have recently joined the Glasgow Natural History Society and look forward to getting to know some of their members and going out to do some much-needed recording!

Identifying Hoverflies **Tereza Kocarkova**

As a keen taxonomy enthusiast I have always had a soft spot for under-recorded groups of organisms and last year I was given the opportunity to join the UK Pollinator Monitoring Scheme (UK PoMS) and work as a 1 km square PoMS surveyor. During my seasonal field work I met a great variety of pollinators of which a large proportion is represented by hoverflies. Thanks to the BRISC bursary project and the Malloch Society I was able to attend the FSC Identifying Hoverflies course at Preston Montford in Shropshire, led by the incredibly knowledgeable and enthusiastic dipterists Stuart Ball and Roger Morris.

Leucozona lucorum

Hoverflies (Syrphidae) are an astonishingly diverse family of the order Diptera fulfilling a host of important roles within various ecosystems, ranging from pollination and pest control to decomposition of dead plant matter and animal dung. At present, 283 species have been identified (Dipterists Forum: British checklist, updated Jan 2017) within 68 genera on the British Isles alone, although DNA sequencing recently made the precise taxonomic classification very complicated.

Volucella pellucens

Recording and identifying hoverflies is very challenging. However, it can provide invaluable information regarding not only the distribution and ecology of individual

species but also leads to more complex data with implications for understanding issues such as landscape connectivity or the effects of climate change.

As with many invertebrates, at the time of recording species, location and distribution, numbers are already alarmingly low. According to Stuart Ball and Roger Morris, Hoverfly data is especially lacking in Scotland with northern parts and islands being severely under-recorded. It is therefore difficult to determine any potentially changing trends in population distributions and abundance of individual species. The good news is that involvement of the general public seems to be on a slow rise and thanks to social media and high quality digital photography the identification of the most common species can be done by skilled specialists from the comfort of their homes based simply on a pictures submitted by enthusiastic members of public. Every record counts!

I am currently helping out with a sample collection and identification of hoverflies for a research project at Edinburgh Napier University. Furthermore, I have been submitting casual records of hoverflies observed during my UK PoMS surveys throughout the season. I am hoping to pursue a career in academia to study pollinators and contribute to research leading directly or indirectly to a better understanding of pollinator roles within natural and man-made ecosystems. I hope such research could enable the formulation of evidence based conservation strategies or policies. I would like to share my knowledge with others and raise awareness of hoverfly diversity and importance, not only as pollinators but as important indicators of the overall health of the global ecosystem.

I would like to thank the BRISC and the Malloch Society for mak ing it possible for me to attend such a high quality course, helping me expand my knowledge and skills, as well as contributing to my career goals.

What can chromosome ends tell us about the cost of birthing live young? BLB Recipient Darryl McLennan, together with Hans Recknagel, Kathryn Elmer and Pat Monaghan

Within reptiles, giving birth to live young has evolved independently from egg laying about a hundred times. By retaining offspring within the womb for longer, live bearing mothers provide their young with a more stable and protected developmental environment. Less is known about the costs and benefits for the mother. However, it is presumed that live bearing may carry a greater cost for mothers, e.g. carrying offspring in the womb for longer periods may require more energy.

Comparing the effects of live bearing and egg laying on other traits is difficult, partly because most species have adopted only one of these strategies and comparing species is complicated due to evolutionary and ecological differences. However, by studying the European common lizard, one of the few vertebrates where both reproductive modes can be found within the same species, robust and controlled comparisons can be made.

Common Lizard

In this study, we investigated whether telomere length differs between live bearing and egg laying common lizards. Telomeres cap chromosome ends and protect the central part of the chromosome that contains the active genes. Telomeres shorten during cell division; however, this shortening can be accelerated by exposure to conditions that generate stress within cells. Telomeres can shorten to such an extent that the genome becomes unstable. At this point, the cell ceases to function properly and often dies; therefore, telomere length is often considered a good indicator of biological state.

We initially hypothesised that live bearing mothers would have relatively shorter telomeres than egg laying mothers, since live bearing appears to require more effort. However, contrary to our predictions, both the live bearing mothers and their offspring had longer telomeres than egg laying mothers and offspring. That the difference is significant at the offspring stage suggests that it is not due to reproductive effort. It is possible that it is due to differences in the growth rates of the offspring. Alternatively, the two reproductive modes may have evolved differing telomere dynamics over time and so their 'starting' telomere length is different. How these telomere differences have coevolved with other life history traits remains to be investigated.

Iceland Expedition 2019 **Agate Baumane**

In June 2019 six students from the University of Glasgow set off for a 6-week-long research expedition to the Skálanes Nature and Heritage Centre in East Iceland. The team started planning in November 2018 and spent the year organising fundraising events, writing grant applications and fine-tuning project methodologies with university staff.

The main goal of the 2019 Iceland Expedition was to carry out data collection for four projects. One study aimed to map lupin spread around Skálanes and record the abundance and diversity of invertebrate species found in the invasive Alaskan lupin and native vegetation. 14 transects were taken of each vegetation type and 799 invertebrates were collected, 395 from the lupin and 404 from the native habitat. They were identified to family level. The Simpsons Diversity Index for lupin was 75.84% whilst native stands at 54.88% however these results need to be further analysed before conclusions are drawn.

Two of the seabird projects were focused on the Arctic tern colony situated by the house. The first project monitored the fledging success of the colony by studying a subset of 72 nests and collecting foraging and weather data. While the data has not been fully analysed yet, observations indicate increased chick mortality following

days of foggy and rainy weather and most prey seem to be sand eels with some molluscs and other fish species.

The other project aimed to quantify plastic pollution around Skálanes and in Arctic tern faeces. Plastic pieces collected at local beaches were determined to be mostly from food packaging and the fishing industry. Beach sediment samples contained microplastics as well, the most common being fibres <0.5mm. No plastics were found in tern nests and from 40 faecal samples microplastic presence was 15% with max. 2 pieces per individual.

The final project continued the work of previous expeditions in monitoring fulmar and kittiwake populations. It was estimated that the cliff contained 303 kittiwake nests and 406 fulmar nests. A subset of nests were studied further. By June 27th, 100% of kittiwake nests (n=51) contained 1-2, occasionally 3 chicks. Only 18.2% monitored fulmar nests (n=55) had confirmed chicks by July 20th due to their longer incubation time.

Aside from research, the team helped in the planting of 15,000 trees around Skálanes as part of the national reforestation scheme and assisted Skálanes staff in hosting tourist groups. We were also able to share knowledge with other students from US universities doing their own research at Skálanes. In our free time we got to explore the local areas and do a lot of team building.

We are incredibly grateful for the support of the GNHS Blodwen Lloyd Binns Bequest and the funds provided were used to help cover our living costs in Skálanes as all equipment was obtained through sponsorships. Overall, the expedition was a great success and achieved all aims set and we hope the Glasgow Natural History Society considers supporting the Iceland Expedition in future years.

Discovering Mountain Flowers and Ferns **Izzy Filor**

Thanks to a generous bursary from the Inverness Botany Group, I was lucky to be able to attend a recent Field Studies Council course 'Discovering Mountain Flowers and Ferns' in the Lake District. The course tied in really well to my work with the John Muir Trust where I am already using my new ID skills as a result of the course, and my research as part of my MSc at the University of Stirling.
My work is based at Schiehallion, where we are in the process of doing a thorough survey of the site's montane willow plants. Our recent survey has revealed at least one willow we did not know existed on the site – *Salix reticulata*. Whilst this was not something we saw during the course (nor are there any records south of the border, to my knowledge) our day spent at the limestone-rich area at Great Asby Scar was brilliant for introducing me to many of the plants we found during our survey of Schiehallion. We're soon to do monitoring of our calcareous flush plots on site, which will no doubt be another opportunity to refresh some of the learning from the course.

Over the next year or so, the John Muir Trust is aiming to assess the feasibility of a mountain woodland creation project on Schiehallion. This will again involve thorough habitat and vegetation surveys of the site, to identify areas of the hill most suitable

for grazing protection and upland tree planting. I am leading on the site feasibility study, so the training gained through the bursary will be invaluable for this.
Recent ventures to Glen Lyon, for field work as part of my MSc dissertation (a study of the habitats of *Betula nana, Juniperus communis* and *Salix myrsinites*) also put my new skills to the test. As part of this I'm looking at vegetation assemblage and other habitat variables where these plants are naturally found across Perthshire (give or take a few kilometres!) I've been doing field work at a variety of sites this summer – Loch Ossian, Loch Ericht, Beinn a'Ghlo and Ben Lawers. All three montane species are far rarer than they should be in the Scottish Highlands, with *Salix myrsinites* often reduced to cliff ledges, or over-grazed. A recent ERASMUS-funded study course to Norway highlighted just how common *Betula nana* is there, and with huge climate and habitat similarities to Scotland, my study will hopefully draw conclusions on how best we can expand these diminishing populations.

The course was a brilliant introduction to the wealth of plants we find in upland areas. I've come away slightly confused and somewhat overwhelmed, but wanting to learn more and to keep consolidating my skills. When I've been out and about exploring upland areas in the central Highlands over the past few weeks, I've been quick to grab my wildflower ID book and take as many photos for expert identification as possible. I'm definitely not at the stage that I can confidently identify wildflowers out and about, but the course has certainly piqued my interest!

GNHS welcomes contributions to the newsletter from members, without which the newsletter would be a poor production! It would be of enormous help in getting the newsletter out in time if you could please send them either as plain text or in a Word file as Verdana 12 points, which saves them being reformatted by the editor. Scientific names should be italicised if you have time.

Please send photos separately from the text as jpg files, and indicate where you would like them inserted into the text. The more photos, the better!

Thank you - David Palmar, newsletter editor

Christmas Social – 6.30 for 7.00pm, Tue 10th Dec 2019 Janet Palmar

This year Council has again decided to hold the Christmas Social in the Zoology Museum in the Graham Kerr Building, with the talk in Lecture Theatre 2 afterwards. Following its previous popularity, we are again trying a "bring a dish" formula. Everyone brings enough savoury or sweet food for at least two servings (for example, couples can bring four servings of one dish.) The food is laid out, and everyone can have a taste of any dishes they choose.

Please again bring your own knife, fork and spoon which will make setting up the tables and clearing away much easier. No good at cooking or run out of time with all the arrangements for Christmas? – no problem, just buy cakes or cold meat!

Although there are kitchen facilities which can heat food, it might be simpler to choose dishes which can be served cold. There will be no charge for the evening, but it is essential to let me know if you intend to come, so that we can set out the right number of tables and chairs. It would also be most helpful if you can let me know what type of dish you intend to bring, e.g. savoury, salad or sweet.

GNHS Christmas Social – 6.30 for 7.00pm, Tue 10th Dec 2019
Bookable *as soon as possible please* by sending the form below to Janet Palmar

✂.....

Name(s) (please print) ……..……

Address……......Postcode.....……

Email address ……..... Phone no……

I/we intend to bring (describe type of food - savoury, salad or sweet) and my/our own knife/knives, fork(s) and spoon(s).

.....for .....people