GLASGOW NATURAL HISTORY SOCIETY NEWSLETTER

Next Newsletter Deadline
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GNHS is a Registered Scottish Charity

February 2018

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2018 MEETINGS – Meetings will be held Lecture Theatre 5C in the Boyd Orr Building, University of Glasgow, unless stated otherwise, and will normally begin at 7.00 for 7.15 pm.
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 recent observations: short talks, interesting specimens, or photos.

February
Tuesday 13th (see below)
7.15pm Photographic Night: members' slides or digital slide shows, plus results of this year's PhotoScene competition

March
Thursday 8th
6.00pm Graham Kerr Building Lecture Theatre 1. Glasgow University Expeditions Report Back (jointly with GUExSoc; most expeditions are supported by the BLB Bequest)

Tuesday 13th
6.30pm Annual General Meeting, followed by:
7.30pm Lecture : The Water Framework Directive: algal communities and estuarine fish; Pauline Lang and Myles O'Reilly, SEPA

Friday 16th
7.30pm Hamilton Old Parish Church Halls (see below for directions)
Lecture: Scottish Badgers; John Darbyshire (jointly with Hamilton NHS and Paisley NHS)

April
Tuesday 10th
7.15pm (Graham Kerr Building Lecture Theatre 1) Lecture: Behind the Naturalist's Lens: the photographic work and contribution to Natural History of Charles Eric Palmar (supported by the BLB bequest); David Palmar and colleagues

May
Tuesday 8th
7.15pm (Graham Kerr Building Lecture Theatre 1)
Lecture 1: The Aspen Project; Peter Livingstone
Lecture 2: An Eye for the Unusual: the herbarium of Peter Macpherson; Keith Watson

June
Saturday 9th (Graham Kerr Building Lecture Theatre 1)
Conference: The Amphibians and Reptiles of Scotland: Current Research, Future Challenges

Following the publication in 2016 of Chris McInerny and Pete Minting's book *The Amphibians and Reptiles of Scotland,* GNHS is hosting a one-day conference under the above title in the Graham Kerr (Zoology) Building, University of Glasgow on Saturday 9th June 2018 as part of the Glasgow Science Festival. We have attracted an excellent range of speakers on all aspects of herpetology, and the day will include an opportunity to discuss SNH's draft strategy for this group of animals. Registration will be free, but we encourage those planning to attend to sign up on the Glasgow Science Festival website. The full programme will be available soon on the GNHS website. On the following day, the festival's Family Day, the conference will have a follow-up stall, next to GNHS's, aimed at interesting young people. If any member is interested in helping at the family day, please contact Roger Downie

Tuesday 12th
Summer Social: see April Newsletter for details and booking form

Members' Photographic Night and PhotoScene Competition Results
David Palmar

On Tuesday 13th February in the Boyd Orr Building we will again have members' own digital presentations. There is still space in the programme, so please let me know in advance if you would like to present a slide show, and what the subject is, to enable me to organise the evening more effectively. Even just a few slides and a few words about each can be interesting for members – sophisticated presentations can be nice, but unnecessary – and not longer than 10 minutes, please!

This will be followed by the results of the annual PhotoScene photographic Competition which is now in its 7th year, and is run jointly by GNHS and the Institute of Biodiversity, Animal Health and Comparative Medicine.

This year there have been 74 entries from 18 people, another good level of participation, and £800 worth of prizes will be distributed. Anyone who submitted an entry or is interested in natural history photography is encouraged to attend.

Membership Update **Richard Weddle**

In the last issue we unfortunately omitted our congratulations to Jim Dickson and John Mitchell who were granted honorary membership of the Society at the Council meeting in September.

Since the last newsletter we have welcomed the following new members: Martina Quaggiotto (Glasgow University, 2017 BLB Prizewinner), Jennifer Reid (Gartcosh), Elizabeth Mittell (GU), Darren O'Brien (Broomhill) Jennifer Reen (Bridgeton) and Lizzy Cairns (Hyndland).

2018 Subscriptions — Richard Weddle

Subscriptions fell due on January 1st 2018 (except for those who have joined since the start of the winter session). A subscription renewal form is enclosed for those who haven't yet paid; email recipients have received a separate reminder by email. We would be grateful if you could pay your subscription as soon as possible, to save us having to send further reminders.

BRISC/GNHS/Malloch Society/SNH Bursaries — Richard Weddle

Scotland needs more taxonomic experts who can accurately identify the many different species and help new generations carry forward this important work. Such experts are critical to wildlife conservation, because we cannot even begin to conserve our wildlife unless we know what we have, where it is, and how scarce or common it is. Wildlife recording thus underpins all conservation efforts. Expertise in a taxonomic group is gained through study and fieldwork, but it is unfortunately the case that many of our experts are getting older and BRISC would like to ensure that young naturalists are enhancing their skills and experience to provide a continuity of enthusiastic recorders into the future.

In order to encourage people to take up the serious study of wildlife, BRISC (Biological Recording in Scotland), GNHS (Glasgow Natural History Society), SNH (Scottish Natural Heritage) and the Malloch Society are together offering 11 bursaries towards attending a training course in natural history field studies. Up to £200 or 75% of the cost of the course, whichever is lowest, is on offer to successful candidates.

As in previous years, GNHS & BRISC (Biological Recording in Scotland) are offering bursaries towards attending a training course in natural history field studies skills. This year, as well as the 3 additional bursaries available to those aged under 27 through a grant from SNH, there are two further grants offered by the Malloch Society, so there will be eleven bursaries in all.

More information is available at http://www.brisc.org.uk/Bursaries.php

Microfibres and marine pollution — David Palmar

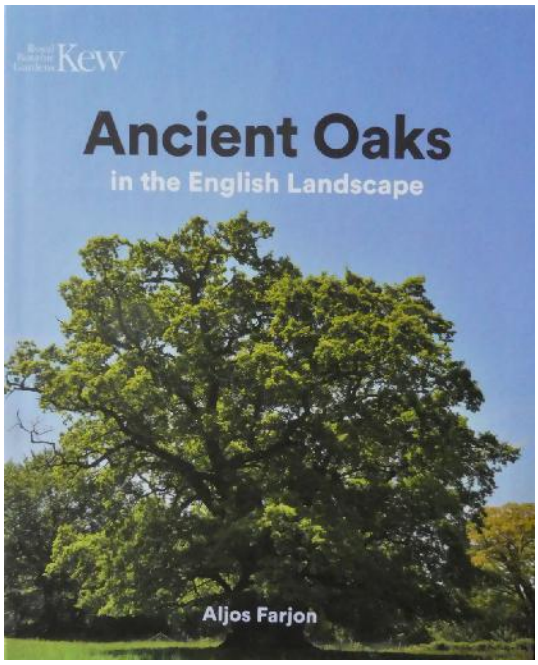
At last many more people (even politicians!) are realising that as well as being very useful, plastic can be hazardous to the environment and wildlife, and possibly even to humans.

On 12th February, the Guardian reported that washing garments such as fleeces allows microfibres to enter the sea and the marine food chain, and gives a possible solution.

Microfibres are polluting our food chain. This laundry bag can stop that.
Two German inventors created a laundry bag to prevent shedding microfibres ending up in oceans. Now, Patagonia will start selling it to customers. Below is a link to the story.
https://www.theguardian.com/sustainable-business/2017/feb/12/seafood-microfiber-pollution-patagonia-guppy-friend

Book reviews **Anthony Payne**

The following books are under review :-

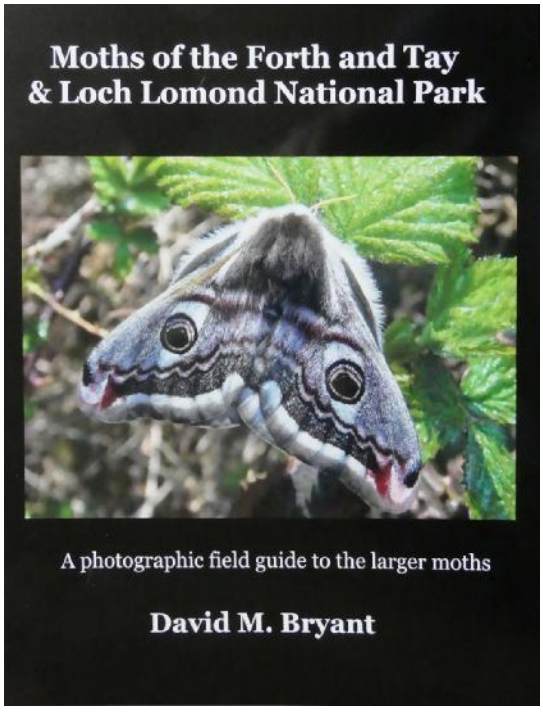


Ancient Oaks in the English Landscape **by Aljos Farjon (2017), Kew Publishing, Royal Botanic Gardens, Kew. 348 pages £30.**

Many members will have heard the author speak on this topic at our joint meeting in November 2017 and this is the profusely-illustrated "book of the talk". Ancient oaks can be defined in several ways, but a working definition is that they are in the final stages of their life cycle, and have a girth in excess of 6 m. The author explains that England possesses more ancient oaks than the rest of the UK plus the whole of continental Europe combined and that this is due to an extraordinarily lucky combination of medieval land use, royal and aristocratic pursuits, relative lack of wars and the fact that trees were already too old and unfit for shipbuilding at the time of naval expansion. All of these aspects are discussed at length. Much of the book forms a gazetteer of ancient oak woods and individual trees. There are also chapters on the oak life-cycle and on oak-dwellers such as fungi and beetles.

Moths of the Forth and Tay & Loch Lomond National Park **by David M. Bryant. 107 pages.**

This is not a great time of year for Lepidoptera, but expectant moth-ers might consider adding this book to their collection before the season gears up. First and foremost it is a collection of photographs of all the macro-moths found in the Central Belt. Each photograph is accompanied by text which includes size, flight periods, distinguishing characteristics and an idea of frequency; almost all images are of the adult only and there is no real attempt to deal with life cycles. Secondly, the author sets out (by tables and line diagrams) to tackle confusion species, such as the conifer carpets, the winter moths and a long section given over to the pugs. Information and costs can be obtained through the author dmbryant@btinternet.com and batches are produced via the BLURB publishing service on demand. Proceeds go to Butterfly Conservation to help the "Moths Count" project.



It is expected that full reviews of these books will appear in a future edition of *The Glasgow Naturalist*.

Reports from recipients of BRISC/GNHS bursaries or grants from the Blodwen Lloyd Binns Bequest Fund:

What's black and yellow and goes buzz? Hoverfly Identification

Miranda Shephard

My interest in hoverflies began in 2011 after I and my then 2-year-old son grew giant sunflowers in the back garden. These sunflowers were visited almost constantly by a variety of black and yellow insects, which I now know to have been mostly bees and hoverflies. I was intrigued and fascinated by the smaller and more numerous hoverflies as they tricked me into thinking they were small bees or even wasps, only giving themselves away with their characteristic hovering.

Marmalade Hoverflies (*Episyrphus balteatus*) on sunflower

In years since then I've spent a considerable amount of time, much to my neighbour's amusement, peering at and taking photographs of insects on flowers. At first in admiration of their colour and form and latterly, with the purchase of the excellent Britain's Hoverflies WILDGuide, with the intention of identifying which of the 165 illustrated species they were. The time came though when I realised that my point and shoot photography would only get me so far.

Having found and booked onto an introduction course, run by the hoverfly scheme organisers Roger Morris and Stuart Ball, at FSC Preston Montford I was delighted to receive the news in March 2017 that my application for a BRISC bursary was successful.

So early August 2017 found me travelling down to the English/Welsh border for four days of hoverfly geekery along with eating as if you've ever been to an FSC centre you'll know they make sure you don't go hungry during your stay. My trip got off to a good start as I spotted gatekeeper butterflies from the train as it waited outside Shrewsbury and then, while having a look around the town before being collected by FSC staff, I was delighted to find the honeybee mimic hoverfly *Eristalis tenax*.

Hoverfly (*Eristalis tenax*)

As with anything it's always a delight to meet likeminded people and even more so when it's an area of natural history that most folk think you're a bit odd for being so enthusiastic about. Over the course of the four days, which were mainly centred around becoming familiar with the hoverfly anatomy and terminology that enables identification through use of the hoverfly bible, British Hoverflies: An Illustrated Identification Guide by Stubbs and Falk, we kept ourselves amused with frequent shouts of "Roger? I'm not sure if I've got hairy shoulders". The shoulders referring to the humeri which look a bit like shoulder pads on the thorax of the hoverfly, the presence or absence of hairs on which sets you off down the key.

Although the course was very much focused on using already prepared specimens from the hoverfly recording scheme's teaching collection Roger and Stuart also spent time explaining how some hoverflies can be identified from photos, a task Roger is very familiar with as he and a few other dedicated enthusiasts run the UK Hoverflies Facebook page where anyone (who joins the group) can upload photos for identification help. We also had the chance to try out collecting and pinning our own specimens, skills which are essential to identify those species not 'doable' from photographs.

Overall, I came away from the course with a host of new knowledge and skills that I can bring to my own hoverfly recording activities contributing more to the hoverfly recording scheme and also hopefully encouraging others to become more aware of, interested in and ultimately help look after the world for these fascinating and diverse insects.

Huge thanks to the BRISC bursary for helping me to attend the course and everyone who attended the course in August at Preston Montford, especially Roger and Stuart who are so enthusiastic and keen to see others learn from their experiences and accumulated knowledge.

The marsh fritillary butterfly and its parasitoids on Tiree

Neil Ravenscroft

Marsh fritillary
© David Palmar

The marsh fritillary *Euphydryas aurinia* is a species of high conservation concern and is still declining in large parts of the UK and Europe. In common with similar species, it is a relatively immobile species and fragmentation and isolation of its habitat are the principal factors in its decline (Ehrlich & Hanski 2004). The butterfly was recorded on Tiree in 2014 during a period in which it was abundant in western Scotland. This was the first record since 1950 and subsequent observations revealed both adults and webs to be widespread. Tiree is 25km west of the nearest land (Mull) that supports *E. aurinia* (and 35km west of the nearest known population) and its fauna and flora, especially its birds, have been studied well. The appearance of *E. aurinia* presents a puzzle, therefore, as it represents either: a) a recent long-range colonisation event far beyond its known capability; or b) longer-term persistence

that has escaped observation in an area of high wildlife awareness. This study aimed to clarify these alternatives by establishing whether the host-specific parasitoids of *E. aurinia* are present on Tiree.

These wasps, *Cotesia melitaearum*[1] and *C. bignellii* are small (2-3mm), with more limited powers of dispersal than their hosts (c.f. van Nouhuys & Hanski 2002), and are unlikely to have tracked the butterfly to Tiree since 2014. Their absence would increase the likelihood that colonisation by *E. aurinia* is recent and their presence would confirm longer-term presence of the butterfly. Two visits were made to Tiree in 2017: in spring and in autumn. These were timed to coincide with moults of caterpillars when cocoons of wasps are visible inside webs made by the caterpillars. At remove from the island this was achieved through monitoring the development of caterpillars on Islay and mainland Argyll. Surveys for webs were made in 200 m x 200 m units close to four lochs on the sliabh of Tiree around which *E. aurinia* had been seen in 2014-2016. Concentrations of webs were found in three areas during spring 2017 and these contained 75% of the total. Remaining webs were spread thinly. Cocoons were found in 47 webs (i.e. almost one in two webs contained cocoons). Ninety-nine cocoons were found in total and all were retained i.e. about two cocoons occurred per parasitised web overall. The numbers of cocoons and webs of *E. aurinia* in survey units were correlated highly. Cocoons were not found in four of the five units that contained only one or two webs of *E. aurinia*. All wasps that hatched from collected cocoons were *C. melitaearum* – 36 males and 57 females (6 cocoons did not hatch). Webs occurred at low density in the autumn compared with the spring and spring and autumn distributions were not correlated. No cocoons of *Cotesia* were found. The occurrence of *C. melitaearum* on Tiree indicates strongly that *E. aurinia* was present before discovery in 2014. The wasp is unlikely to have reached Tiree by its own means, let alone colonised the extent of the island in which it was recorded in 2017.

Each generation of the *C. melitaearum* that attacks the Glanville fritillary *Melitaea cinxia* has a range of less than 500m and exists only in well-connected and enduring butterfly populations, becoming concentrated in areas of high host density (van Nouhuys & Hanski 2002). This is exactly what was found on Tiree, where *C. melitaearum* occurred almost exclusively in concentrations of *E. aurinia*. This gives every indication that both species are well established on the island. How long *E. aurinia* may have been on Tiree is impossible to answer with certainty but it is not inconceivable that it has persisted since 1950. Populations drop to extremely low levels in Scotland and can be almost impossible to find even during lengthy searches by experienced observers. At these times, walkover surveys or casual observation can give the impression of local extinction. It declined to such low levels at one well-studied site in Cumbria that it was only observed occasionally during careful searches for nearly 20 years until a second period of super-abundance (Ford & Ford 1930).

The sliabh (wet peaty ground – Ed.) of Tiree on which *E. aurinia* occurs is also quite inaccessible, and any biological surveys in the area tend to occur outside the periods when *E. aurinia* is most visible. In recent years, *E. aurinia* has also turned up in other areas where it has not been seen for decades, such as Eigg, and has been re-discovered on Gunna since its appearance on Tiree (J. Bowler pers. comm.). All these observations occurred during periods of abundance of *E. aurinia*. In conclusion, it seems most probable that *E. aurinia* has been on Tiree, or its

immediate vicinity, since it was last seen in 1950. The butterfly is a poor disperser and movements are generally small (<500m, Schtickzelle et al 2005) and although butterflies are thought to disperse a few km on occasions, this is across land. Crossing 30km of sea against the prevailing wind is a different matter. During many years of observation in an island landscape in Finland, the longest colonisation event by *M. cinxia*, a species related closely to *E. aurinia* and of similar size and population structure, was 6.5km (van Nouhuys & Hanski 2002).

[1] "*C. melitaearum*" is an aggregate of morphologically identical cryptic species each of which may be host-specific within the tribe of butterflies (the Melitaeini) that incorporates *E. aurinia*, which is attacked by the nominotypical species (Kankare & Shaw 2004).

Acknowledgements
This study was made possible by a grant from the Glasgow Natural History Society from the Blodwen Lloyd Binns Bequest Fund. I thank also: Mark Shaw for discussion and support, and John Bowler, Tiree Officer for RSPB Scotland, for discussion and help in the field.

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Bee Identification Workshop — Susan Falconer

Light drizzle, grey clouds scudding by on a brisk breeze and not a buzz to be heard. An August day in the Lake District. The weather forecast was more of the same with the possibility of some sunshine on Sunday. However, the views looking south from the FSC centre at Blencathra over the fells compensated for the less-than-perfect weather for the participants on the Bee Id Workshop. I was delighted to receive a grant from BRISC/Glasgow Natural History Society to attend the Bee Id weekend workshop.

My job as Biodiversity Officer for the City of Edinburgh Council is extremely varied including providing secretariat to the Edinburgh Biodiversity Partnership, supporting projects delivered by members of the Partnership and giving advice and information about Edinburgh's wildlife and habitats.

As a former teacher and countryside ranger I am always keen to encourage people to learn more about wildlife and, where possible, to experience this for themselves. Whilst working as an ecologist I was introduced to solitary bees by an enthusiastic and knowledgeable colleague. Surveying for Tormentil Mining Bee was my first encounter and I was hooked.

Choosing to learn more about this under-recorded group and encouraging others to do this to help protect and conserve these insects, was my main motivation for attending the course. Honey bees and other pollinators have been in spotlight for various reasons and I felt that other bee species were overlooked so I wanted to find out more.

Steven Falk explaining the finer points of solitary bee habitat. © S Falconer

Our course tutor, Steven Falk was lively, entertaining and expert. We were introduced to the biology of bees and how to use the keys and microscopes on the first evening. On the morning of the first day we learned how, why and where to collect specimens, initially using the grounds of Blencathra field centre and the local habitats. Given the cool and damp conditions we did manage to collect some bumblebees and were able to practice identifying and pinning/preserving. Steven also gave us advice on what to take into the field and the importance of voucher specimens and recording. The second day was spent at a local fellside farm and we were given access to heather moorland, wildflower-rich grassland and woodland habitats to search for bees. The sun shone and we found 7 species of bumblebee including a Mountain Bumblebee (*Bombus monticola*) nest. The course was rounded off nicely with tea and cake in the farmhouse garden with the buzz of bees nearby.

Looking ahead, I've been practising bee identification in my local patch ready for next season. I have a meeting with the entomological curators from the National Museum of Scotland to discuss potential projects within the Edinburgh Biodiversity Partnership with the aim of raising awareness of the importance of bees. I am also working with colleagues in the local authority to encourage the creation and management of habitats for bees.
The only long faces were those on the bees.

Bee identification. © S Falconer

Thanks to the help of BRISC and GNHS for offering training course bursaries, for a weekend in July this summer I was able to visit FSC's Preston Montford site in Shrewsbury for the 2017 'Identifying Leafhoppers' course run by Dr Alan Stewart from the University of Sussex.

At the time of the training course, I had just finished my Natural Talent Traineeship with The Conservation Volunteers and SASA (Science & Advice for Scottish Agriculture) and was focusing on improving my invertebrate ID skills.

Collecting samples using sweep nets (left) and pooters (right)

During my time at SASA, I first became aware of Auchenorrhyncha (hopper species) significance in agriculture as vectors of emerging plant diseases such as *Xyllela fastidiosa*. Accurate identification of hoppers is crucial for monitoring both insect-vectored pathogens and local biodiversity. With only a few hopper specialists in Britain, it highlights the importance of engaging people in the taxonomy of lesser-known species.

This was my first time visiting Shrewsbury, and I couldn't have picked a better time to go. The warm July weather encouraged a huge diversity of invertebrates (not just hoppers!) to venture out. Preston Montford and the surrounding Shrewsbury countryside really is beautiful, and somewhere that I would love to visit again. The Friday evening included a general introduction to the course and an overview of leafhoppers: finding out about their ecology/biology and understanding why hoppers are such an ecologically important group to study.

On Saturday we carried out a full morning of hopper collecting around the Preston Montford site at a range of habitats including fields, pond and wood margins. As well as sweep netting, Alan taught us how to use a 'bug-vac' in order to collect

species that tend to stay very close to the ground edge. The hardest part of collecting hoppers was attempting to use the pooters. As their name suggests, leaf hoppers will "hop" very fast and very far if they sense any sort of threatening movement!

***Cicadella viridis*, one of my favourite species, down the microscope**

We spent the afternoon firstly sorting specimens into families e.g. leafhoppers, planthoppers, froghoppers etc. by focusing on key morphological features, followed by attempting to identify specimens to species level using a range of literature.

On Sunday we took a field trip to two local nature reserves: Llanymynech (an old quarry site with rich flora found within the grassland beneath the cliff) and Sweeney Fen (a protected wetland home to marsh-loving hoppers such as *Cicadella viridis*). It was another great day out in the field, and our group managed to collect a large diversity of species.

Back at Preston Montford, we continued to sort, identify and label our collections. To finish the course, we discussed the importance of biological recording and found out more about the national recording scheme www.ledra.co.uk, for all British *Auchenorrhyncha* records.

Llanymynech Rocks

The course was a brilliant introduction to leafhopper ID and Alan Stewart was a fantastic tutor who really helped me get to grips with some of the main ID keys.

I hope to submit my own records now to the national recording scheme by continuing to practise my new hopper ID skills on specimens collected from my local region in Edinburgh.

Hair Ice

Alison Moss

Hair ice, also called ice wool and frost beard, is a most peculiar phenomenon. On 7th January we were walking in Castle Semple woods, Lochwinnoch when my grandson spotted white fluffy stuff on dead willow twigs. Then we spotted lots more, whole twigs covered with pure white hair ice. The temperature was just below zero and the air humid in the willow woods, ideal for hair ice to form.

Hair ice was first described as being of fungal origin by Alfred Wegener in 1918. However, it was in 2015 that German and Swiss scientists identified *Exidiopsis effusa* as the species responsible. This fungus rots wood of broad-leaved trees. It forms a crust and in temperatures just below freezing and high humidity tiny ice crystals protrude from the wood giving the appearance of fine, white silky hair. Apparently each hair has a diameter of 0.02 mm and can grow up to 20 cm long and can also hold its shape for several days in these temperatures.

Hair ice is described as quite rare. In the West of Scotland we are perhaps more likely than others to have optimum conditions for this truly curious phenomenon. So next time it's freezing and damp, head to the woods. You never know what surprises await!

Eastern Borders Visit, 23-25 June 2017

Bob Gray

Tulip tree, the Hirsel
©David Palmar

Kelso was our base for this weekend and our Friday evening stroll took in the trees within the cemetery adjacent to Kelso Abbey. A murmuration of starlings as well as a gathering of swallows welcomed us as we exited the Queen's Head Hotel nearby. The funereal appearance of so many Lawson cypress (*Chamaecyparis lawsoniana*) growing together was in keeping with the location.

The presence of the occasional western red cedar (*Thuja plicata*) allowed us to distinguish the cones and leading shoots in each case – globular vs. elongated and drooping leading shoot vs. erect leader (cypress vs. red cedar respectively). We found a number of horse mushrooms although no-one ventured to collect any for the pot. Despite the antiquity of the abbey there were no trees to match its age.

Saturday am: Our first port of call was the Hirsel Estate, next to Coldstream, where we went particularly in order to see two Heritage Trees of Scotland, a tulip tree (*Liriodendron tulipifera*) and a sycamore (*Acer pseudoplatanus*).

Tulip tree leaves and flowers ©David Palmar

Sycamore, the Hirsel ©Bob Gray

On our way there we walked along an avenue lined by a number of oak trees bearing many long peduncles supporting their acorns, indicating pedunculate oaks (*Quercus robur*). We also passed a group of yews (*Taxus baccata*) that were 'layering' in a distinctive fashion. Then a fair sized common walnut (*Juglans regia*) was found, as well as a catalpa (*Catalpa bignonioides*) with massive leaves. The south-facing border outwith the walled garden carried many interesting plants such as quince (*Cydonia oblonga*), ceanothus (*Ceanothus* sp.), yellow-flowering clematis (*Clematis tangutica*), a well-scented rose aff. (affinis, meaning similar to – Ed.) 'Wedding day'), bay laurel (*Laurus nobilis*), white flowering jasmine (*Jasminum officinale*) and purple Japanese barberry (*Berberis thunbergii* form *atropurpurea*).

In the middle of the abandoned walled garden is the spectacular tulip tree, more or less hollow with a huge girth and an elephant foot-like trunk base. It was planted around 1740, according to Loudon, who made it c. 20 feet (6 m) in girth in 1840. Its girth currently was measured at 7.5 m, showing a rapid growth rate of c. 8.5 cm (3.4") per year. In 2003 its girth was 7.41 m. So its growth rate has slowed down to 6.9 cm (2.7") per year over the past 13 years but still pretty fast for such an old tree. As for the Hirsel sycamore, just SE of the walled garden, it is said to have been planted in 1513 to commemorate the deaths at the Battle of Flodden, fought not far away over the border with England. We measured its girth as 6.8 m indicating an average growth rate of 13.25 cm (5.2") per year over its lifespan. This mighty tree has had some

At Manderston stable block ©Morag Mackinnon

unsightly and unnecessary chains and cables tied round it in order to hold it together. Whereas the tulip tree is the Scottish champion for girth the sycamore is second in Scotland to the Posso tree (also in the Borders) which is the British Isles champion.

Our next destination was the grounds of Manderston House, the home of Lord Palmer. (The Society's David Palmar assured us his ancestral name was also spelt with an 'e'.) Lord Palmer had kindly arranged for us to be shown round by his gardener, John (Ewen) Girdwood, on a day that is normally closed to visitors. Outside the stable block where we met the gardener was a big Cedar of Lebanon (*Cedrus libani*), a mandatory feature of many old estates. What Ewen called his arboretum of younger trees included examples of paperbark maple (*Acer griseum*), western Himalayan birch (*Betula utilis* var. *jacquemontii*) and Tibetan cherry (*Prunus serrula*), all examples of trees with different, spectacular barks. There was also a putative mulberry (*Morus* sp.). He explained that occasional flooding owing to the heavy clay soil had led to some tree losses. He then showed us some big NW American conifers including Douglas fir (*Pseudotsuga menziesii*), a craggy noble fir (*Abies procera*) and a giant sequoia (*Sequoiadendron giganteum*). He also showed us a fine example of a Chile pine (*Araucaria araucana*). His most extraordinary tale related to a big sycamore behind the house that had caught fire a couple of years ago. The fire brigade had to be called and the tree felled. The tree is now sprouting from its base. The cause of the fire was thought to be a cigar(ette) butt but this was never proved. Natural regeneration of both yew and western hemlock (*Tsuga heterophylla*) was also evident in this area. A very big European larch (*Larix decidua*) was observed growing before the NW corner of the house. Ewen then took us towards a path passing the side of the house, passing an avenue of old common limes (*Tilia x europaea*) which used to have their distinctive epicormic shoots carefully pruned on a regular basis. At this juncture we came across a golden yew (*Taxus baccata* f. *aurea*), a female with yellow-edged younger leaves growing on very wide low limbs. The path lined with many fruit-laden lime trees leads to a bridge over a dam in front of the house. The pond is home to many waterfowl, including a pair of mute swans as well as mallard and diving ducks. Above the north-east bank of the pond were a recently felled European larch which, we were told, had a ring count of 210 as well as a felled copper beech. Beyond the S side of the pond is the woodland garden, home to a plethora of introduced tree species: a putative smooth Arizona cypress (*Cupressus arizonica* var. *glabra*), a conical white spruce (*Picea glauca* var. *albertiana* 'Conica'), Douglas fir, cut-leaved alder (*Alnus glutinosa* 'Imperialis'), paperbark maple, red snakebark maple (*Acer capillipes*), variegated sycamore (*Acer pseudoplatanus* f. *variegatum*), variegated Norway maple (*Acer platanoides* 'Drummondii'), handkerchief tree (*Davidia involucrata*), various species of magnolia, of S American eucryphias and of rowans. Beside the track we followed back to the stables many golden yews had been grown and trimmed into a hedge.

Spanish fir at Monteviot
©Morag Mackinnon

Having thanked the gardener for his kindness we proceeded to Monteviot arboretum located beside Harestanes Country Park north of Jedburgh and part of the estate of the Marquis of Lothian. Although the arboretum tree trail contains only 14 trees, many more interesting ones may be found there.

Monteviot arboretum ©David Palmar

Amongst these are: variegated beech (*Fagus sylvatica* 'Luteovariegata') in which the leaves have pale yellow margins; fern-leaved beech (*Fagus sylvatica* 'Aspleniifolia') where the leaves are deeply incised (This tree is a chimaera in which the tissues producing the feathery leaves envelope the inner normal tissues. Several branches were apparent that were producing ordinary leaves from this inner tissue.); weeping copper beech (*Fagus sylvatica* 'Purpurea Pendula'); scarlet oak (*Quercus coccinea*) one of a group of American 'black' oaks, in which the acorns take two years to develop, the leaves are pointed and the bark is fairly smooth; a row of Italian cypress (*Cupressus sempervirens*) with the 3D foliage typical of the genus; an oriental spruce (*Picea orientalis*) bearing the smallest needles of any spruce and a mountain hemlock (*Hesperopeuce (or Tsuga) mertensiana*). As Jim Dickson told us, the needles of this spruce were identified on the British Columbia ice man, providing some further evidence to enable the investigation to determine his direction of travel, based on the likely source of the needles from the Pacific coast. We also came across a tree labelled *Pterostyrax hispida*. This is apparently the rare epaulette tree, native to Japan and China and introduced in 1875. It has large oval leaves and is fully hardy. Alongside the path leading to Monteviot House grow a number of big pedunculate oaks, one of which we measured at 513 x 27.2 (the first number is the girth in cm. taken at 1.5 m above ground level and the second number the height in m). According to the Tree Measuring Society of the British Isles (TROBI) the grounds of the estate contain another larger oak that is the County Champion pedunculate oak (although the larger one was measured @ 0.4 m a.g.l. (above ground level - Ed). Finally here, we stopped to view a fine Spanish fir (*Abies pinsapo*) a tree endangered in the wild and part of RBGE's Conifer Conservation Programme. Its needles are short and grow at right angles to the shoot which explains its alternative name, hedgehog fir (var *marocana*, the Moroccan fir, is being grown in GBG).

Capon Tree ©Bob Gray

On Sunday morning we headed south of Jedburgh to see the ancient 'Capon Tree', located on the banks of the Jed River and a remnant of the ancient Jed Forest. At over 940 cm in girth it is one of only three sessile oaks (*Quercus petraea*) more than 9 m in circumference and is the biggest in Scotland (according to TROBI). It is considered to be about 1,000 years old although ageing such

King of the Wood
©David Palmar

ancient trees is difficult and the result depends upon the method of which expert you use to determine age. The Capon oak is very decayed, hollow and supported by means of several props. Its name is derived from either 'capuche', the hood worn by monks (Jedburgh Abbey is nearby) or 'kep', meaning to meet – it was a Border clan meeting place. Annually the 'Jedburgh Callant' collects a sprig from the tree to wear in his lapel. Of interest was the roadside hedge here that provided us with the opportunity of distinguishing between the leaves and twigs of beech and hornbeam.

Then we headed for the 'King of the Wood' reached via a footpath leading up a small glen opposite the Capon oak. This tree is a pedunculate oak (*Quercus robur*) c. 5.5 m (220") in girth, with a fine trunk some 13 m to its first branch and a massive burr growing at the root collar on the side of the tree at the top of the slope above a burn. It is a Treefest of Scotland Heritage tree. In 1842 it was described (Selby) as having a circumference of more than 16' (192"). Consequently it has grown only c. 28" in 175 years i.e. a mere 0.16" (4 mm) per year over this extended period of time. The slow growth in girth and tall trunk are indicative of the tree having grown surrounded by many others. A large outcrop of Old Red Sandstone, the bedrock here, was visible from the roadside. The fertile soil that develops allows the growth of several oaks as well as much ash and occasional hazel in this semi-natural remnant woodland.

Scott's View – the Eildon Hills ©Morag Mackinnon

A drive northwards along the A68 took us to "Scott's View" over to the Eildon Hills with Melrose at their foot. The story is that Sir Walter Scott was accustomed to stop in order to admire the view on his way to Abbotsford. On the day of his funeral his horses, pulling his hearse, halted without bidding at this location. The triple hill is considered to be the eroded remains of a laccolith, a basaltic intrusion from the early Carboniferous (c. 300 million years ago) through layers of Upper Old Red Sandstone (c. 350 million years ago) so that the upper part of the intrusion forms a dome shape. The bedrock is Silurian (c. 500 million years ago) greywackes, grits and shales. The glaciers moved from southwest to northeast in this area and left many drumlins and crag and tail ridges in the Tweed basin here on the east side of the Eildons where the boulder clay is up to 300 m deep. The woodland below us was semi-natural and apparently consists of oaks, the descendants of trees used locally for coffin manufacture. Nearby is Dryburgh Abbey which we visited next.
The abbey grounds were landscaped by the 11th Earl of Buchan, an enthusiastic tree planter (and founder of the Society of Antiquaries for Scotland), who bought the abbey and the neighbouring Dryburgh house in 1786.

We sought out the black mulberry (*Morus nigra*) that grows close to the abbey ruins. This species is one of c. 157 archaeophytes (an alien plant established after the formation of the Channel about 7800 BC but before 1500 AD) many of which were introduced by the Romans. It is a fruit tree grown widely wherever the Romans settled. Significant numbers were grown in the 17th century in the mistaken belief that that they provided food for the silkworm which feeds on the white mulberry (*Morus alba*).

Black mulberry ©Pat Thomson

The Dryburgh Abbey yew (*Taxus baccata*) can clearly be viewed growing in what is now private ground adjacent to the abbey. The site has a long history of Christian worship going back to the Dark Ages and the tree is alleged to have been planted by monks in c. 1136. Girth measurements from 1826 (120") until the present day (152") indicate a growth rate of c. 0.17" per year. 881 years (from 2017 back to 1136) at this rate would give a girth of 150", very close to the current girth measurement. The presence of a few fleshy arils (immature), the seed coat that partly encloses the seed of a yew tree, indicate that this is a female tree. The abbey grounds are noteworthy for the number of different cedar species growing there - Lebanon (*Cedrus libani*), deodar (*Cedrus deodora*) and blue Atlas (*Cedrus atlantica* f. *glauca*). The differences in growth form, shoot colour, needle length and needle colour were noted as were the features of the cones of the blue Atlas, which were clearly seen.

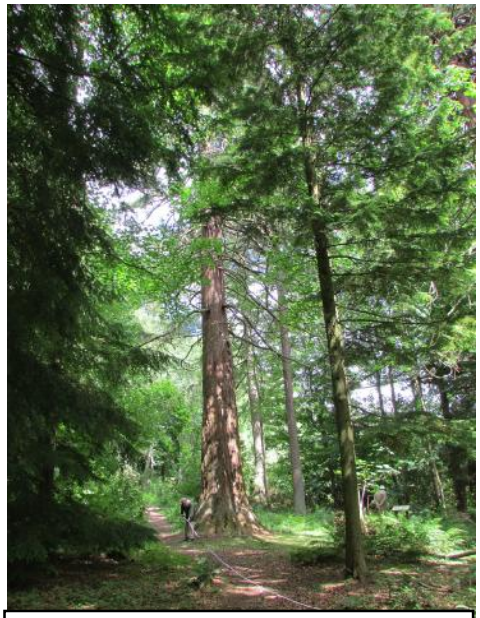
Counting tree rings ©Pat Thomson

A challenge presented at the entrance was to count the number of annual rings of an un-named slice of cedar timber. It came to c. 200. Since the cedar of Lebanon was introduced in 1740 and the others post-1800 this indicated the species of un-named cut timber to be the cedar of Lebanon.

We were met at Bowhill Estate by Rory Powell, the Duke of Buccleuch's Learning & Engagement Ranger who has worked here for four years. He began by giving us a brief history of the estate and its management. The 58 k. acres include land around the Ettrick and Yarrow rivers, tributaries of the Tweed. In 1450 the area had been part of the royal hunting ground of Ettrick Forest. The trees have been carefully managed for centuries and the woods are characterised by diversity in both species and age classes. By 1708 a hunting lodge was located on what became the current home in 1812. Anne, the 1st Duchess of Monmouth & Buccleuch, started management of the estate, initially to prevent illegal woodcutting. Her vision was to create policy (enclosed) woodland consisting of

mixed plantations with only localised, not clear, felling. The timber produced is used to provided premium quality hardwood as well as standard building and fencing timber. The woodland objectives as well as timber include sport, recreation, biodiversity wildlife management, landscape and amenity. The estate produces premium quality Douglas fir, larch and pine as well as hardwood. There is no sign yet of the disease *Phytophthora ramorum* but they are vigilant for its appearance in larch.

Immediately to the west of Bowhill house are some old yews that have been dramatically cut back but are starting to re-grow. On our guided walk round part of the estate we saw many large tree specimens, particularly of Douglas fir, European larch, Norway (*Picea abies*) and Sitka spruce (*Picea sitchensis*). On the other hand much natural regeneration was evident of western hemlock (*Tsuga heterophylla*), oak, sycamore and Norway maple (*Acer platanoides*). So the original vision is being realised. In 1767 the Third Duke planted extensive woodlands but the landscape as a whole was planned about 1832 by William S. Gilpin, landscape designer, to have an informal appearance and included a series of small lochs. The tree lined view southeast from the house is quite spectacular. Beside the lower loch, a natural kettle hole, we came across a remarkable clump of seedlings some 2' high that included, growing tightly together, Sitka spruce, European larch and Western hemlock, demonstrating how well adapted are these different taxa to the local environment.



100 foot high giant sequoia ©Pat Thomson

Other occasional sizeable specimens include giant fir (*Abies grandis*), giant sequoia (*Sequoiadendron giganteum*), western hemlock, oak and beech (*Fagus sylvatica*). At different locations during the walk we took the opportunity to measure 1. The girth of a Douglas fir – c. 5 m (200"). This was possibly one of the earliest introductions to this country as the brother of David Douglas was master of works (forester) to the Duke of Buccleuch at Drumlanrig and was sent some early specimens in the 1820's. 2. A silver birch with a girth of 2.25 m (96") and 3. The height of a giant sequoia at 30.9 m.

On our way from the lower loch Rory showed us a hornbeam (*Carpinus* betulus) with an exceptionally fluted bark and then we were shown a few beech that had apparently been planted by the first duchess. They had recently succumbed to disease and so had been dramatically cut back in an effort to stimulate re-growth, which was occurring in some specimens. An oak in the middle of this group of beech had been drawn up towards the light and presented a long bole with few branches. We then passed by the upper loch, which had been created by means of a dam at the instigation of Sir Walter Scott, who was related to the Buccleuchs. Here our attention was drawn to a pair of resident swans, one of which had been ringed as a cygnet. Grey wagtails were in evidence and, on the water, several little grebes were engaged in a competitive frenzy over territory.

Finally, in the sunken garden to the northeast of the house Rory left us in an arboretum planted in 2009/10 and which consists of over twenty trees. Included amongst these was a variegated incense cedar (*Calocedrus decurrens* '*Aureovariegata*'), a snakebark - Pere David's maple (*Acer davidii*), a katsura (*Cercidiphyllum japonicum*), a sweet gum (*Liquidambar styraciflua*), a dawn redwood (*Metasequoia glyptostroboides*), a Japanese umbrella pine (*Sciadopytis verticillata*) and a Wollemi pine (*Wollemia nobilis*), a gift to the 9th duke for support given to red squirrel conservation.

This estate gave us a considerable insight into the history and current management of the kind of estate that occupies so much of lowland Scotland and we are obliged to the ranger for sharing with us his local knowledge.

Coll Bird Festival 18th/20th May 2018 **David Palmar**

The Inner Hebridean island of Coll has held a bird festival for the past few years.

Coll is a beautiful island which has a range of habitats from massive sand dunes and sweeping sandy beaches, to farmland and rocky and peaty moorland. Because of this range of habitats, it has a rich and fascinating birdlife which attracts visitors all year round. The Coll Bird Festival will introduce you to some of the key species of breeding and passage birds with guided walks from Friday to Sunday. Guided boat trips to Lunga (in the Treshnish Isles) with its seabird city of thousands of auks including puffins and to the neighbouring island of Tiree offer an opportunity to spot a wide variety of wildlife and plant life.
There is a range of shorter and longer walks, and talks on Friday evening and Saturday, including a hunt for the short-necked oil beetle and for sand lizards, and the programme also includes a ceilidh on Saturday and a beach clean on Sunday.

Travel to Coll is easy – 3 hours by CalMac ferry from Oban.
There is accommodation in the Coll Bunkhouse, (a superb modern facility), the Coll Hotel, and in bed and breakfasts, and the festival is centred around An Cridhe (the Heart in Gaelic), the fairly new community centre in Arinagour, and the Totronald RSPB Reserve.

Details of all the activities can be found easily by searching for Coll Bird Festival. The full programme can be seen here, and there is also a link to information on accommodation:
http://collbunkhouse.com/coll-bird-festival-2018/

Next Newsletter - copy to David Palmar by 22nd March 2018 please.

Thank you very much to all the contributors who have made the newsletters so interesting and worthwhile publishing. Please send contributions by email, preferably as .rtf, .doc or .docx (Word 2007) format. If you have time, please italicise taxonomic names, and use Verdana font, size 12 points.
If sending photos, please submit only a few as separate jpg files (not as part of a Word document), and make them under 100Kb each for emailing).

General Correspondence to the General Secretary: Mary Child

Digitisation of *The Glasgow Naturalist* — Chris McInerny

Society members will be pleased to know that a digital version of *The Glasgow Naturalist* is now available free for all in the Biodiversity Heritage Library (BHL) at https://www.biodiversitylibrary.org/bibliography/38981#/summary. This includes a complete run of the journal from Volume 1 published in 1909 to the latest Volume 26(3) published in 2017.

Each volume is presented in the Biodiversity Heritage Library in a format that is easy to read, the text can be searched for Linnean names, and individual papers can be downloaded as pdf documents. So, a fantastic new way in which readers around the world can access and appreciate *The Glasgow Naturalist*. Please let your friends and colleagues know about this development.

The Biodiversity Heritage Library https://www.biodiversitylibrary.org/ is a great digital archive for rare, difficult-to-obtain and out of print books and journals with a biological theme. Try searching its database – there is much to find and enjoy.

Christmas Social — John and Margaret Lyth

After the Christmas Social, we were treated to a pre-lecture musical performance by John and Margaret Lyth. The words are reproduced here for your amusement.

Tune: O Come, O Come Emmanuel

Brexit, Brexit, come what may,
The people have had their say,
For if it be hard or soft,
We'll hold our heads high, aloft.
Brexit! Brexit! It must be cricket,
Or we will tell them where to stick it.

John R S Lyth and
Margaret M H Lyth,
2017

Tune: Hark the Herald Angels Sing

Hark Angela Merkel sings,
A strong Europe's just the thing,
Theresa May, or she may not,
How we wonder what's the plot.
Brexit brexit, all the way,
Our MPs will have their say,
Hark again, Angela sings,
A strong Europe's just the thing.

John R S Lyth and
Margaret M H Lyth,
2017