Newsletter

Autumn 2020

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Ancient multi-stemmed coppice oak at Dalkeith, Midlothian (stone lithograph print by Gavin Johnston, 2004)

The Old Wood, Dalkeith, Midlothian (stone lithograph by Gavin Johnston, 2010)

Cover photo: birches near Invergarry in October 2020 (Ben Averis)

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Kintail, Oct. 2020
(photo: Ben Averis)

EDITORIAL

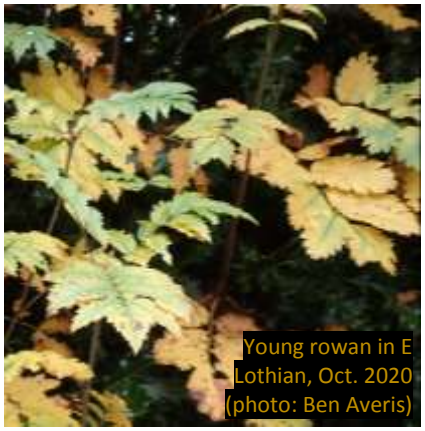
Ben Averis

Welcome to the autumn 2020 newsletter, though given the lateness (my fault – sorry!) it's more of a winter issue. Following the usual *Notes from the Chair* and *Admin report* (neither of which are really that 'usual' because, obviously, they have different content each time) there is, typically, a mix of things, this time including James Rainey's perspective on some aspects of habitat management and degradation, a call for your support in matters to do with Scottish historic timberwork (this call going by the name of 'Timberwatch Scotland'), an extract from Mick Drury's wonderful online blog about his travels looking at forests and other things in North America, a piece about the work of beavers around Aberfeldy, an introduction to the Saving Scotland's Rainforest project, a book review (well – a review of an online learning resource actually), a personal appreciation of birch trees, a short note about the new Future Woodlands Scotland project and some artwork by NWDG member Gavin Johnston. Thanks to everyone for all these contributions.

For the next newsletter (spring 2021), please do send me any woodland-related material, no matter how short. For example – does anyone have any thoughts or comments about the recent *Preparing Woodland Creation Applications* guidance by Scottish Forestry? You can download it free from: https://forestry.gov.scot/publications/963-preparing-woodland-creation-application-guidance/viewdocument Or you might like something brought to my attention very recently by Gavin Johnston: an illustrated woodland fiction book by the artist Cécile Simonis, done as part of a recent art residency in Edinburgh – you can read it online at https://inspace.ed.ac.uk/cecilesimonis/ and her website is www.cecilesimonis.be/

From 2021 onwards the default format of the newsletters will be as PDF files. These have colour throughout, and live hyperlinks! If you still want printed copies you will need to increase your annual subscription by £10 and then notify Alison (alisonaveris@gmail.com) – see Alison's note on page 5. Thanks.

The deadline for contributions for the next newsletter is 15th March 2021. We welcome any woodland-related material: group or organisation reports, news items, letters, book reviews, illustrations, etc. Please email it to me with your contact details. **To get a book reviewed**, send a copy to me at 6A Castle Moffat Cottages, Garvald, Haddington, East Lothian, EH41 4LW. **If you want to review a book**, please tell me; we can usually get a free review copy from the publisher, and if you review it the book is yours to keep.



Young rowan in E Lothian, Oct. 2020 (photo: Ben Averis)

OK – I'll go now, so you can get on with reading this newsletter. I hope you like it!

Ben

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NOTES FROM THE CHAIR

Alan Crawford

The last 8 months or so have been a challenging time for us as a group, as I know it has been for many other groups, businesses, and individuals. And on a personal note, I desperately miss meeting 'in the flesh' as a group.

These unusual circumstances have, however, also offered up some new opportunities as we try to remain vibrant and engaging as a membership organisation. One of the things I was keen to develop in my time as chair was to form closer links to other groups with overlapping interests. Until recently that had not happened as much as I would have liked, but we do now have a number of joint events/projects in the pipeline, albeit that some or all may have to be delivered virtually.

The first of these happened on 30th October 2020 when, in collaboration with the 'Alliance for Scotland's Rainforest' (ASR), we delivered a successful virtual workshop on Scotland's Rainforests, led by a genuine treasure in native woodland circles, our own Ben Averis. Ben introduced us to the distribution of these temperate rainforests – in Scottish, European, and global contexts, spoke about the various component parts of these woodlands, and mentioned something of the environmental factors that influence the distribution of species within them. Well structured, thoughtful, and delivered at a comfortable pace, the presentation was frequently illustrated with photographs and artwork, and was consequently easy on the eye. The astonishing diversity and beauty of the mosses, liverworts, and lichens in these habitats was crystal clear to all of us to see. Clearly, it was not the same as being out in Scotland's rainforests, but it was very much worthwhile.

Secondly, we have received grant support from Future Woodlands Scotland and Trees for Life to deliver, in partnership with the Forest Policy Group, an assessment of the current understanding of the role of native woodlands in sequestering carbon, and dissemination of that thinking through a series of events. More to follow on this in due course.

The third collaborative event that we are hoping to deliver is a woodland history workshop with Dumfries Archival and Mapping Project (DAMP), looking at the recent research by Thomas Muller, that suggests that there may be less ancient woodland in Scotland (or at least in Dumfries and Galloway) than is currently thought to be the case. Again, more to follow on this in time.

Virtual events will never be a substitute for our field meetings but they can complement them, and at a time where we are not able to meet in the ways we usually would they allow us to remain connected and to share knowledge of and appreciation for native woodlands. We are also in the process of establishing a NWDG YouTube channel, which will host relevant content. Ben's presentation will be among the first pieces of output on it, and so, again, watch this space.

And finally, congratulations to the Langholm initiative on their successful community buyout. I, like many in our group, will watch with interest and wish them well with their efforts to transform Langholm grouse moor into a space for nature. It is encouraging to see an increasing number of communities, Non-Government Organisations and private landowners look towards ecological restoration as the driver for land management; long may that continue.

In hope, Alan

NWDG ADMIN REPORT

Alison Averis

Welcome to everyone who has joined the NWDG since the spring. We are delighted to have you in the group, and hope that we will be able to see you at an event soon.

We've currently got **185** paid-up members, compared with 191 this time last year.

There is currently £23,461 in the bank account. Unfortunately we are not doing as well in real life as we look on paper, because £10,800 of the total is payments for the postponed 2020 excursion, very kindly lodged with us by members who still intend to come to the event once we are able to hold it, and £6330 is grants from Future Woodlands Scotland and Trees for Life (for the project mentioned by Alan on page 3), most of which will be paid to the Forest Policy Group in due course. This leaves **£6331** of our own money, compared with £10,044 this time last year. (We have paid a substantial deposit to hold the booking at the hotel for the Excursion, as well as incurring travel and subsistence costs for preliminary visits to South Cumbria.)

IF YOU DON'T READ ANYTHING ELSE IN THIS NEWSLETTER, PLEASE READ THIS:

The Newsletter is going to be produced in digital format (pdf) as the default from 2021 onwards. This format has colour throughout, and live hyperlinks. Newsletters will still be available in printed form, but at an extra cost of £10 a year to cover projected costs of printing and posting. **If you pay by standing order and wish to receive a printed newsletter, please (1) contact your bank and increase the standing order payment accordingly, before 15 January 2021, and then (2) notify me by email** (alisonaveris@gmail.com) **so that we know how many printed copies to order.** If you don't do this, we will continue to send you the Newsletter as an emailed pdf file until the extra payment arrives in the bank account! Thanks very much.

Those who pay by cheque or BACS will receive the subscription form with payment details as normal, in the New Year mailshot.

For everyone else, please can you make sure we have an up-to-date email address for you, ideally a semi-permanent one that won't change every time you get a new job, and not one configured to reject any emails that are sent to more than a certain number of people. You might detect the voice of weary experience here: a few emails regularly bounce back from all the mailings I send out, either because you are no longer known at that address or because your system has been configured to reject it. **If you didn't get the recent Notes for the NWDG Woodland History conference 2019, mailed out to everyone on 20 November 2020, it's because your email address doesn't work.**

Many thanks – and hope to see you soon.

A PERSPECTIVE ON HABITAT DEGRADATION IN THE HIGHLANDS

James Rainey

It's the end of May in Cah Wood, Co. Derry. The air around me burbles with birdsong and convulses with aroma, while sunbeams strike portions of an infinite blue-white carpet that I feel guilty for walking on. Overwhelmed, I save what I can to my memory and capture some footage for winter, before retreating towards The Plantation to numb off. The canopy flickers from crooked oak, ash and alder to regimented spruce and the undergrowth of hazel and holly is suddenly gone. Bluebells, wood anemones, sanicle and bugle first give way to wood sorrel, before it too fades into a sea of needles. Waves of anger wash over me as corpses of great, multi-stemmed oaks flash in and out of vision – the sole surviving signs that this place was once a riot of life.

At Cah, it's relatively easy to unpick why one area supports a fuller spectrum of wildlife than another: the densely planted, heavily shade-casting spruce exclude undergrowth and field layers, and with them pollinating insects and many songbirds. Key native trees like oak – on which hundreds of insect species have specialised to feed – have been usurped by non-native trees that left their specialists behind in a distant homeland. Epiphytic lichens find themselves with neither sufficient light nor suitable substrates, and decay-feeding invertebrates and fungi that persist on oak stumps are facing future crisis as their supply of fresh material ran out long ago.

Contrast between semi-natural woodland at Cah, Co. Derry (L) and The Plantation (R) (photos: James Rainey)

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Stags amble away as I step out of the car. The ground here is so saturated that a dead deer forms an archipelago with tufts of *Molinia* and hummocks of *Racomitrium*. I pass a small spruce plantation. It has a browse line severe enough that I can see through to the other side, and some of the pole-stage trees have been ring-barked. After a few hours I reach a remote Knoydart glen, home to a hyperoceanic Caledonian Pinewood

that pushes the boundaries of where we might expect pine to grow. Most of the wood is unfenced, and many of the pines look comparatively young – around 150 years old at a guess. Scattered amongst them are colossal junipers, the biggest I've seen in the west, which, like the pines, emerge from a soggy skin of *Molinia*.

The wood was not always like this. I cross a decades-old deer fence and notice that the ground no longer gives way with every step. Tall ling heather has reclaimed its place amongst the pines, which themselves have spawned a new cohort of youngsters. These are joined by birch, rowan and willow – a more diverse assemblage than that represented in the canopy – and patches of berry-producing blaeberry and honeysuckle have established.

The fenceline at Knoydart (photo: James Rainey)

I'm a few years too late to experience the full ecstasy of this place. The fence has been breached, and many of the young pines are now dead – their increasingly chaotic branching pattern reflecting desperate attempts to recover from heavy browsing. I examine the shoots of the survivors and see that their time is almost up; the majority of the last year's growth has been eaten. The rowans, willows and some of the birch are similarly stunted, and all blaeberry and honeysuckle shoots have been nipped. This is a process I've watched unfold within countless deer fences – first, the tastiest plants are almost exclusively targeted (rowan, holly, aspen, willow, hazel, oak, honeysuckle, ivy, dog rose, bramble, blaeberry and tall herbs), followed after by less palatable heather and **either** pine or birch as the deer become more desperate. In the end the vegetation reverts to something closely resembling its previous degraded state, with

only almost pure pine or birch thickets[1] marking out a temporary glitch in the status quo. Interestingly, as well as being disproportionately insect-pollinated and berry-producing, many of the more palatable trees have smooth bark with a relatively high pH; their selective removal must have wide-ranging impacts on pollinators, birds and epiphytic lichens.

There are striking similarities between the degradation of the Knoydart pinewood and Cah. Both have had their capacity to support a fuller spectrum of wildlife reduced though homogenisation in the canopy and loss of undergrowth and wildflowers. Only the causes differ.

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It's June and I've managed to coax a marsh fritillary onto my thumb. Its wings are exquisite, like looking at fire through a stained glass window. A narrow-bordered bee hawkmoth flies past and I ditch the fritillary, running over a wildflower tapestry to keep pace. It meets a bugle flower and dunks its proboscis inside while still hovering, whizzing off again just as I attempt a photo. Within one metre of me there is meadow thistle, devil's-bit scabious, water avens, meadowsweet, bird's-foot trefoil, meadow buttercup, red clover, early marsh orchid, northern marsh orchid, heath spotted orchid, common spotted-orchid, glaucous sedge, sharp-flowered rush and a menagerie of grasses including *Molinia*. A little further a greater butterfly-orchid flower head is days away from opening. My erratic movements are being monitored by the herd of cattle that graze this pasture during the summer. Their eyes follow as I peer into the adjacent field to check whether the riches continue, but it has only rushes and grasses – another site lost to sheep.

The difference between cattle- and sheep-grazed '*Molinia* meadows' is almost unbelievable. I've visited hundreds of these grasslands in Co. Derry over the past few years, and anywhere with sheep is either bereft of wildflowers or rapidly losing them. This takes place because unlike cattle, sheep are highly selective in their grazing – when they have a choice, they concentrate their feeding on tastier plants while ignoring less palatable ones. Essentially, overgrazing and undergrazing operate simultaneously: the tastier plants are disfavoured both by overgrazing *and* increased competition from undergrazed unpalatable plants, leading to their loss from the sward over time. The first problem is a reduction in overall plant richness, but this is dwarfed by the second problem: that most of the tastier plants removed by sheep grazing are wildflowers, and these support many times more invertebrate species than the less palatable rushes and *Molinia* that subsequently rise to dominance. Take devil's-bit scabious for example. This wildflower – common in cattle pasture but rare or absent under sheep – supports dozens of specialist, leaf-feeding insects, including larvae of the threatened marsh fritillary butterfly and narrow-bordered bee hawkmoth. Some of these have their own set of specialist predators and parasitoids, like the rare

[1] dense thickets of pine or birch can threaten epiphytic lichens, but their emergence is as much a consequence of previous overgrazing and disturbance as it is herbivore exclusion: a tall pinewood/heathland field layer spaces regeneration out, whereas a heavily grazed one is unable to perform this function.

ground beetle *Lebia cruxminor*, which feeds on the larvae of scabious-snacking *Galeruca tanaceti*. Then there are the pollinators and their associates, which have no trouble finding a seasonal succession of wildflower species in *Molinia* meadows grazed by cattle, but lose out spectacularly on sheep pasture where most plants are wind pollinated.

Wildflower-rich cattle pasture that supports marsh fritillaries and narrow-bordered bee hawkmoths in Glenullin, Co. Derry (photo: James Rainey)

Removal of wildflowers through selective grazing also appears to be widespread in Scotland. A striking account of the shift from cattle to sheep grazing near Loch Maree is given by the 19th century herbal physician Dr John Mackenzie[1]:

> 'It was in as lovely a spot in a wild Highland glen as any lover of country scenery could desire to see. I mean then, for then no sheep vermin had got hoof in it, as ere long they did. Then only cattle ever bit a blade of grass there, and the consequence was that the braes and wooded hillocks were a perfect jungle of every kind of loveable shrubs and wild flowers, especially orchids – some, of the *Epipactis* tribe, being everywhere a lovely drug that I often got many thanks for sending to botanic gardens in the South. The milk cows never troubled their heads to force through this flowery jungle, laced up with heaps of honeysuckle and crowds of seedling hazel and other native trees and shrubs. Till my Father's death in 1826, no sheep's hoof defiled the glen unless passing through it to the larder. But very soon after, an offer of a trifling rent for sheep pasturing let these horrid brutes into the glen, and every wild flower, and every young seedling bush or tree was eaten into the ground, so that an offer of a thousand pounds would not find one of my loved wild flowers or a young

> shrub from seed – nothing but a bare lot of poles, whose very leaves were all eaten up the instant one of them appeared. Those who remembered the wooded glen of 1826, and now looked at it, would never believe it was the same place – unless seen from a distance, for the sheep could not eat up the beautiful wild hills.'

The *Epipactis* orchid mentioned in the text is probably the extremely rare sword-leaved helleborine, a species known to be palatable to sheep and deer. Dr Mackenzie's nephew Osgood later wrote of it[2]:

> 'I know as a fact that, in my grandfather's time, the woods of this country were full of *Epipactis ensifolia*, a lovely white orchidaceous plant, which is so rare now.'

Osgood also documented the collapse of bird populations in Wester Ross, including partridge, black grouse, red grouse, golden plover, house martin, ring ouzel and rock dove. Could at least part of the cause have been a general loss of wildflowers and shrubs to selective grazing by sheep and deer? This would have precipitated a collapse in food web complexity, resulting in the loss of many berry-producing plants along with important invertebrates. It seems likely that the abundance of invertebrates also declined as palatable vegetation contracted: blaeberry (very palatable) was found to support over ten times more caterpillars than less palatable ling heather at Abernethy[3].

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Neither open nor wooded habitats in Scotland support anything like the spectrum of life that they once did. Palatable, ecologically productive plants have been extinguished or reduced almost everywhere by chronic, selective, heavy grazing and browsing – first by sheep, now by deer. The knock-on impacts must be truly catastrophic.

In woodlands, securing regeneration of unpalatable birch or pine is not enough – we need to ensure that palatable trees like aspen, rowan, ash, elm, oak and hazel can successfully regenerate too, and that wildflowers, dwarf/thorny shrubs and lianas join them. This requires us to think beyond the temporary reprieve that deer fences (only sometimes) provide. In open habitats the same core issues are at play – many wildflowers and shrubs have been selectively removed, narrowing the spectrum of life they can support. Reducing selective grazing to a level compatible with recovery of more palatable species will ultimately favour woodland (except at high altitude and on very wet, deep peats where scattered trees may instead prevail), although less selective cattle grazing could be reintroduced to sites where maintaining openness is an objective. Cattle can additionally reduce the built-up dominance of less palatable species like *Molinia*, fostering favourable conditions for wildflower recovery and, depending upon the stocking density, scrub.

Recognising that selective heavy grazing and browsing impacts are pervasive in the uplands today is the first step towards confronting them. Semi-natural woodlands and grasslands not subject to these impacts are exceptionally rich, and getting to know

them brings the arrow of degradation elsewhere into sharp focus. Our current approaches to upland restoration appear to be heavily biased towards habitat quantities: we erect kilometres of deer fence and plant new 'woodlands' to help meet targets for expanded tree cover, without questioning whether the end result will support a decent range of wildlife or not; or we oppose the expansion of tree cover in order to maintain open habitats, without questioning whether these are already heavily degraded. This kind of focus also leads to perverse situations where public money is awarded to fence and plant new 'woodland', while nearby ancient semi-natural woods continue to fall apart. In my view, policies need to be realigned to prioritise the maintenance, restoration and expansion of high quality habitats – those that support a fuller spectrum of life than their degraded counterparts. Creating the right underlying conditions that promote the development of diversity and complexity should be rewarded. In some places, this could mean sustaining herbivore impacts at a low level, whilst in others seasonally high but minimally selective impacts may be desirable. Only when these conditions can be achieved at scale are we likely to see a riot of life return to our uplands.

References

[1]Alastair McIntosh (2004) Soil and Soul, People versus Corporate Power

[2]Osgood Hanbury Mackenzie (1921) A hundred years in the Highlands

[3]Ron W. Summers, Robert Proctor, Michael Thorton & Greg Avey (2010) Habitat selection and diet of the Capercaillie *Tetrao urogallus* in Abernethy Forest, Strathspey, Scotland

James Rainey *is a Senior Ecologist for Trees for Life*

TIMBERWATCH SCOTLAND – a call for your support to assist us in the halt of the current widespread loss without record of Scottish historic timberwork and its tree ring data

Dr Coralie M Mills *(Dendrochronicle) and* ***Dr Anne Crone*** *(AOC Archaeology Group)*

NWDG has always been a friend to Scottish dendrochronology, inviting us to speak at woodland history conferences and generally being interested in our work, and it has been a welcome source of moral support. The holistic interests of NWDG members in Scottish native woodlands, their ecology, management and history, is mirrored by the very cross-disciplinary nature of dendrochronology which can be applied in living woods as well as in old buildings and archaeology. Tree-ring studies can contribute to many inter-related aspects that resonate with NWDG interests, including the past uses of woodlands, as well as their abuses, the long timescale trajectories in changes in woodland condition, shifting woodland dynamics, the domestic timber trade and importation story, the Scottish climate record and environmental change studies.

Therefore, the NWDG newsletter seems an appropriate place in which to air some rather pressing issues facing Scottish dendrochronology and the conservation of historic Scottish timberwork. The focus of this article is about the marked lack of funding and requirement for dendrochronology in Scotland's built heritage when historic buildings are undergoing repair, alteration or development. This is in total contrast to England and most of our European and Scandinavian neighbours and it places Scotland in a particularly backward-looking position when in so many other respects Scotland does well in heritage matters. There is no justification for treating Scotland's historic timberwork and tree-ring record with such disregard, and it is time for our heritage authorities to take action to correct this indefensible situation, especially the architectural strands of those authorities.

This NWDG audience will understand better than most that the potential significance of this material goes way beyond simple dating provision for historic buildings, though that too is valuable and important. These timbers are frequently all that is left of our historic native woodlands and our ancient working woods and plantations, they can be provenanced as well as precisely dated, and they carry irreplaceable and unique annually-resolved climate and environmental histories for their source woodlands, as well as potential heritage dating information. Sampling and studying them provides valuable information now and an archive for future scientific developments, for example in tree genetic studies and in isotopic studies of atmospheric and hydrospheric change. Exciting developments in oxygen isotope dating techniques by our colleague Professor Neil Loader and his team at Swansea University are also making shorter tree-ring sequences more datable, where they would not work in conventional dendrochronology, and so sampling and retaining material from the more challenging short-lived material often being removed from Scottish buildings is also worthwhile, even if they cannot be dated immediately. Furthermore, our old

Fig. 1a: Coralie Mills outside the bell tower of St Giles High Kirk, Edinburgh (which is very well cared for by the Kirk Session) where recent dendro-analyses revealed the use of native oak from The Forest of Darnaway, felled there in winter AD 1453/54 and winter AD 1459/60, from trees of 200 to 300 years of age. Now that is what we call carbon capture! Dendrochronicle's South East Scotland Oak Dendrochronology (SESOD) dendro-research project is funded by a Historic Environment Scotland **Archaeological** Research Grant. Photo: Hamish Darrah.

Fig. 1b: Anne Crone coring in Cross Chamber roof at Drum Castle, Aberdeenshire. The oaks used here were felled over a period from AD 1603 to 1612 and probably came from the nearby Forest of Drum, a rare find of ***native*** Scottish oak timber when almost every other Scottish building analysed has Scandinavian timber. The Drum dendro work was funded by NTS, commissioned by the NTS regional **archaeologist.** Photo: Alan Duffy.

Fig. 1c: Hamish Darrah coring the mid-15th century high quality Darnaway timber in the bell tower frame at St Giles, Edinburgh – date and provenance identified by tree-ring analysis in Dendrochronicle's SESOD **archaeological** research project (HES funded). Photo: Coralie Mills.

buildings are often graced with timbers from our Scandinavian and Northern European neighbours' native woods and, for example, it is highly likely that we have more historic Norwegian oak timber here in Scottish buildings than Norway retains herself. Therefore, those exporting countries' cultural and natural heritage experts would no doubt wish to see the historic timberwork in Scotland being cared for and investigated properly too, so they could benefit from the environmental, climate and heritage information that could be yielded about their own historic woodland cover and timber exporting past.

We have long been aware that far more dendrochronology is commissioned in England; this is in part due to the greater survival of timber-framed buildings in England, but we also imagined that differences in the legal frameworks for the protection of the historic environment played a large part. However, in recent discussions with colleagues in England, we have discovered that it is not that at all: it is entirely about more enlightened professional attitudes prevailing in England. There is much greater understanding, appetite and funding of dendrochronology in England, especially within Historic England – and through their influence, consequently much tighter control on grant-aided repairs and development impacts on historic buildings by English authorities both within and beyond the operations of the national heritage body itself.

As a consequence, over 4000 Listed Buildings have dendro-dates in England, while the list of standing building sites, with dates for *in situ* structural timbers, in our combined Scottish dendro-database runs to only 40; the stark difference is clearly demonstrated in Fig. 2.

Many of the dated standing buildings in our Scottish dendro-database have been analysed through self-driven research projects, by us and by the Queens University Belfast dendro lab before we came to Scotland to work in 1988. In fact, our combined research projects account for 17 of the 40 Scottish standing building sites with dendro dates (Fig. 3). In 32 years of practice by two dendrochronologists in Scotland, between us, we only have had the opportunity to dendro-date 23 standing building sites outside of our own research project sites. Five of these sites are Historic Environment Scotland (HES – formerly Historic Scotland) Properties in Care (PIC – i.e. commissions on their own buildings) while most of the other projects came via archaeological units who could influence the brief during their own building archaeology recording work. Very little of this work has been commissioned by architects or directly through the developers themselves, and this must reflect the lack of conditions being set by the heritage gatekeepers. These gatekeepers are the cultural heritage and architectural professionals, in both HES with regard to their repair grant schemes and A-Listed buildings, and in the council authorities with regard to impacts which should be addressed via planning legislation.

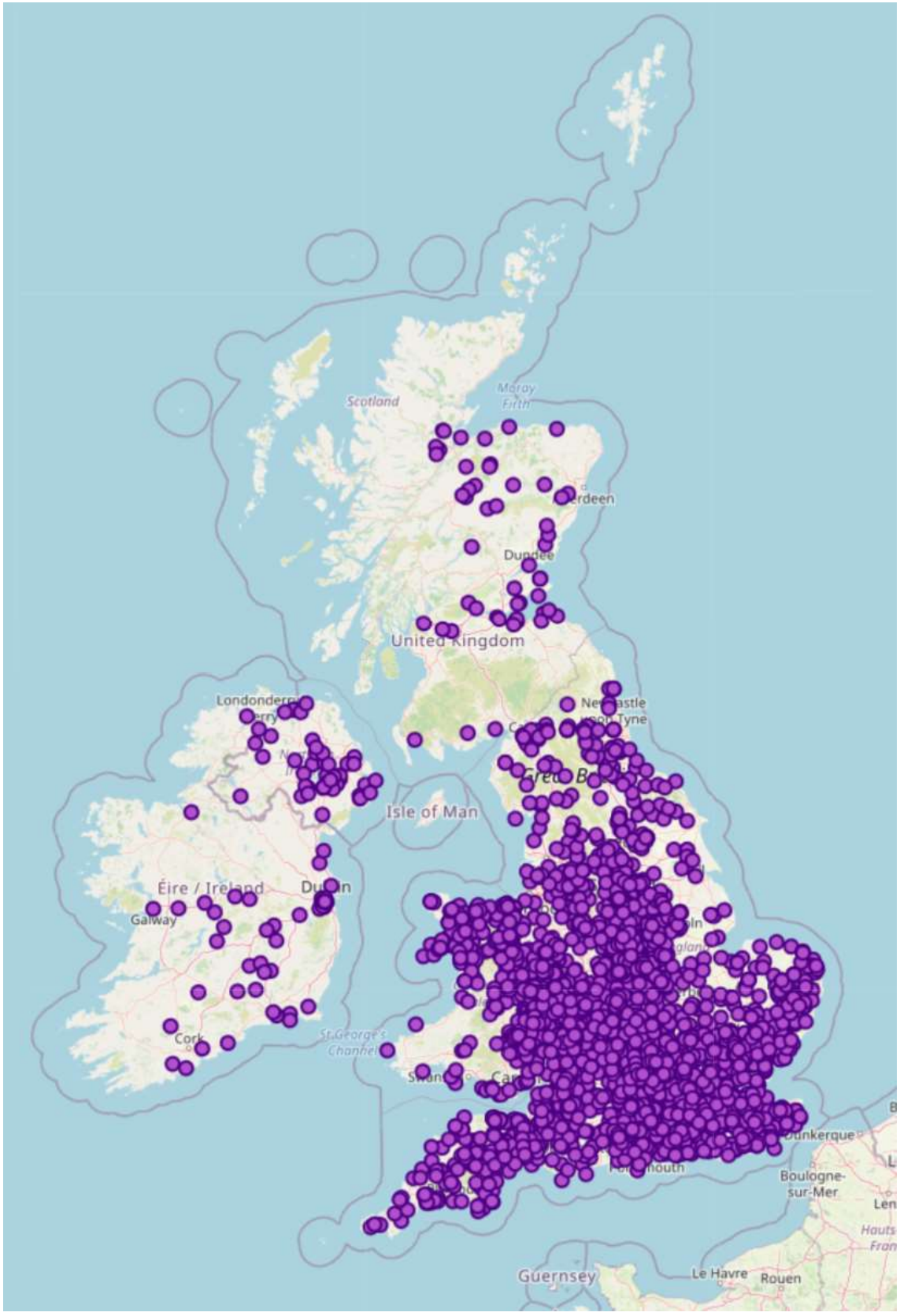

Fig. 2: Archaeology Data Service *Vernacular Architecture Group* Dendrochronology Database: Map of dendro-dated historic buildings across England, Wales, Scotland and Ireland; Sourced on 26.11.20 from https://archaeologydataservice.ac.uk/archives/view/vag_dendro/index.cfm

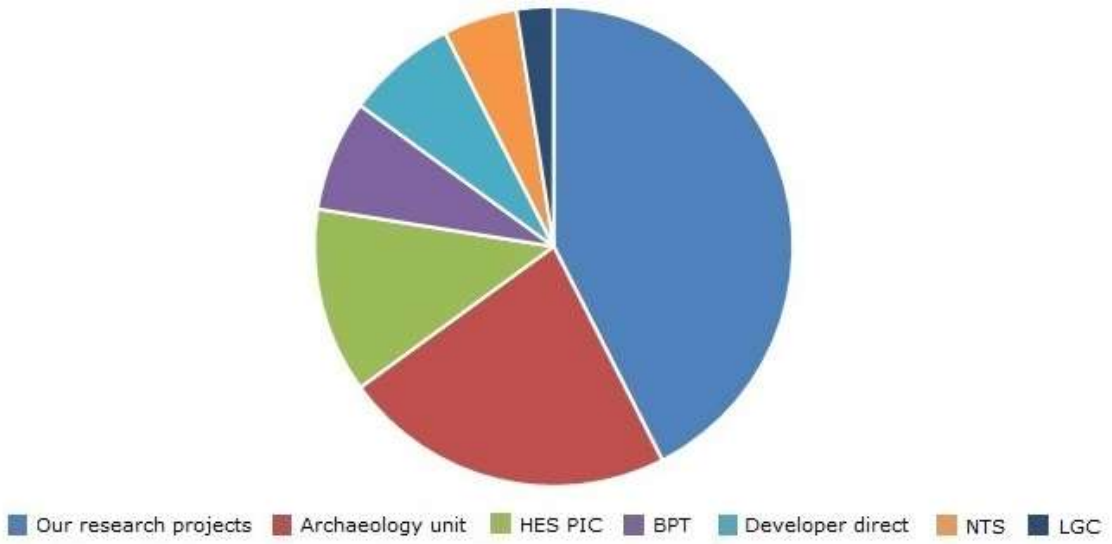

Fig. 3: Sources of support for dendrochronological work on Scottish historic buildings – dendro-dated sites with *in situ* structural timbers. TOTAL 40 sites, funding sources comprising: Research projects – 17 sites; Archaeological Units - 9 sites; HES PIC sites (counting Stirling Castle as 1 site) – 5 sites; Building Preservation Trusts (BPT) – 3 sites; Developers direct – 3 sites; NTS – 2 sites; Local Government commission (LGC)- 1 site. Source: authors' own combined Scottish dendrochronology database.

Edinburgh City Council heritage authorities (thanks to John Lawson and his colleagues) have been the most proactive of the council gatekeepers regarding dendrochronological mitigation requirements; Edinburgh accounts for seven of the 18 commissioned Scottish standing building dendro-dated sites outside of our own Research projects and outside of HES PIC projects. The runner-up position is awarded to East Lothian Council heritage authorities with five standing building sites dendro-dated. The other six commissioned dendro-dated sites are scattered through the other council authorities, but most of them have zero commissioned standing building dendro-dates, and that probably speaks for itself.

A further troubling detail is that very often, when we do get to work on historic building timbers, we are seeing them *ex situ* and not in their original position, i.e. after they have been removed from the building, usually with no record of where they came from within the building, and this greatly reduces the contextual meaning of the information that can be gleaned from them. Some 43% of the structural timber assemblages we have ever dendro-dated, beyond the *in situ* timbers in the 40 dated standing building sites mentioned above (Fig. 3), were already *ex situ* when we first saw them, a fair number of them collected as long ago as the 1950s before there were any available controls on demolition and alteration of Historic Buildings. The rest of the building dates are accounted for by fittings like doors and panels, again often *ex situ* too.

Outside of our own research projects, it has almost always been through the influence of *archaeologists* that Scottish dendrochronology has been commissioned. This may

be down to a lack of awareness rather than a willful intent by the architects, but we have published all of our work on Scottish dendrochronology (see Key reference list at end of article) and we have lectured widely to national and regional heritage bodies including HES. Our work frequently features in heritage magazines and the national press. In other words, we haven't been keeping a secret of the amazing information that can be revealed from the dendrochronological analysis of Scottish historic timberwork. So, it would be pretty remarkable if the Scottish architectural heritage profession was entirely unaware of what can be achieved through dendrochronology and the study of historic timberwork, especially when their professional colleagues in England make such widespread use of it.

One possible reason for this lack of uptake may be that here is no core dendro-fund for HES staff to call upon to inform their casework, in total contrast to Historic England which has an annual dendro-dating fund for its own casework of around £200,000 in most recent years, and has had such a fund for a very long time. In this Covid-affected year the Historic England casework dendro-dating fund is 'only' £118,000, though still more than their internal radiocarbon fund of around £100,000. HES does have a radiocarbon dating fund, but it has no dendro fund and never has done. The reason for this difference may be because Historic England has a central advisory scientific dating team of four staff, one of whom is a dendrochronologist, and there has been at least one dendrochronologist working within the national English heritage body (formerly called English Heritage, now called Historic England) for some 40 years, over which period they have been able to educate staff and build a culture that appreciates what dendrochronology offers. Staff in Historic England really value dendrochronology, they are keen to deploy the HE dendro-fund for their casework, and that goes as much for their architects as their archaeologists. Even a small proportion of that amount in a central HES dendro-fund would allow us to demonstrate the worth of the technique inside and outside of HES, and would provide a means to develop uptake and promote good practice here in Scotland.

Furthermore, the Historic England internal dendro-fund is estimated to be around only a quarter of the global commissioned dendro-work value in England each year. Yet we are lucky if we see even one Scottish historic building dendro-commission between us in a year, it can be as seldom as one commission every three years between us. Somewhat alarmingly, there has actually been a decline in uptake over recent years. Anyone with a knowledge of the number of Listed and other historic buildings being repaired, altered and developed across Scotland will realise that we are seeing only a tiny fraction of the work that should be happening. And there are only the two of us so there is no pretending that somebody else must be doing it – we know what is and is not being commissioned.

The necessary legal framework to protect historic fabric in our built heritage exists both north and south of the border but it is very rarely specifically deployed in Scotland for the recording or analysis of impacted historic timberwork. Far more frequently such material is being discarded or given away, sometimes even sold on for firewood, without any record or analysis. In some cases, we have been able to

intervene, in our own time, voluntarily to rescue timbers and data from discarded material – but it should not be through unpaid work that Scotland's historic timberwork, and its valuable tree ring data, is saved for posterity. Scotland's historic timberwork is no less important or interesting than England's and merits just as much professional care, attention and support. We argue that it is actually *more* interesting because our Scottish timberwork is much more varied, with a much wider range of native and imported timber sources having been used over time.

We also have a very different wood technology history, unique to Scotland and intimately related to the development of use of our native woodland resources. The wood-working evidence too can be incredibly interesting and informative, especially in tandem with dendro-dating and dendro-provenancing information – for example we could, given the chance, trace the impacts of the introduction of sawmilling technology during the 17th century in Scotland on the acceleration of exploitation of our native pinewoods, the documentary evidence indicating they were being felled far more extensively from that point in time. Scandinavia adopted sawmilling much earlier than Scotland, in the 15th century, one of the reasons why we have so much Scandinavian timber in Scottish buildings from the late medieval period onwards, that and the easier transportation by sea than overland at that time. By great contrast, England adopted sawmilling much later than Scotland, as their pit sawyer guilds resisted its introduction there until the later 18th century. There are many other facets of our unique wood-working technology developments we could study, through recording and researching the marks they leave on dendro-dated and dendro-provenanced timbers in Scottish buildings, an aspect which our young colleague Hamish Darrah (Fig. 4), archaeologist and green-woodworker, is particularly interested in pursuing.

Fig. 4: Hamish Darrah, of Dendrochronicle, during some recent green woodworking experimentation on native Scottish oak from East Lothian.

The examples we know of where historic timberwork has been discarded without record are from all types of buildings from all over the country, and our evidenced examples run from a Scheduled Ancient Monument, some A listed buildings and all other ranks of Listed Buildings, including projects with significant national heritage body building repair grants, to the undesignated vernacular. If we cannot even get our gatekeepers to protect timberwork in A-Listed buildings, what hope is there for the vernacular examples? We know of many vernacular buildings with wonderful timbers that are just being allowed to decay (e.g. Fig. 5), with all their original fabric being at danger of loss, and that goes for both Listed and unlisted examples.

Fig. 5a. Cs-listed Badden Cottage, pine cruck frame, near Kincraig, in 2008: still nearly intact and in 'saveable' condition.

Photo: Anne Crone

Fig. 5b. Badden Cottage in 2010. Loss of tin roof well advanced. Native pine cruck frame sampled and dated to AD 1801 in 'SCOT2K' NERC-funded pine dendro project (Mills et al 2017).

Photo: Coralie Mills

Fig. 5c. Badden Cottage in 2012. Gable has collapsed. More recent glimpses from the A9 show much further deterioration of condition. ***What is the point of Listing Designations if they offer no protection?***

Photo: Coralie Mills

Some of the tree-ring data-sets derived from assemblages we have rescued over the years have turned out to be crucial missing pieces of the jigsaw that makes up the Scottish tree-ring database, and which allow us to be able to date other buildings and sites in turn. For example, the NERC-funded SCOT2K native pine dendrochronology project, led by Professor Rob Wilson, our dendro-climatological colleague at University of St Andrews, somewhat fittingly allowed our eventual dating in 2016 of the very long-lived slow-grown pine timbers from St John's House on South Street in St Andrews, ostensibly a building of around AD 1600. We had rescued samples from the timbers, already removed and stacked up in the back green of St John's House, after the University removed them during building works back in the early 1990s. Some 25 years later, progress in our native pine dendrochronological research allowed us to determine that the pine timbers' ring patterns span the period AD 1159-1454, with a felling date within a few years of 1454. That assemblage has therefore provided the earliest example of Scots pine used in a Scottish building, and clearly these timbers were transported a considerable distance as their tree-ring data match most closely with natural pine material found in lochs in the Cairngorms. We have the *archaeologist* Edwina Proudfoot to thank for alerting us to those St John's House timbers which would otherwise have been discarded without record. That same rescued St John's House timber assemblage also contained some even earlier native oak, spanning the period AD 1072 -1248, from the ghost of an even earlier building on the site built with timber that was probably grown in Fife itself. These are the earliest set of structural timbers so far identified dendrochronologically to have survived in an extant building anywhere in Scotland, and they were so very nearly discarded without any record or analysis. This is just one example of many where rescued material has proved to be incredibly interesting and important. That St John's House occurrence was in the early 1990s but sadly nothing has changed despite all our work in advancing and promoting dendrochronology in Scotland since then, and historic timber assemblages are still being removed and discarded without record all the time.

What has become apparent is that while our archaeological colleagues recognise the value of dendrochronology in ascribing value and significance to the built heritage and subsequently commission analytical works, those in the architectural world do not. There appears to be a serious disjunction, in Historic Environment Scotland in particular, between the archaeological and architectural worlds, in that the mitigation strategies that are a requirement of the planning process are applied by the archaeologists but not by the architects.

When we first came to Scotland in the late 1980s to work in Scottish archaeology (for the Central Excavation Unit, after completing our dendro PhDs at the University of Sheffield) and started to offer dendrochronology here, we were told by some old hands in the built heritage world that we shouldn't bother because there would be nothing of interest in Scotland. They said that most of the original timbers were long gone and that most of what was in buildings was re-used anyway and so was meaningless with regard to dating. How much further from the truth could you be! The work we have undertaken shows quite the opposite. A fascinatingly rich story has emerged, indeed is still in the process of emerging, with much diversity and change in

the nature of the timber supply over time, much regional and chronological complexity, and the exploitation of a much wider range of tree species than is the case in England. In other words, we contend that Scotland's historic timber story is way more interesting than England's! The diversity and complexity can make it more challenging but we feel it is also more rewarding and certainly less routine, and it has significance well beyond the built heritage world.

Ready for battle: ladies of the Scottish tree-rings. Photo: Linda Harkness.

We are hearing ever more frequently from community heritage groups and members of the public about timber assemblages they have seen being removed or disposed of, sometimes even material they have rescued themselves. They seem to care far more about this material than the authorities (with a couple of notable exceptions) currently do.

We would welcome the support of the NWDG community in this endeavour. If you feel you can help us in our campaign, please email us at timberwatch@dendrochronicle.co.uk and we will reply, though we may not be able to do so immediately. Please also be our eyes and ears on the ground, and if you see Scottish historic buildings with old timbers being worked on or removed, please make a note of them, tell us the name and location of the building, take photos if you can, including of any hoardings showing who is doing the work and who is funding it. Some of the high-profile examples we have accumulated evidence for have had significant publicly-funded grant assistance. Thank you in advance for your help and support.

We will share copies of this article with key personnel in our national, council and professional heritage bodies too, so they cannot claim not to be aware in the future, and so they can start to enact the much-needed changes. We do expect them to effect change, and quickly.

Study of Scotland's historic timbers can tell us so much about the past of our native woodlands as well as about our built heritage. These timbers are not a renewable

resource. In short, they ain't making 'em any more. Surviving examples are rare enough as it is, without allowing any more of them to be skipped, discarded or burned. We have to say we feel immensely disappointed with the attitudes of the majority of the built heritage authorities in Scotland, and we are deeply upset to think of all the amazing assemblages that have been lost without record. A line has to be drawn under this now before we lose any more precious historic timbers and all the stories they could tell. There has to be proper support in Scotland for our discipline in future as there is and has been in England and most other European and Scandinavian countries for a very long time. We will help to shift professional practice from here to there, but we can only do that with support from the heritage authorities to help effect that change.

Yours aye

Coralie and Anne

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BEAVER PATROL

Judith Anderson

Most NWDG members will know that beavers are now firmly resident up and down the Tay. Along 'my' stretch of the river, between Aberfeldy and Kenmore, my daily walk with Kipper the terrier is enlivened by spotting the latest signs of the little critters' activity.

I'm no expert, and these are just my observations, but beavers don't seem to have hugely discriminating palates, gnawing as happily on native as on non-native species. I've seen them tackle willow, oak, ash, beech, birch, sycamore and even a large fir tree on the Taymouth Castle estate. Many times they seem to fell a tree but go no further with 'skinning' it. Other times they'll clean the bark entirely from a felled specimen.

Their activities, and efforts to manage their numbers, give rise to mixed reactions locally, as you'd expect. But they're clearly here to stay, so compromises are being reached: for example, protective skirts of stout wire mesh now adorn trees on Aberfeldy Golf Course.

Beavers are easiest to spot in winter when the vegetation has died back – and you don't have to get up at ungodly hours to match their dusk to dawn operating schedule.

Here are some photographs (photos + captions by Judith Anderson):

By the main road

Did not think that one through

Beaver coppicing

Beaver dam and large willow

Tidy toothwork

Where did he go?

Species no obstacle

That was my favourite tree!

Beaver mesh on trees on Aberfeldy golf course

Note from Editor: NWDG readers, please send in YOUR caption for this one!

BIRCH TREES – A PERSONAL APPRECIATION

Gwen Raes

Each tree species has its own distinctive feature and shape. Some stand out more than others, and to me the silver birch (*Betula pendula*) was rather the latter. Until this autumn, when each fluttering leaf turned into a pennant of brilliant yellow that trembles up in the air. She whispers and bends in the wind. She has special beauty with her gracious, flowing character that provides a gentle presence in the landscape.

Photos of birches by Gwen Raes (also reproduced in colour on inside back cover because in printed copies the photo on this page is in black & white only)

In the UK the two main species of birch are *Betula pendula* (silver birch) and *Betula pubescens* (downy birch). They are rapid colonisers of open areas, and due to their pioneer and opportunistic character they were one of the first trees to colonise the UK after the glaciers retreated. The third species, dwarf birch (*Betula nana*), is often little-known and associated with Artic regions and therefore an important component of our montane shrub.

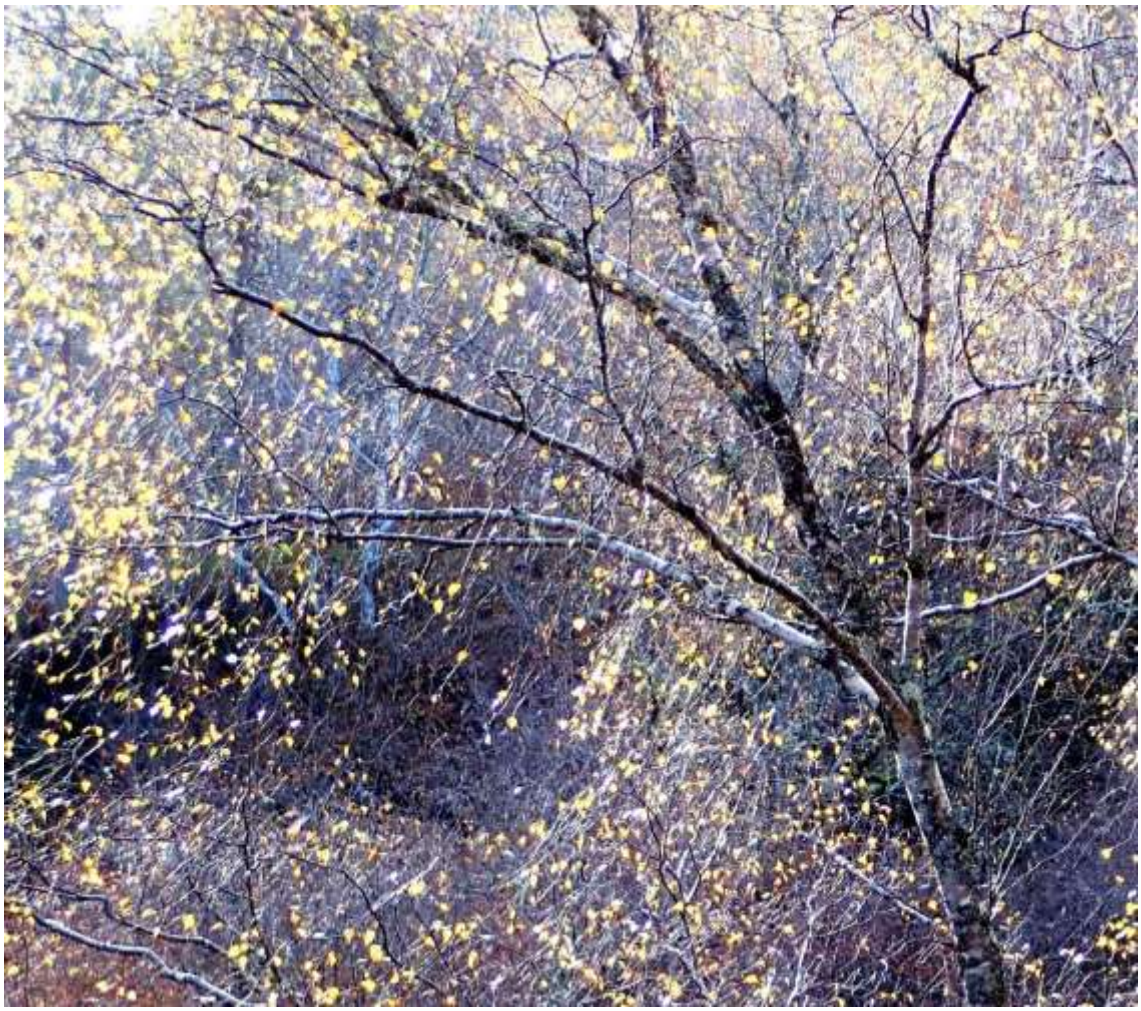
Beithe, the Gaelic word for Birch, is immortalised in many Gaelic place names: Glen an Beithe (Argyll), Loch a Bhealaich Bheithe (Inverness-shire), Allt Beithe (Kyle) and Beith (Ayrshire). It is thought that the word birch is derived from the Sanskrit word "bhurga" meaning a "tree whose bark is used to write upon". Imagine how the next NWDG newsletter might look like written on birch bark?

In Celtic mythology the birch tree symbolise **renewal** and purification. According to G Clarke Nuttall (1913) birch is also associated with the spirits of dead and with those who **mourn**, for in sympathy with the sorrowing "weeps the birch of silver bark with long dishevell'd hair". In Scottish Highland folklore birch is also used as a symbol of **love** and fertility.

This got me thinking that during these Covid-19 times we might be mourning the loss of a loved one, or go through sorrow of being parted from family and friends, of being derived from our liberty.

The birch is a strong tree of renewal – for the landscape and for the human body. So as we slowly slide into the end of 2020, may we remember the birch tree by being revitalised and by rekindling with others.

Gwen Raes *is the Glen Finglas Estate Ranger for Woodland Trust Scotland*



Silver birch in Easter Ross in November 2019 (photo: Ben Averis)

SOMETIMES WILD

Mick Drury

Editor's note. The spring 2020 NDG newsletter included a summary of Mick's seven month trip to north America. He has since written it all up in the form of a blog that you can see online on his website 'Sometimes Wild' at:

https://mdrurywoods.wixsite.com/sometimeswild

… and a report titled *Meetings with remarkable American conservationists* – a PDF file downloadable from:

https://mdrurywoods.wixsite.com/sometimeswild/american-report

Taken together Mick's blog and report present a wonderful and very readable and well-illustrated account of his travels, not just because he tells us such a lot about wild places and conservation in the USA and Canada, but also in the way his personal thoughts come across, giving us a fuller and very human sense of connection with the places and the happenings during his travels there. Mick says we can publish material from it in our newsletter. That's great, though the newsletter is way too small for the size of the blog and report which are presented so well online that I feel the newsletter might not do them justice! Mick's blog and report could be made into a book – a wonderful piece of illustrated nature/travel writing. However, here is one of Mick's blog posts – this one is no. 6, about his time in Montana.

6. GLACIER

I bid farewell to Yellowstone, at least for the moment, and drove north following the river down Paradise Valley then west through Montana on Interstate 90, cattle and Christ country. Stopped at a rest area for a break from the heavy rainstorms and discovered I was on the Lewis and Clark trail. They were the bold adventurers sent out by Jefferson in 1804 to explore the area of the new Louisiana purchase, assert US sovereignty over the native tribes and find a way through the Rockies to the Pacific. I read the book earlier on ('Undaunted Courage' by Stephen Ambrose), a good read, interesting historically and a real 'boys own' adventure. There was one young native woman who accompanied the party of around 30 men, Sacagawea, without whom they wouldn't have survived and now a legend in her own right.

The whole escapade was based on developing the lucrative trade in beaver pelts, at that time the monopoly of the British Hudson's Bay Company; the pelts were especially valuable in London and New York for men's top hats. Yes, really. The beaver's extinction in subsequent decades was avoided when population crash made the trade uneconomical and fashions changed. Now the pair are commemorated in numerous names for rivers, mountains, a national forest, plants and animals, and a quick search found Lewis and Clark college, a bridge, a brewery, a dog collar and there's a board game to relive the expedition. Sacagawea just has a statue in Portland and, true to stereotype I guess, a recent cookbook published in her name; I wonder if it includes recipes for bitterroot, on which the party survived, just about, over the first winter. The Lewis thrust fault provides evidence of the tectonic events that created the mountainscapes of Glacier National Park where I was heading next.

I'd underestimated distance, still hadn't got the scale of my road atlas, so getting tired I pulled into Butte. After checking a couple of chain motels I found Eddy's for half the price; ok a fairly bleak part of town and looking a bit worn but the bed was fine, my first real bed in three weeks, and the shower ... bliss. Had a wander around on Sunday morning. Butte, pronounced 'beaut', which it ain't, is an old mining town ... think north of England, south Wales or Fife, but copper rather than coal. It's seen better days, old pit headframes poking above the townscape, now trying to reinvent itself along heritage lines. What was once known as 'the richest hill on earth' has been dug away leaving an open cast hole, the Berkely Pit, a mile long, half a mile wide and a third deep, now filling with seriously acidic toxic water, iron rich and reddish in colour. This is one of the few places in the world where you can pay to visit a toxic waste site ... for $2 visitors can go out onto the viewing platform and 'look down into the dark abyss'. And there's a gift shop too!

Other claims to fame include the Speculator mining disaster of 1917; some interesting labour history; the current World Museum of Mining; the highest proportion of Irish Americans of any town in the USA, their forebears attracted by the work; and the birthplace of Evel Knievel. Some grand buildings in the centre, mining company offices and banks of yesteryear; otherwise lots of Irish bars, casinos which seem to be a feature of Montana, empty shops and a lone yoga studio somehow out of place. It's a real place, fallen on tough times. The annual Evel Knievel gathering draws folk from all over the land and would be worth seeing, although Paddys day must be good too; afterwards I thought that if they combined the two, and included motorbike stunts around the 'dark abyss' fuelled by guinness, that would surely put the place on the map.

In contrast, my next stop was Missoula another hundred miles on, also known as 'East Portland' or the 'Boulder of Montana', it's a vibrant place, all coffee, arts, smoothies and kombucha. It was buzzing on a sunny Sunday afternoon, with a large outdoor craft market along the riverside walkway, and a happy affluent crowd, lots of strollers and students. There's a thriving music and events scene and I noticed Alice Cooper was

due in town soon; amazed he's still alive. There's a famed ice cream parlour where I joined the queue, chose huckleberry flavour and sat with folk outside to watch a sleeping raccoon in the fork of a tree above, mobbed by crows; oblivious it snoozed on, waiting for dusk to mop up any leftovers. Nestled in the hills with some great hiking and cycle trails nearby, plus the Clark Fork River and a college campus, the sun shines on Missoula. However, it is downstream of the Berkely Pit, if that was ever to overflow it would seriously threaten the surfers and kayakers using the river weir here as a practice ground.

A couple of days later I'm driving through the strip malls around Hungry Horse on the way into Glacier, a gauntlet of rafting adventure outfits, quad bike trips, outfitters, motels, restaurants and a whole lot taken up with billboards praising the lord and proclaiming the second coming. Each Tuesday in the summer the Park's native plant nursery has a volunteer day and there I met up with Dawn Lafleur and some of her team to help out. The nursery grows some 120 species with close attention to conserving the genetic integrity of plants from different catchment areas of the Park. Some of the common plants, including bracken (!), they use for re-vegetating areas of heavy use like trailheads or road pullins; others are rarer species, or those under threat. There were many familiar species, either as natives or garden plants back home, including the columbines which some of us were weeding and pruning that morning.

Dawn was showing two visitors from the Glacier NP Conservancy around and they stopped to chat with a young intern who'd just started that week; the Conservancy is a non-profit group that raises money to support the Park in various ways, including funding interns. A similar fundraising partner works back in Yellowstone, Yellowstone Forever. In addition to the staff at the nursery Dawn's team includes a restoration crew who do the planting, an integrated pest management crew (non-native invasives are a big problem, plants like spotted knapweed that I was to get to know quite intimately later on), and a monitoring team. It was a busy day, with Annabel hosting a visiting school group and after lunch, Rebecca, the nursery manager, gave a talk on the orchids of the Park. Later, Levi, who's been there eight years, and I compared notes on growing aspen and juniper. One of the most important plants they grow is the whitebark pine, a keystone species of higher elevation that has suffered a 90% decline due to an introduced blister rust and beetle attack; they are collecting cones from trees with natural resistance and getting these grown on for re-planting.

I headed up into the North Fork (of the Flathead River) area of the Park and followed the deteriorating dirt road to the Bowman Lake campground, a basic site amongst the trees, angry with mosquitoes. I got talking to Steve from Arkansas who worked delivering RVs to various customers in the west and had stopped off on his way back

from somewhere in Washington state. Early next morning a distant howling, either coyotes or wolves, I've not yet got my ear in. I took the trail uphill walking through a lusher forest than Yellowstone, nice flora including slipper orchids, spotted twinflower along the track, a rare plant in the Scottish pinewoods, to the treeline, with occasional whitebark pine, my destination the fire lookout cabin on the Numa Ridge at some 3000 feet above the lake.

Great views, huge Torridon-like mountains of sedimentary rocks with marked red and green strata alight in the sun. I chatted with one of the lookouts who stays up there for twelve days, then has four off, although during the main fire season it could be sixteen straight. When I asked what he did all the time I expected he'd say meditating and reading poetry, aka Kerouac, but he simply replied 'watching for fires'. It had been a really hot day and difficult to stop to rest on the trail given the mozzies so on return I braved a quick dip in the lake, glacial!

A cold night, I'm off the next morning and stop at Polebridge where the Mercantile (store) dates to the early twentieth century, a very remote spot in those days. The 'town' lies just outside the Park and claims to have fifty six residents, although quite a few more in the summer with new housing, cabins and yurts scattered around. There's a constant stream of visitors to the Mercantile, in particular to sample the famed huckleberry clawfoot, a bear paw shaped chunk of fruit pie ... very nice but would have been better hot with custard.

The next two days I spent in the West Glacier area, exploring on short hikes and taking advantage of the facilities, especially the Lake Macdonald Lodge. Built in the rustic 'Parkitechture' style, the central foyer/lounge is three storeys high, timber constructed, with twelve huge cedar trunks supporting the upper floors, balconies and roof. There's a grand stone fireplace with petroglyph carvings in the surround, where one morning an elderly mormon woman sat by the fire, dressed in black with headscarf, chatting amiably to another guest. Monumental trophies of elk and moose, a white bear skin, vast landscape paintings. A group of tourists arrived and wandered around unconcerned about the residents, taking photos. A man with a daypack sat down at the piano and played 'twinkle twinkle' and nobody told him that the instrument is reserved for guests and those with some talent at that. I like the equanimity that exists here .... this is the kind of classy place I might hesitate about going into in Britain. Here everyone feels that it's a part of their heritage, they have the right to enjoy it and are treated respectfully. Nostalgia for a bygone age of the romantic west includes a fleet of vintage red tour buses loading up outside, these dating from the 1930's with roll-back tops, driven by folk in tweedy outfits and caps of yesteryear; there was a similar yellow fleet back in Yellowstone.

Of an evening there's a programme of ranger talks in an outdoor amphitheatre overlooking the lake, and I caught one about keystone species. Think of the central stone in an arched bridge or fireplace and you'll get the idea. He was good, delivered a few gags, but lost the kids early on with some technical words. The next night was an indoor performance by Jack Gladstone a storysmith of Blackfoot heritage, a talented raconteur, singer and guitarist, telling a mix of tribal stories, animal legends and historical anecdotes. He sang about Sacagawea and also about York, the only African-American on the expedition. His songs were set to a great collection of photos including the historic paintings of Charlie Russell that I'd like to see if I'm ever in Great Falls.

The microclimate around Lake Macdonald supports an outlier of Pacific rainforest, with the Trail of the Cedars running through a cathedral grove of 500 year old western red cedars and western hemlock. There are also some stupendous black cottonwoods here, some of the largest broadleaf trees I've ever seen. Following the gorge there's an easyish walk uphill to Avalanche Lake, a huge dam of fallen timber at its outlet testifying to its name. The head of the lake is surrounded by 1000 foot cliffs, fed by waterfalls from the Sperry glacier on the shelf above. The lovely glacier lilies were now poking through the snow.

I arrived just in time to hear the last few words of a ranger who'd led a guided walk to the lake; he was saying that the glaciers in the Park, over 150 back in 1850, would all be gone by 2030 and exhorting people to act now to prevent further warming. He stopped short of castigating Trump, which is what it comes down to, restraining himself being in uniform. I'd not really considered the implications of this until I spoke with him .... reduced water flows from the mountains will mean lower levels and higher summer temperatures in the creeks and lakes, which will have a big impact on the whole aquatic ecology of the Park, including important native trout populations, which in turn will affect all the animals and birds that feed on them. The rangers are a passionate bunch and smart in their uniforms, although their authority is somewhat undermined by their hats, wide brimmed but with a domed rather than dimpled top, giving them the look of a schoolgirl outing; moreover if it rains, which it did, they have plastic showercaps which fit around the hats, a look that can only be described as parknaff.

The 'Going to the Sun Road', across the continental divide towards the east, had been finally cleared of snow, now late June, and had opened for the year a few days earlier. Unfortunately it was a day of low cloud when I drove over, nevertheless I joined the procession up around countless hairpin bends, with glimpses of towering cliffs above and beneath, great waterfalls and the forested valleys far below. At the top is the Logan Pass where at the visitor centre it was hard to find a parking spot; I moved on after a quick look, stopping for a short hike to the Apikuni Falls and then arrived to make camp at Many Glacier.

The lodge here is the grandest of them all, built in a Swiss/Bavarian style and sited in a spectacular setting at the foot of a lake, with what can only be described unsatisfactorily as panoramic views of the mountains. Inside, the lobby is on a vast scale, again supported by huge unpeeled logs, with a central fireplace, grand piano and a guy dressed in lederhosen attending to visitor needs. I'd had a short hike around the lake and got pretty wet in a heavy rainstorm so it was good to come in, warm up and wander around. There was a talk that evening about predators and prey, given by an enthusiastic ranger who'd worked for several summers at the Park, otherwise a teacher the rest of the year.

The ranger was leading a guided walk to Iceberg Lake the following day and I decided to join it; the trails are busy anyway and she was knowledgeable and entertaining. There were around twenty of us, including one kid with a bell on his pack; these are supposedly to alert bears but if I was a bear I'd take those folk out first. She pointed out bear scratches and back rubbings on the trees; a range of flowering plants and shrubs; higher up those red and green strata again, apparently argillites laid down in aerobic or anaerobic conditions; above us some mountain goats with kids crossing a near impossible scree slope. We crossed a couple of snowbanks and at the next she exclaimed 'watermelon snow' and prostrated herself to take a sniff; some of us followed suit and sure enough the pinkish patches smelt just like the fruit, although we were advised not to eat it. Since then I saw this elsewhere and sometimes in huge areas of distant snowfields, apparently caused by a green alga producing a secondary red compound as a kind of sunscreen.

The lake lived up to its name, in another fantastic glacial cirque backed by stupendous cliffs rising to a jagged knife edge of rock at the arête above; water aquamarine with huge blocks of ice that had fallen off the cliffs above. We stopped for lunch and I chatted to a couple of young mixed race teachers from LA; I mentioned that I'd hardly seen any black folk in the Parks and at first they went a little quiet, I thought I'd made a faux pas, but then they agreed and said that the origin of the Parks was born in a need for a racist escape from the cities. They were working to use what green spaces there are in LA to offer the kids some essential connection with nature. A group of lads arrived in t-shirts, scamping about and a couple of them dipped their heads in the water, ouch! I let folk drift off back down and as the sun came out went off to explore the marshy areas and willow scrub around the edge of the lake.

An hour later the weather suddenly turned wintery with a cold wind and rain coming through and I was glad of my waterproofs; some people hike these trails in flip flops and shorts and must get caught out. I wandered down slowly, stopping to search for the goats again; and later watched a groundhog mooching about amongst the trees. Lone hikers are not that common and I got talking to a woman from California, Tomiko, ambling on downhill together. I cooked up some food in a redundant telephone booth, out of the wind. The weather was really wild that evening, blowing in gusts and squalls across the lake, with dramatic cloudscapes as it got dark so I was glad to retreat again to the lodge for a drink and a chat around the fire with Tomiko. Sadly it was my final night at Glacier, and indeed for now in the USA, my visa expiring the following day.

Next morning there was a flurry of excitement, and concern, around camp ... an early angler had been gutting his trout for breakfast when a grizzly wandered in and said 'I'm having that'. No argument there. I was a little anxious about getting across the

border within my visa time, given my experience with cops in Yellowstone I thought I might face the electric chair, so I headed off, had some breakfast en route at a diner just outside the park, and, thankfully without problem I was in Canada by midday.

All photos by Mick Drury

***Mick Drury** works as Field Projects Co-ordinator for Trees for Life*

SAVING SCOTLAND'S RAINFOREST

Julie Stoneman

Did you know that Scotland has a rainforest? The west coast between the north of Sutherland and the south of Argyll lies in the rainforest zone, and here the consistently high rainfall, year-round mild temperatures and clean air provides the right conditions for coastal temperate rainforest (in the UK sometimes referred to as "Atlantic woodland").

We don't just have a rainforest – we have the best rainforest in all of Europe. The climatic conditions and clean air are perfect for the development of thick carpets of mosses, liverworts and lichens on the trees, the rocks and in the ravines. They give the rainforest that magical feel when you walk in it. The names of the bryophytes and lichens themselves are magical – glittering wood moss; frizzled pincushion; golden specklebelly and tree flute. The combined profusion, diversity and rarity of these species makes this habitat unique. You can learn more about them in Ben Averis' entertaining guide: Drizzle, Midges, Misery and Moss – welcome to the rainforests of Britain and Ireland.

These woodlands aren't just a rare and valuable habitat, but important places for the people that live and work among them. They support the rural economy through the creation and development of jobs and skills, as well as being important for physical and mental well-being.

However, not all is well with our rainforest. There are only 30,000 hectares left – not much larger than the size of Edinburgh, and these woodlands are mostly fragmented. Many are being choked by rhododendron and too often they are unable to regenerate because of herbivore levels. In the past a fifth was overplanted with exotic conifers, and nowadays the challenges of ash dieback and climate change are looming. Without urgent help, we are in danger of losing this habitat forever.

So, to help the rainforest thrive once again, the Alliance for Scotland's Rainforest was formed. This is a group of twenty organisations, including charities and government bodies, all committed to helping these rare and beleaguered woodlands. Last year the Alliance published The State of Scotland's Rainforest – a report which lays out why this habitat is so important and what we need to do to save it. As a result, the Alliance has set its course over the next few years to establish landscape-scale projects, identify changes we need in public policy, enable land managers to do all they can to manage their areas of rainforest and maximise collaboration so we continually improve our understanding and management of this precious resource.

In order to make a difference, we also need to raise the profile of this much under-recognised habitat, so in December the Alliance is just about to launch a short film and a brand new website: www.savingscotlandsrainforest.org.uk This will help partner organisations to influence the people who can make the difference.

For the time being, do follow our Twitter profile @ASRainforest and help raise the profile of this special habitat by tweeting using the hashtag #SavingScotlandsRainforest.

Julie Stoneman *is the Saving Scotland's Rainforest Project Manager*

Two photos from the Alliance for Scotland's Rainforest Flickr album:

Top: Dalavich, Argyll (photo: John MacPherson)
Bottom: Shieldaig, Wester Ross (photo: Phil Formby)

Editor's note:

Since Julie wrote that piece the Alliance for Scotland's Rainforest have got themselves a **LOGO!**

Alliance for Scotland's Rainforest

…and they say, on Twitter, to interpret this logo as we like but that they're saying ***"leaf / raindrop / saltire"***. They'll be getting a website soon too.

Well, it's must be a sort of logo-time-of-year, because we've just got:

A NEW NWDG LOGO!

I hope you like it. I was asked to do something to fit in the square/circle shapes of the logo spaces on Twitter, Facebook and YouTube (there's a NWDG YouTube channel on the way). So I did, and then I got carried away and did some variants that could be used for different purposes or to fit in differently shaped spaces. They've all got the same main central design, with an oak leaf and the letters N, W, D and G. Here they are, all lined up 'on parade' for you to see.

Just for fun, I tried to make a spinning version of the third one. I went online and found something that did just that. I got it spinning around fantastically ("Yay!"), but when I downloaded the .gif file and opened it on my computer it was just a static image ("Huh"). I've probably overlooked something. Something very simple. Oh well – a project for another day… I should also say – just in case you're thinking about how some people charge loads of money for designing logos – that I didn't charge anything for this. Don't want you thinking I was robbing NWDG of its much-needed funds that come largely from *your* subscriptions!

FUTURE WOODLANDS SCOTLAND

Just to let you know that there's a new organisation called **Future Woodlands Scotland**. One of our NWDG members – Fiona Chalmers – is the Future Woodlands Scotland Manager. What is Future Woodlands Scotland? The answer is as follows (copied from their website www.futurewoodlands.org.uk):

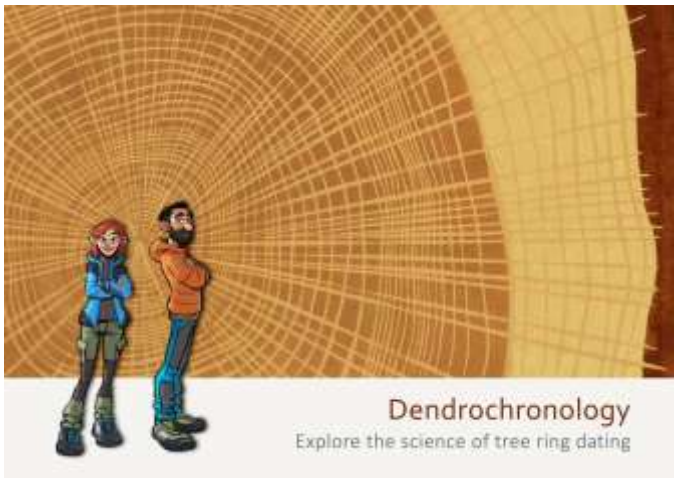
> **Future Woodlands Scotland is a Scottish Charitable Incorporated Organisation (SCIO), set up to fund innovative thinking for native woodlands.**
>
> We support projects that:
> - Develop new ideas to enhance and develop native woodland
> - Research the contribution of native woodland to biodiversity and carbon
> - Collaborate with like-minded organisations
>
> Future Woodlands Scotland was previously called "Sustainable Forestry".

I'm sure we'll hear more about Future Woodlands Scotland in due course. And look, it's happening everywhere right now – ***they've* got a logo too!**

Future Woodlands Scotland
Innovative Thinking for Native Woodland

Could this be leaf / raindrop again? What's the orange arc? The path of the sun? But that would probably be yellow. Hmm… It's probably really obvious and I just ain't clever enough. What do you think? Anyway, one day their 'future woods' might be old ones like this – The Old Wood at Dalkeith (etching by Gavin Johnston, 1999):

BOOK REVIEW



Dendrochronology by Marcia Cook, Coralie Mills and Jennifer Thoms; Forestry and Land Scotland. 2020; PDF, 118 pages, free; ISBN: 978-1-9160160-3-3

Review by Lisa Brown

Part of Forestry Land Scotland's set of 'Outdoor Archaeological Learning' resources, 'Dendrochronology' provides an exciting and engaging journey through tree-ring dating. This innovatively designed and beautifully illustrated booklet provides activities which allow you to create your own tree-ring sequences and learn how these could be used. Aimed at teachers, archaeological educators, youth group leaders, and anyone that has an interest in the technique, it empowers you confidently to introduce the topic, its principles, and lead the activities as a cross-disciplinary subject, aligned with the Curriculum of Excellence.

It begins with an introduction to dendro-chronology, explaining how a tree lays down new wood to create rings, providing a basis for understanding how to generate tree-ring sequences, and use them to date sites and objects through sample cross-referencing. It does not shy away from using the technical terms, instead, these are used intelligently throughout the text and are well explained. *Dendrochronology* shows readers how environmental and climatic processes can influence tree growth, and how dendrochronologists take samples and use 'regional reference chronologies' to understand this.

However, it isn't all science! The booklet also provides a fascinating insight into the history of dendrochronology. As with a lot of archaeological science, dating sites was not the first intended use of this method, it was understanding how our climate has changed that pushed it forward.

Three practical activities are included within the booklet. These are thoroughly explained and usefully include example questions which can be posed to the learners. Each activity is introduced by use of a real-life example, which shows how the method you are using is applied in the real world.

The first activity uses a tree ring recording strip to investigate and record a real tree trunk section and is introduced by looking at the dendrochronology of timbers at Stirling Castle. This foundation activity puts into practice the methodologies and concepts introduced in the first part of the booklet. It leaves you with a clear understanding of the first stages of tree-ring dating: recording the rings, identifying the age of the sample, creating a floating chronology and starting to assess the climate and environmental conditions in which the tree was growing.

Activity two takes this to the next level, with example of Buiston Crannog. Using the skills developed in activity one, you must create a 100-year sequence using information from five different tree-ring cores. This is a much more complex task, but important reminders are included in the text to help you to avoid any potential

pitfalls. You then can apply this to dating an imagined Viking ship. The questions for learners in this section are particularly useful for introducing archaeological time concepts, such as *terminus post quem*.

By the final activity, the learners are working as dendrochronologists, building floating chronologies and converting them to dated regional reference chronologies, spanning over 1,000 years. The activity is well introduced by the example of the analysis of the oak capitals from Hamilton Palace.

This booklet presents challenging but fun activities for learners, from late primary school age onwards. It encourages learners to get outside and look more closely at woodlands, timbers in archaeological sites and those in historic buildings. It is a fantastic introduction to dendrochronology to those who might consider archaeological science as a future career, an area where more specialists are urgently required.

The pdf can be downloaded free of charge from https:// forestryandland.gov.scot/what-we-do/biodiversity-and-conservation/historic-environment-conservation/learning/dendrochronology.

Lisa Brown *is the Archaeological Science Manager for Historic Environment Scotland*

Illustrations shown here: by Alex Leonard; copied from the above-reviewed learning resource

See Timberwatch Scotland article on pages 12-22

NATIVE WOODLAND DISCUSSION GROUP CONSTITUTION

Name: The organisation shall be the Native Woodlands Discussion Group.

Aims and objectives: To encourage interest in native woods, their ecology, management and history.

Activities:

- Organise at least one Field Meeting with related discussion each year.
- Organise Workshops on subjects suggested by members.
- Organise Conferences, Seminars or other Events as approved by the membership.
- Issue Newsletters with an emphasis on members' contributions.
- Maintain contact with like-minded organisations through the membership.
- Undertake any other activities deemed appropriate by the membership.

Membership: Open to any interested individual. No corporate membership. Subscriptions shall be set by the committee, with approval of the membership, according to the following categories: (a) Individual, (b) Family (1.5 x full rate) or (c) Concessionary (0.6 x full rate). Membership will cease 18 months after payment of an annual subscription. The committee will advise the Field Meetings organiser for the year of the fee for attendance of non-members at the Field Meeting.

Officers/committee:

a. The group elects a committee. The committee shall co-opt or appoint such officers as are considered necessary. Officers will be eligible to vote at committee meetings.
b Committee members shall serve for three years, but shall be eligible for re-election.
c. Chairperson nominated by the committee and endorsed by the Annual General Meeting.
d. All members are free to attend committee meetings.

Accounts:

a. The financial year shall be the calendar year.
b. The treasurer will keep accounts and present a financial report by 15th March each year. The accounts shall be independently audited by a competent person before presentation.

Annual General Meeting: To be held on a date determined by the committee. Notification of that meeting shall appear in the newsletter at least one month prior to the AGM. Business at the AGM shall be determined by a simple majority (except changes to constitution which shall require a two-thirds majority of those members present). Family membership entitles up to two votes if both are present. The chairperson and the treasurer will each submit a report at the AGM.

Meetings: The committee shall organise or authorise any member to organise such meetings as considered desirable.

Publications: The committee shall approve such publications as are considered desirable, and which carry the group's endorsement.

Current subscription rates: Ordinary individual: £20 per year (£18 if paid by Standing Order). **Family:** £30 per year (£28 if paid by Standing Order). **Under-25s:** £12 per year (£10 if paid by Standing Order). From 2021 onwards, for all subscription rates please add £10 per year if you want newsletters in printed form. **Subscriptions should be sent to:** the Membership Secretary (Alison Averis, 6A Castle Moffat Cottages, Garvald, Haddington, East Lothian, EH41 4LW; tel: 01620 830 670 / 07387 970 667; email: alisonaveris@gmail.com). There is a £2 annual discount for those paying by Standing Order (shown in the above figures): please ask for a form.

CURRENT NWDG COMMITTEE CONTACT DETAILS

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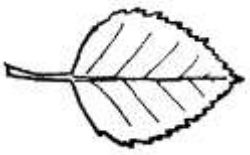
MEMBER	**Fiona Chalmers**	Email: fi@fionachalmers.co.uk	
MEMBER	**Alan McDonnell**	Email: alanm@treesforlife.org.uk	



** Admin = Treasurer + Membership Secretary + Website Editor*

NWDG WEBSITE: www.nwdg.org.uk

Facebook: **https://www.facebook.com/groups/NativeWoodlandsDiscussionGroup/**
or search on 'Native Woodlands Discussion Group'

Twitter: NWDG @**TheNWDG**

Top: birch trees (photos: Gwen Raes). Bottom: one of the illustrations from The Return by Cécile Simonis

www.nwdg.org.uk

Photo: Dalavich, Argyll (John MacPherson; on Alliance for Scotland's Rainforest Flickr album)