

end-users by encouraging FAIR data principles.

The study outlines 14 recommendations and also reviewed the 2018 SBIF recommendations, which whilst not all are relevant to England, there are similarities in the priorities that this study and SBIF identify.

The reports can be downloaded from the NBN website:

<https://nbn.org.uk/news/mapping-the-species-data-pathway-new-report/>

### FIELD STUDIES COUNCIL

**Publications:** Field Guides, like the immensely useful AIDGAP series, the Wild-life fold-out cards which are very good for young newbies (and even oldies) <https://www.field-studies-council.org/shop/>

**Courses:** the pandemic has really inspired FSC to get on-line courses going although more field courses are now scheduled. Designed for all age groups (lots for schools) and lengths from a 1 hour webinar to four week course, or a weekend field course. These are designed for enthusiastic amateurs to professional, and there is a huge variety of natural history courses. I hope the webinars don't stop as these are great for learning with a small carbon footprint expended.

<https://www.field-studies-council.org/courses>  
[aandexperiences/natural-history-courses/](https://www.field-studies-council.org/aandexperiences/natural-history-courses/)

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Newsletter printed by Bordersprint, Selkirk, Scottish Borders.



**BRISC**  
BIOLOGICAL RECORDING IN SCOTLAND

**Issue No 116 - July 2021**

ISSN 0966-1964

[www.brisc.org.uk](http://www.brisc.org.uk)  
[www.facebook.com/BriscScotland](https://www.facebook.com/BriscScotland)

# Recorder News

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### Purple Hairstreaks .... The story continued

*Chris Stamp*

In the last newsletter (February 2021) I described how I had discovered that the Purple Hairstreak (*Favonius quercus*) is a greatly under-recorded butterfly species in Scotland, present in many more places than previously realised. My new-found interest in this species led me to discover eggs on windfall twigs, which I rescued with the intention of trying to rear the butterflies.

I can now report that this was successful, with half a dozen butterflies reared and released from around twenty eggs, actually a much higher success rate than would occur in the wild.

It was quite a journey from 1.5mm long hatchling caterpillars, through the four instars with their varying adaptation to be camouflaged alongside developing oak buds, through to pupa and adult butterflies. Working from home allowed me to keep a close eye on them and give them the best chance of survival!

Because this is an arboreal species, it provided a unique opportunity to observe



Hatchling on an oak tree bud

and photograph the butterfly before they disappeared upwards to spend the rest of their lives in the treetops.

I had known that they were rarely photographed but hadn't realised just how unique and beautiful they are. Photographs and videos posted on social media in Scotland and beyond generated a great deal of interest amongst lepidopterists. A video of a female butterfly can be seen on the Butterfly Conservation Scotland Facebook page, but here are a few pictures from the journey from egg to adult.



Instar 3

As you read this it should be Purple Hairstreak spotting season (mid July to early September) and there are excellent



Instar - final

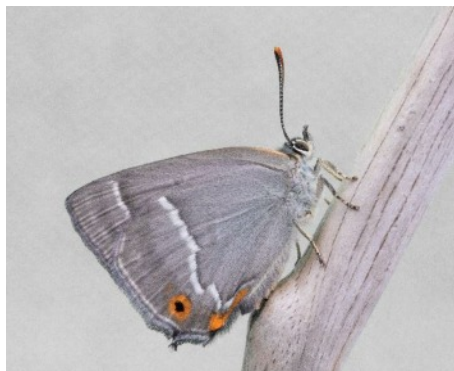
opportunities to uncover more about the distribution of this stunning species so please do check your local oaks on warm evenings and enter any sightings in



Purple Hairstreak - pupa

iRecord. I am sure some recorders out there will be making very significant discoveries this year, possibly including new county records for the Borders or Lothians.

*Editors note:* There is possible distribution map available from Chris: [christopherdstamp@gmail.com](mailto:christopherdstamp@gmail.com)



Purple Hairstreak - underwings

specialised in marine biodiversity with roles ranging from citizen science, public engagement and communications to statutory advice, policy and legislation.

Lisa has held senior positions in the voluntary, public and academic sectors. She was Head of People & Wildlife at Hampshire & Isle of Wight Wildlife Trust, Head of Offshore Industries Advice at JNCC and joined us from the University of Aberdeen, where she was Head of Development.

Lisa is also a Senior Associate with Dialogue Matters – an environmental consultancy specialising in stakeholder facilitation and consensus-building – and a Trustee of the Scottish Association for Marine Science.

### **iNaturalistUK**

In April, [iNaturalistUK](https://www.inaturalist.org) became the newest member of the international iNaturalist Network.

A collaboration led by the NBN Trust with the [Marine Biological Association \(MBA\)](https://www.marinebiologicalassociation.org) and the [Biological Records Centre \(BRC\)](https://www.biologicalrecords.org), iNaturalistUK has joined the wealth of recording tools available to UK naturalists.

Users in the United Kingdom are encouraged to affiliate their account to iNaturalistUK to allow partner organisations enhanced access to UK sightings. This won't affect existing arrangements with how sightings are currently shared to GBIF or are available to the international community, but it will allow the BRC and local environmental records centres access to more detailed records.

You can read more about this, including Q&A for data managers and Hints and Tips for use, on the NBN website: <https://nbn.org.uk/inaturalistuk/>

### **New Trustees**

We are pleased to announce that five new Trustees have been appointed to the NBN Trust Board: <https://nbn.org.uk/news/new-trustees-join-nbn-trust-board/>

### **Farewell and thank you to Christine Johnston**

Christine, the NBN Atlas Project Officer, retired from her role at the NBN Trust at the end of April 2021. She will be well known to many Network colleagues in Scotland, thanks to her involvement in SBIF, BRISC and TWIC, so please enjoy two articles which give one personal and one colleague's insight into Christine's time and work with us.

We asked for Christine's personal reflections on her time at the NBN Trust, which you can read here: <https://nbn.org.uk/news/reflections-on-retirement-from-the-nbn-trust/>

We also heard from Ellen Wilson who worked closely with Christine for many years on the SBIF Advisory Group, and other projects, and you can read her words of thanks here: <https://nbn.org.uk/news/farewell-and-thank-you-to-christine-johnston/>

### **Mapping the Species Data Pathway – New Report**

The [UK Geospatial Strategy](https://www.gov.uk/government/consultations/uk-geospatial-strategy) sets out a commitment for the Geospatial Commission to identify how improved access to better location data can support environmental outcomes. Part of the mission in the strategy is to improve access to better location data. To support this mission, the Geospatial Commission's Data Improvement Programme sponsored a study to look at the costs, benefits, and management of species data in England. It presents options to make species data more consistent, joined up and accessible for



## NBN update for BRISC – July 2021

### NBN Atlas update - Performance and stability update

As you may be aware, we have been experiencing problems with the NBN Atlas for a while. Over recent months the records and species searches have been running slowly and often failing to return results with a timeout error. The two searches run off separate [Solr](#) indexes and in February we engaged a Solr Specialist company to perform an audit on our current Solr implementation and make recommendations on how to improve the performance and stability of the NBN Atlas searches.

The recommendations made relate to, but are not limited to, the design of the index (schema), the size and number of the servers (cluster) used to serve the index and increasing the memory size. To date, we have been unable to utilise the schema changes and changing the size and number of the servers has not made a significant improvement. We are still working with the specialist company to see if increasing the memory available to the search functions will resolve the instability. This is a multi-stage process with frequent testing of each solution to ensure compatibility, which means we are not yet able to give a firm completion date, but we are progressing as swiftly as possible.

The purpose of this latest update is to give you a timeline of what we are doing to rectify this, both for the short and long term.

Short-term, we are working with the specialist Solr company as reported above.

For the longer-term, we have commenced a detailed investigation and options appraisal to minimise the risk of future relapses. We need to make sure that both the system architecture and the codebase are fit for the future. We expect this project to run through to November, and we will keep you updated with its progress through Network News and a dedicated project page on the NBN Atlas.

We know that the unreliability of the Atlas has been extremely frustrating for our community of Atlas users. Our small team has been working really hard, to address the problem, and we are very grateful for the patience and understanding of those affected. We would like to apologise if your work, or your colleagues' work, has been hindered in any way.

We would like to reassure you that the performance of the Atlas – both now and into the future – is of utmost importance to us. We're doing everything we can to make sure that the important service the Atlas provides is dependable, resilient and of the highest quality.

As always, we thank you for your patience and support. If you have any comments or questions, please do get in touch with us [support@nbn.org.uk](mailto:support@nbn.org.uk)

### New CEO for the NBN Trust

We are delighted that Lisa Chilton has been appointed as the new Chief Executive Officer of the NBN Trust, joining us on 19 April 2021.

Lisa has worked in biodiversity conservation for more than 20 years, including roles with The Wildlife Trusts and Joint Nature Conservation Committee (JNCC). An ecologist by training, she has



Purple Hairstreak - adult, upper wings.



### Chairs report

#### Chris McInerny

The COVID-19 pandemic continues with a recent upsurge in infections across Scotland and the UK due to the delta variant; I do hope that BRISC members have received their vaccinations which is the route to escape these difficult times. And I hope that during this period that all BRISC members have been safe, and have managed to participate with the natural world, which can be a great source of relaxation and support, as many are discovering.

COVID-19 continues to have a significant impact on BRISC and its activities. The AGM was held remotely by Zoom in March 2021, with an invited speaker Richard Lilley giving an excellent presentation "A Spotlight on Scotland's Seagrass Meadows". We wish Richard well in this exciting project. The next AGM later this year will follow a similar

format being held by Zoom with an invited speaker. We will send around the formal invitation later this summer, though the provisional date has been set as 25th November at 7pm, so please mark this in your diaries.

We also plan to organise an "in person" BRISC conference likely in the spring of 2022, when we hope that the dust will have settled. More of details of this later when we can be more sure, but we plan to focus this on field work and outdoor activities.

I continue to do my biological recording in the Glasgow area. Recently, the blooms of Greater Butterfly Orchids at Mugdock Park have been spectacular with a few thousand flowering spikes. It is interesting how the numbers fluctuate between years, with 2021 and 2020 both being good years.

We have also instigated the second and final year of the national Honey-buzzard survey. Birds have been found in new areas with, we hope, this current hot and settled weather conducive for successful incubation of eggs and the raising of young. It would be wonderful to have more pairs of this rare and secretive species in Scotland.

Best wishes, and good recording through 2021

*Note from editor.* There has been quite a bit of media coverage of UK seagrass projects, particularly the huge ongoing restoration project in Dale, Pembrokeshire which I think was on Countryfile.



#### Editors column

##### Sarah Eno

Because of not getting afield much I have been reading and browsing, a lot of it being inspiring

conservation and restoration work. A good wee online newsletter is Inkcap Journal <https://www.inkcapjournal.co.uk/> which is a brief digest with some longer articles (and in depth ones for subscribers). "How reviving nature tables could restore wonder to the classroom" was in the 7th July. Sometimes these things make me tear up - such simple pleasures which have largely been excluded. As Judy Ling Wong OBE (painter, poet and environmental activist) says "...we love what we enjoy and we protect what we love..." That should be on a banner everywhere.

Rewilding, or ecological restoration as we in Borders Forest Trust prefer, is also appearing frequently, and with more positive messages. Some of these are

rather galling - e.g. upland land is in big demand because of carbon storage and the carbon offset potential (a questionable concept) opportunities is being well hyped. So the price per acre has jumped.

I am sure many of you already know British Wildlife magazine [www.britishwildlife.com](http://www.britishwildlife.com) This is such an incredible mine of information which is so worth £40 p.a. for four fat issues. I have just discovered you can search using the subscribe button on their website, and key words, to find old articles.

So to this edition's content:

Its good to have a follow up on the Purple Hairstreak work...what patience Chris Stamp has. I must get to Bowhill oaks for a look when our scope is mended.

The next article is a detailed report on the conservation research work going on for the White faced Darter dragonfly. It is one of the rarest in the UK and if you want an introduction click this link:<https://british-dragonflies.org.uk/species/white-faced-darter/>

Thinking I was short of material I asked a friend and cracking photographer for a piece on her favourite place(s) so we have a great selection of photos and a couple of her artworks.

Thanks to Natalie at TWIC for letting me reuse her review from the Spring 2021 Newsletter. Anyone can become a member of TWIC for £5 and get early access to excursion and conference information.

<http://www.wildlifeinformation.co.uk/Membership.php>

Please keep your eyes open for ideas for new articles and pass on any contacts and let me know. I am ever grateful for how willing and generous are our authors.

land habitat types. Bearing in mind that many of the UK's grasses are introduced or rare, the number covered by the guide is not bad. However, for the serious botanist hoping to identify all of the grasses in an area, they would be advised not to rely solely on this guide and complement it with either Hubbard's (1984) *Grasses* or Cope and Gray's (2009) *Grasses of the British Isles*. Francis Rose's (1989) *Colour Identification Guide to Grasses, Sedges, Rushes and Ferns* is also terrific, but expensive, and better as a reference book than a field guide. There are also helpful online resources on identifying grasses on the Botanical Society of Britain and Ireland's website: <https://bsbi.org/grass-id>.

Notwithstanding the above remark, even the more experienced botanist could learn something from this guide. In browsing its pages, I realised I had hitherto been reliant on flowers for identifying the smaller Sweet-grass species, that is, all the *Glyceria* species bar Reed Sweet-grass (*Glyceria maxima*). It would appear that Plicate Sweet-grass (*Glyceria notata*) – the most uncommon of the 3 *Glyceria* in my neck of the woods (East Lothian), can be readily told apart from the other two species vegetatively by its short, blunt ligule. The other two species, Floating Sweet-grass (*Glyceria fluitans*) and Small Sweet-grass (*G. declinata*), have pointed ligules.

I think that there are benefits to the more experienced botanist in looking at common grasses afresh. After a while we stop looking – we see a plant, name it and tick it off our recording card, then move on. A bit like birders, who intuitively know it is a Robin – we don't have to describe the plumage, beak shape etc. But by looking again at the detail of grasses – the ligules, auricles, hairs, shoots, growth form etc. – we can cement our knowledge of why

something is X and improve our overall botany skills.

Further road-testing of the guide this summer would undoubtedly make for a more informed review. My criticisms at present are mostly minor – a typo on page 11 "on line" instead of "online" and I noted a few couplets with overlapping measurements for things like ligule length, which may pose problems if your specimen happens to fall in the middle (although admittedly this was one of several features used in the couplet, so you could fall back on other features). Overall, it looks to be a guide that deserves a space your bookshelf, and will supplement other guides available.

Many garden owners with lawns may have ceased mowing parts of it and are now watching the wildflowers emerge and the insects descend. Now is the perfect time to start to learn to identify the grasses in your lawn. Look at an unmown section first, where flower heads may be developing, and gain familiarity with the grasses here first. Then, grab a copy of the vegetative grasses AIDGAP key plus a x10 or x20 hand lens and have a go at identifying the same grasses in the mown section! You may be surprised how many species you find.

#### Other books mentioned in text:

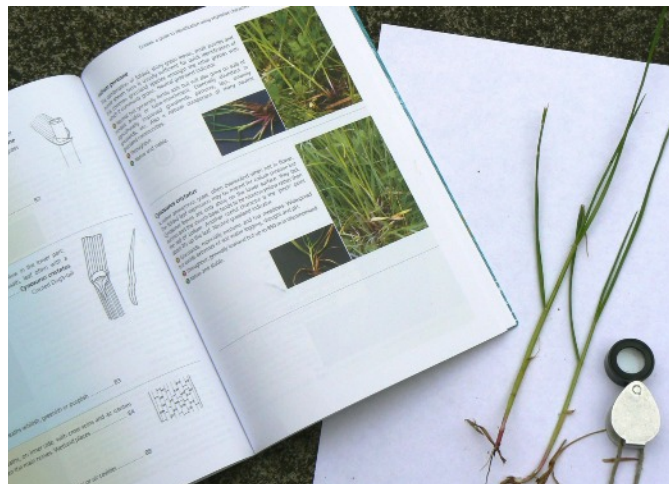
**Cope, T. and Gray, A.**, 2009. *Grasses of the British Isles*. BSBI Handbook no. 13. London: Botanical Society of the British Isles.

**Hubbard, C.E.** 1984. *Grasses*. 3<sup>rd</sup> ed. London: Penguin.

**Rose, F.**, 1989. *Colour Identification Guide to Grasses, Sedges, Rushes and Ferns*. 1<sup>st</sup> ed. London: Viking.



knee' grass, Creeping soft-grass (*Holcus mollis*).



Using the new AIDGAP key on vegetative grasses to ID Perennial Rye-grass (*Lolium perenne*).

It was therefore with interest and delight that I heard that the Field Studies Council (FSC) had published a new book on vegetative grasses in April 2021.

This book forms a new addition to their well-regarded AIDGAP series (Aids to Identification in Difficult Groups of Animals and Plants). Like all of the AIDGAP keys it has benefitted from field testing by many students on FSC's courses over the years. The guide is set out as a dichotomous key, allowing the field surveyor to compare pairs of attributes in turn, a bit like the board game "Guess Who" – where you ask questions where there are only two options and gradually eliminate individuals until you can name the person. But instead of looking at hair colour or presence of absence of glasses, you look at features like ligules, auricles and whether the youngest leaf is rolled or folded in the shoot.

My immediate impression of the book is that it is clearly laid out, accessible and much more user-friendly than existing keys. It combines the use of line drawings of diagnostic features such as the junction of the leaf and the sheath with photographs of shoots and/or the grass in situ. I particularly like the introductory text which gives an overview of the structure and growth form of grasses, terminology etc. Sufficient information and detail is provided to enable one to begin looking at grasses, but without overloading the reader.

The work includes succinct descriptions of each of the grasses covered, along with information on habitat, distribution and status in the UK. The work includes lovely nuggets of information such as using cardigans and v-necked jumpers as analogies for open and closed leaf sheaths. The cardigan represents an open sheath, as in Sheep's Fescue (*Festuca ovina*), and a v-necked jumper a closed sheath, as in Red Fescue (*Festuca rubra* agg.).

The guide is intended to assist habitat surveyors who are required to undertake surveys year round and are therefore faced with the prospect of identifying grasses when not in flower. Perhaps as a result of this, the guide is not comprehensive – it covers 90 of the 220 or so UK grass species. It focuses on the commonest species and those species that are important to the identification of particular grass-

## White-faced darter dragonfly, *Leucorrhinia dubia*, in Scotland:

### Management units, connectivity, and conserving genetic diversity.

*Dr Anna Muir and Dr Matt Geary, University of Chester*

The Scottish Highlands represent an extensive working landscape that has been largely converted for economic benefit. The resulting matrix of habitats supports a number of habitat specialist species including birds, mammals and invertebrates. Many of these species are of conservation concern as their populations come both directly and indirectly into conflict with economically important land uses. These include high profile conflicts such as those between raptors and shooting interests, as well as more wide scale issues such as grazing pressures and the drainage of blanket bog. As these economic interests are essential to the

sustainability of rural communities these conflicts can present considerable challenges. Landscape level management presents an opportunity to mitigate the negative effects of working landscapes on biodiversity while allowing remote communities an economic future.

Odonata - dragonflies and damselflies, are chiefly aquatic species and require discrete patches of aquatic habitat in which to breed. However, they also require suitable terrestrial landscapes during their terrestrial adult stage. Responses to terrestrial habitat can differ greatly between Odonates depending on their life history and behaviour. Some species are dependent on complex vegetation for cover whereas other species will actively avoid vegetated sites. Within individual species, habitat responses can differ between sexes where females often move away from breeding pools to avoid unwanted male attention. Odonata

also display a range of dispersal abilities from long-range migrants to the site philopatric.

Dispersal movements can also be affected by the surrounding habitat matrix. As such, landscape structure can be extremely important in determining the suitability of sites for different Odonates at both local and landscape scales.

Dragonfly communities in the Scottish Highlands consist of a number of generalist as well as habitat-specialist species. These include three species whose UK populations are found only in Scotland (Northern damselfly, *Coenagrion hastulatum*; Azure hawkler, *Aeshna caerulea*; and



Pond netting



Northern Emerald, *Somatochlora arctica*) as well as a number of species that have strongholds in the region (e.g. White-faced darter, *Leucorrhinia dubia*; Golden-ringed dragonfly, *Cordulegaster boltonii*; Downy Emerald, *Cordulia aenea*; and Brilliant Emerald, *Somatochlora metallica*). Bog-pools are an important component of habitat matrices for many of these species although they differ in their preferences for surrounding habitat. Differences in the level of generality across these species mean that landscape scale changes to habitat could have very different effects on different dragonfly species.

The White-faced darter (*L. dubia*) is a **bn and bog speci d ist**. They are considered abundant in the Highlands of Scotland, although their range is thought to be declining, and they are extremely rare elsewhere in the UK. In England, there are only five significant breeding sites, including reintroduced populations in Cumbria and Cheshire. Recent research has found an association between presence and sphagnum-rich pool complexes within forests.

Due to the rarity of the species it is categorised as a Red-list species in Great Britain and of conservation concern. However, little is known about connectivity and dispersal between sites in this species due to the low recapture rates in attempted mark-recapture studies. This lack of knowledge is limiting conservation planning.

Assessing connectivity using observational methods is limited for species that are hard to mark, track or recapture and difficulty increases with geographical scale. Landscape genetics offers the opportunity to assess gene flow and population structure in relation to landscape by combining population genetic and landscape ecology tech-

niques. In particular, landscape genetic approaches allow identification of habitat that facilitates and limits connectivity at a species-specific level.

Maintaining connectivity between sites is important to preserve genetic diversity which will protect against inbreeding and provides opportunities for populations to adapt in a changing environment. The output from landscape genetic analyses can be used to create local- and landscape-level practical habitat management recommendations through identification of management units and of key locations for habitat restoration, which would increase connectivity and thus long-term survival. The aim of this project is to use landscape genetic techniques to assess population connectivity in relation to habitat in White-faced darter dragonfly in order to create practical habitat management recommendations to aid conservation.



White-faced darter dragonfly (*Leucorrhinia dubia*) larva



Dragonflies by Alison Smith

## BOOK REVIEW

### Grasses: a guide to identification using vegetative characters

AIDGAP key by Hilary Wallace

Published by the Field Studies Council, 2021

#### Natalie Harmsworth

I first had the pleasure of getting to grips with vegetative grasses during preparation of my undergraduate thesis on the effects of management on roadside verges in Somerset during 2007/8. I was a comparative newbie to vegetative grasses at that time and spent much time peering at grasses on shortly mown margins of country lanes and along the side of roads in my home town, taking specimens of things I didn't recognise, and attempting to key them out in Hubbard's (1984) *Grasses* later. I have fond memories of jam jars of

specimens waiting to be identified littering my Mum's kitchen. Liz Byron, Survey Manager at the Somerset Environmental Records Centre (SERC) at that time, assisted me with some of my 'puzzles'. One of these early puzzles was a shiny green grass which was distinct in that it had vivid pink lower leaf sheaths – almost like some garish lipstick! Its youngest leaf was folded in the shoot, the backs of leaves were very shiny and it had small projections (auricles) at the junction of the leaf and sheath. Colour in this case wasn't the most helpful clue as Hubbard's book illustrations, though fantastic, are entirely black and white. Its identity, I finally realised, was Perennial Rye-grass (*Lolium perenne*) – probably one of the commonest species seeded in turf! Of course from that point on, it was a species I never forgot, and joined the ranks of other grass characters like the pyjama-striped Yorkshire Fog (*Holcus lanatus*) and 'hairy-





Sabre wasp (*Rhyssa persuasoria*)

- the close up trail camera images of the foxes and their cubs
- being there when a friend's 11 year old granddaughter spotted, what turned out to be a first record for Hare Moss, a Tawny-barred Angle moth
- discovering new flowers (for me) such as Great Burnet and Grass of Parnassus
- Devil's bit Scabious at Dunhog Moss alive with butterflies, bees and hoverflies.

Some of these may seem commonplace events to those more expert and experienced than myself but it has been a privilege for me to 'be there'...and on some occasions sharing 'being there'.

You may be wondering when any recording is done! My personal method of 'recording' is mainly by producing a photographic journal for each calendar year of my observations with a copy located in the hide at Hare Moss. This is part of my 'mission' to introduce visitors to what you can really see if you take the time to look...even if you don't know what it is...to spark that curiosity. It has been a real pleasure for me to take groups of all ages and abilities round with regular stops to point out things. To

hear someone other than myself quietly mouth "WOW!" is really rewarding.

As well as the photographic journal I have attempted to illustrate my experiences with lino print and watercolour images. Interestingly, doing this not only makes you observe even more closely but also provides the opportunity to try and express the mind's eye impressions of the subjects.

The last 6 years of fairly intensive observation have made these two SWT sites my current 'favourite patches'. As far as proper recording is done, don't worry, there are others doing great work on that



Bullfinch by Alison Smith

front. Most recently recording has been undertaken on flowers, grasses, moths, butterflies, birds, fungi. Always more to be done! I am still learning...and hopefully encouraging others to do the same!

*SWT Reserve Convenor Hare Moss and Dunhog Moss, Scottish Borders*

In 2020, a habitat suitability map was created for the species using presence records from between 2005 and 2018 obtained from the British Dragonfly Society through the United Kingdom's National Biodiversity Network.



The Field Kit

Last year, MRes student, Lottie Middleton, used this habitat suitability map to quantify how habitat is thought to facilitate and restrict movement between known breeding sites. Her dispersal resistance maps suggested that there are three management units for White-faced darter in Scotland: The Cairngorms, Glen Affric and the Black Isle, and Loch Maree.

Our goal now is to carry out fieldwork at a range of these breeding sites to assess connectivity/isolation between sites in terms of gene flow i.e., dispersal that has resulted in successful mating and production of offspring. By comparing the landscape ecology data and the population genetic data, we will get a clear idea of how best to promote connectivity or mainte-

nance of genetic uniqueness, as appropriate, for the White-faced darter in Scotland.

As with most things, sampling progress has been hindered by the rise of COVID-19 and our 2020 fieldtrip had to be cancelled. Thankfully, willing and experienced local dragonfly recorders were able to step into the breach and Jonathan Willet, Jeanette Hall, David O'Brien, Colin Hall, and Katie O'Brien dutifully set off with pond nets in hand in search of dragonfly larvae. I am told there were ant attacks and bog falls but ultimately they were successful at collecting samples from three sites in Glen Affric and the Black Isle. Tissue samples were taken as single middle legs from larvae, a non-lethal sampling technique that has been used by many previous dragonfly genetic studies, as research has shown that loss of a single leg has no effect upon fitness and survival of the individual. Larvae are also able to regrow their lost leg if collected prior to the final instar stage of development.

This year, we are expanding the study by collecting samples from the Cairngorms and the Loch Maree area, as well as from a further two sites in the Black Isle and Glen Affric. I was lucky enough to be able to do some of the fieldwork myself this summer and I spent a glorious, sunny week in the Cairngorms sifting through Sphagnum moss in some of the most beautiful forests I've ever seen. Other than the mandatory tick bite, I managed to get away without fieldwork mishaps.

The next step is to carry out DNA extraction, amplification of genetic markers, and assessment of genetic diversity within and between sites. The outputs of this research will be identification of management units and GCUs (Gene Conservation Units) for White-faced darter in Scotland, which can be used to identify key areas for the species

and to provide information as to where and how best to increase connectivity between breeding sites.

Thanks to Glasgow Natural History Society and the Genetics Society for providing the funding to support this work. Thanks also to the landowners for providing access to the WFD breeding sites: Forestry and Land Scotland, RSPB, Letterewe Estate, Kinlochewe Estate, Culligran Estate, Wildland Scotland, and Anagach Forest Trust. Finally, huge thanks to the collaborators on this project: Jonathan Willet, Jeanette Hall, David O'Brien, Colin Hall, Katie O'Brien, Pat Batty, Lottie Middleton, and Daniele Muir.

If you would like any further information about the project please feel free to contact me at [A.Muir@Chester.ac.uk](mailto:A.Muir@Chester.ac.uk).

### COPY DEADLINE

**16<sup>th</sup> September 2021**

Articles, recording news, book reviews, stories of favourite places or species are all welcome. Please send copy in Word or Open Office format. Photos are welcomed but best as jpeg files and less than 800kb in size. If larger send them via wettransfer or similar. Please do not embed photos in your text as it sometimes can be hard to extract them!

Please send by email to the editor:  
[saraheno@riseup.net](mailto:saraheno@riseup.net)

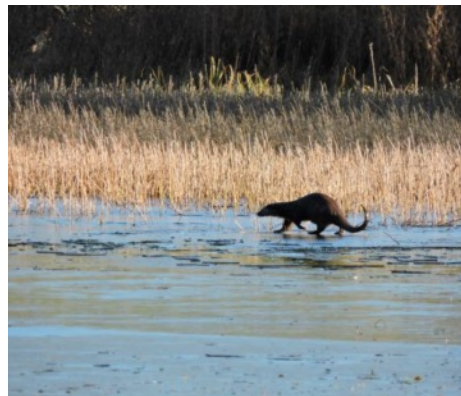
### My favourite patch... or should that be patches?

**Alison Smith**

I've had a few outdoor 'favourite patches' in my life...childhood ones in Deeside Aberdeenshire...working life ones in East Lothian...and now retirement ones in the Scottish Borders.

Retirement has, rather surprisingly, led to me becoming Reserve Convenor for the two small Scottish Wildlife Trust (SWT) Reserves just south of Selkirk...Hare Moss and Dunhog Moss. "How did that happen?" I have asked myself this on numerous occasions having spent my adult working life as an architect, albeit with a lifelong interest in and a basic knowledge of the natural world. This was accrued initially from my parents and then developed as limited time allowed.

Hare Moss Reserve consists of a small lochan with areas of surrounding previously planted conifers having been felled and continuing to be felled to increase the amount of semi-natural habitat. Dunhog Moss Reserve is an upland basin fen with SSSI status where areas of recent conifer



Otter (*Lutra lutra*) walking on ice!

tree felling have been re-planted with more appropriate deciduous species with the same aim. Water from Dunhog Moss drains via a sluice down a channel into Hare Moss.

I have to admit that I was concerned about my lack of specialist environmental background when I took over as Reserve Convenor for Hare Moss and Dunhog Moss but was determined to improve my knowledge. I decided that rather than specialise in a particular field I needed to discover 'a little about a lot'. Both these small reserves and, indeed, the non-reserve status field between them have provided me with more 'little about a lot' than I could have dreamed of! This came about through the simple expedient of slowing down and not just stopping and looking, but stopping... looking...and SEEING.



Large Red damselfly (*Pyrrhosoma nymphula*)

Acquiring a bridge camera that allowed zoom to macro settings for use when on site, rather than our SLR with interchangeable lenses, has allowed me to take instant images of things large and small...and tiny. This allows me to record what I am finding and to then check out identification later if I need to by whatever means works best. Apologies here to very patient friends and colleagues who are far more knowledgeable than me!!



Antler moth (*Cerapteryx graminis*) with a latin name like that - grasses are its food plant, though it can often be seen on thistles like here.

My ever expanding knowledge at the sites includes birds...trees...flowers...insects (this has become a favourite!)... grasses... sedges...lichens...fungi...small mammals... larger mammals. If asked what my 'favourite moments' have been at my 'favourite patches' I would have to include these:

- the Otter that walked across the Hare Moss lochan when it was iced over
- the Large Red Damselfly image that later revealed water mite eggs on its thorax
- finding my first Orange Tip butterfly eggs on the Cuckoo Flowers and watching them develop into caterpillars
- the Common Hawker Dragonflies mating on the log that I was sitting on
- the Sabre Wasp spotted by a friend laying its eggs though the bark into the dead tree stump
- the Spotted Flycatcher eggs in the nest box hatching when we thought they had been abandoned
- the large number of Antler Moths that suddenly appeared one year on the thistles in the field