

# Long Term Monitoring Network Newsletter

4<sup>th</sup> edition, April 2020

What's inside?

- Updates on the 2019 and 2020 surveys
- Golden Feno awards
- Data analysis
- Staff changes

## LTMN 2020

This year we were hoping to survey Old Winchester Hill and Ainsdale in June. In light of Covid-19 we have sadly decided to cancel those surveys. We will decide at the end of April whether the surveys of Derbyshire Dales (July) and Fenns, Whixall and Bettisfield Mosses (August) can go ahead.

## LTMN 2019 Survey Season

2019 was the tenth year of LTMN! We carried out nine vegetation surveys, bringing the grand total to 80 surveys. Eight sites have now had three visits.

At Braunton Burrows the survey teams spent the week trekking across the impressive sand dunes whilst the Earth Observation team flew a drone to capture aerials. Our 10<sup>th</sup> anniversary involved one of Rob Keane's famous quizzes at a beach café, with Golden Feno awards for 'Old Timer LTMNers'.

For May Moss in the North Yorkshire Moors, we surveyed blanket bog and heath beside the enormous pyramidal radar at RAF Fylingdales. However, our eyes were focused downwards on the varied *Sphagnum*s, and other flora.

Ennerdale & Scoat Fell in Cumbria must be one of our toughest sites. It was a steep, 3 hour walk to the top, where the plots were located amongst beautiful montane habitats.

At Bure Marshes in the Norfolk Broads we trod our way carefully over the 'hover', looking out for swallowtails on milk parsley, and through the tangled wet woodland. It felt like luxury to be working from the adjacent NNR base, with the support of Rick Southwood and his team.

North Solent, Martin Down, Thursley, Woodwalton Fen and Cross Fell were surveyed by contractors. Soil sampling was carried out by Dr. Matt Shepherd, NNR staff and volunteers at North Solent, Derbyshire Dales, Dersingham Bog and Bure Marshes.



## WHAT IS LTMN?

The Long Term Monitoring Network is the daughter project of the Environmental Change Network, which aims to track long-term environmental change across a range of habitats, as well as the possible drivers of change.

We record vegetation, birds, butterflies, soils, climate, air pollution and land management through regular surveys and on-site monitoring.

There are 37 sites representing 10 target habitats across England. Some of them have been monitored since 1992.

Data is available through Natural England's Access to Evidence Catalogue.

Long-term data like this is key to tracking the impacts of things like climate breakdown on our environment.



## Golden Feno Winners - Exclusive!

As part of our ten-year celebrations, we awarded golden feno markers to three of our long-suffering helpers – Dan Pedley, John Creedy and John Martin. Here's what Dan and John C. had to say.

L to R: Rob Keane, John Creedy, Dan Pedley, Victoria Benstead-Hume



### Dan Pedley

I ran out of fingers and toes to count the surveys I've been on: twenty-one. I've camped on at least ten of these surveys, just to add an extra layer of fun to proceedings.

Ainsdale stands out as a favourite site as it is local and the NNR staff put on a great mini-festival (well, a band, campfire and BBQ) during the previous survey. A non-coastal site I particularly like is Malham Tarn, which has a stunning limestone landscape and diverse botany, plus it was where I did my first LTMN survey in 2013.

My Golden Feno marker spends most of its time in a high-security vault in Switzerland, as you might expect. Though at the moment it's placed in front of me on my desk, to remind me of those halcyon days of surveys past... moments such as trying to identify a sad-looking bit of grass in the driving rain, the umbrella sheltering the survey form recorder sluicing water directly onto my head, with the 'Bandit' chuntering away merrily on the radio in the background. Happy days.

Always take more layers than you think you'll need. Always tuck your trousers into your socks. And if you borrow my hand-lens, try not to leave it hanging from a tree in the middle of Ainsdale (naming no names)! It's still there I think – maybe we'll find it this year.

#### Dan's Top Survey Tips

Everyone should consider going on a LTMN survey. In addition to all the fun you'll have, you'll be contributing to very important monitoring work whilst meeting people from around and outside the organisation and helping to upskill yourself and others in the process. You'll also reconnect with the reason why we do what we do and have a much-needed break from the day job, but then be able to take skills, ideas and contacts back into those roles.

## John Creedy

I did my first ever quadrat in 1970 (I was only a schoolboy at the time) so 2020 will be a golden anniversary of surveying for me.

One of my favourite LTMN memories is lazing around on the cliffs above Kynance Cove on a sunny June day – apologies, I mean working very hard – with seals lolling in the turquoise sea below and choughs flying overhead. And finding a very large cowpat in the middle of the quadrat.

Cross Fell was also stunning: a super site on the roof of the Pennines in perfect weather with views of most of northern England and a chunk of Scotland as well.

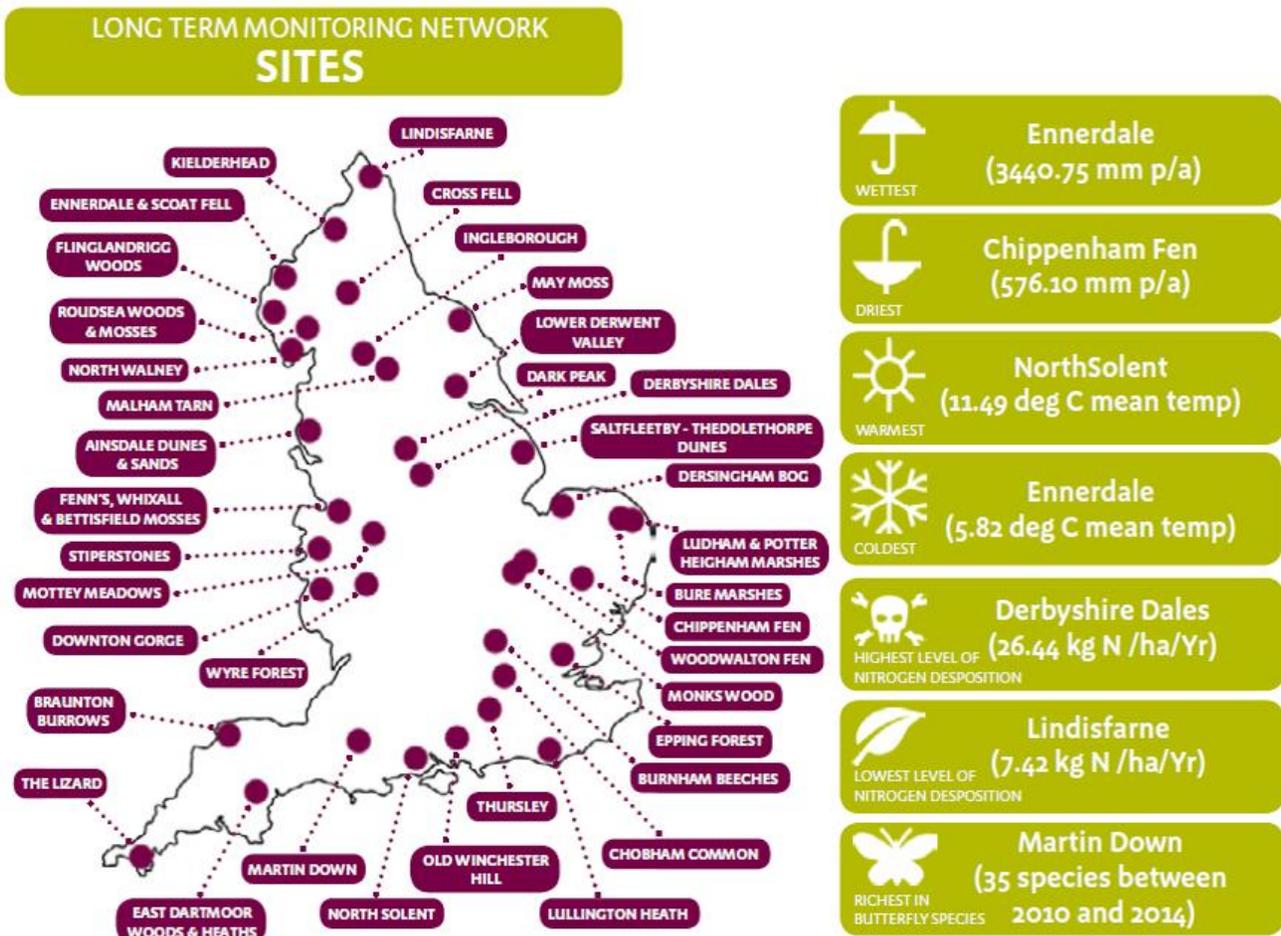
The way the survey's done means you have to look very hard at a small plot, and

it's very rewarding when things you wouldn't normally notice reveal themselves. At Ingleborough there is a tiny orchid called the lesser twayblade that grows in heather but can be nearly invisible unless you look hard: I was lucky enough to be there at the right time of year, and suddenly I realised that it was growing all around me.

Several. Keep practising your skills, get your own hand lens, find yourself a mentor and beware of ants!

### John's Top Survey Tips

Ending up in A&E after an ant crawled into my eye has to be one of the low points of LTMN! And the many times in our English summers when it has been too wet and cold to continue.



## SPOTLIGHT ON A SITE – ENNERDALE

Sitting on the flanks of Ennerdale and Scoat Fell, this LTMN site contains some of the most important montane heath in West Cumbria. To the north, it overlooks the remote and beautiful valley, with its glacial lake of Ennerdale Water. The north-facing slopes, where most of the survey plots are found, is part of the Pillar and Ennerdale Fells SSSI, which is also a Special Area of Conservation.

Bilberry and grasses proliferate, with heathers on the shallow acid slopes and mosses on the summits. Where calcareous flushes rise to the surface, there are bright swards of alpine lady's-mantle *Alchemilla alpina*, and wild thyme *Thymus praecox* spp. *Arcticum*. Rare species on the site include *Salix herbacea*, and two lichens *Cetraria islandica*, and *Cladonia arbuscula*; as well as oceanic bryophytes.

The Ennerdale and Scoat Fell site has been part of the Long Term Monitoring Network since 2015, though weather data has been collected since 2011. 2019 saw the second vegetation and soil survey. The survey team stayed in the Ennerdale YHA in the valley, and each day climbed Ennerdale Fell with all the survey equipment – a distance of several miles, and an ascent of over 700m. Much of the survey was done under shifting curtains of mist and rain, but in the evenings, on the descent, the cloud often parted to give breath-taking views over the lake.

Montane habitats like Ennerdale are sensitive to climate change, as alpine species are forced uphill into smaller and smaller areas. This makes data such as that collected by LTMN particularly important for profiling change, and informing our response to it.

## WILD ENNERDALE PARTNERSHIP

The Wild Ennerdale Partnership is one of the UK's largest and longest-running wildland projects. The partnership between Natural England, the Forestry Commission, the National Trust and United Utilities formed in 1993 to promote restoration through natural processes.

Management of the lake, wood and montane heath has included rewetting of former mires, and the replacement of conifer plantations with open native broadleaved woodland. Low density Galloway cattle grazing has replaced intensive sheep grazing.

The project has benefitted populations of the rare migratory Arctic Char, freshwater mussels, otters and red squirrels. The Marsh Fritillary was reintroduced in 2007 and there are plans to reintroduce pine martens to the woodlands.

Photo: Wild Ennerdale

## What are we doing with the data?

Behind the scenes, the LTMN data gets checked before being published as [Open Data](#). We are soon to re-publish all 80 vegetation surveys after a busy winter reviewing the data.

Further to publication of [Taking the Long View](#), we are discussing next steps for data analysis and how to present results for LTMN sites to the wider organisation and partners. We are developing a Data Analysis Framework, which categorises the many questions – both broad and narrow - and the LTMN data available that can be used to answer these. A wider picture of Natural England's monitoring can be read in the recent [Chief Scientist's Report](#).

Recently, the Centre for Ecology & Hydrology (CEH) have been crunching our vegetation data alongside other long-term datasets (e.g. Environmental Change Network data and National Plant Monitoring Scheme). The aim of this 'Integrated Vegetation Assessment' project is to answer the questions: **'to what extent can change in vegetation across the UK be attributed to changes in air pollution and climate'** and **'what, if any combination of pooled datasets, provides most clarity with respect to understanding effects of regional drivers of vegetation?'** At a recent workshop in Lancaster, we discussed progress on comparing trends across the schemes and working towards a trend attribution model.

Exciting news! Manchester Metropolitan University are setting up a new Masters course on monitoring environmental change which will include a module based around our Long Term Monitoring Network. This is a great opportunity, hopefully resulting in more projects and dissertations using our data.



Photo: Vashti Gwynn



### Inspiring Original Research: Blanket Bog Vegetation Responses to Nitrogen

Morgan Smith took up one of our student placements from 2017-2018 and assisted with the coordination of the 2017 LTMN vegetation surveys, and with the quality assurance, analysis, and data input of past vegetation surveys.

His dissertation **'Responses of Vegetation and Vegetation Communities to Nitrogen Deposition in a UK Lowland Blanket Bog'** used LTMN vegetation data collected at the Fens Whixall & Bettisfield Mosses site. He recently sent us a recorded presentation summarising the findings.

Photo: Morgan Smith

His research demonstrates the complexity of the relationships between bog vegetation and nitrogen inputs, but indicates some significant success from restoration efforts at the Fens Whixall & Bettisfield Mosses site, and shows how valuable the LTMN data can be for environmental research. A copy of Morgan's presentation is available on request.



Left to Right: Vashti Gwynn, Bethany Thompson, Barry Smith (Ainsdale NNR) Dan Pedley, Wendy Holland, Peter Gahan (Ainsdale NNR), Sarah Grinsted. Photo: Sarah Grinsted

## Meet the Team

### Ruth Oatway

I'm really excited to be starting a new role as Project Manager for the Long Term Monitoring Network. I've worked for Natural England and its predecessor, the Rural Development Service, since 2003. For much of that time I've worked in the Northumbria Area Team, but in recent years I've worked in Evidence Services on Agri-Environment Monitoring and Evaluation. I've previously volunteered on three of the LTMN surveys and it's always been the highlight of my year. I think it's incredibly valuable to be gathering long-term, high-quality datasets that have so much potential for use within and outside of Natural England, so I jumped at the opportunity to get involved. Improving the analysis and use of the data from LTMN will be a key part of my new role.

### Dan Pedley

Dan joins our team from the National Coast Path Assessment Unit and, as is clear from his Golden Feno Marker Award he brings a wealth of experience! He will be taking a lead on our protocols for Air Quality Monitoring and Automatic Weather Station data collection. He's hoping to lead this year's in-house vegetation survey at Fenns, Whixall & Bettisfield Mosses.

*Each year we recruit students from Manchester Metropolitan University to help us with our work. This year we offered two student placements to Vashti Gwynn and Bethany Thompson.*

### Bethany Thompson

After studying Ecology and Conservation for two years at Manchester Metropolitan University I am now undertaking just under a year's placement with Natural England's Long Term Monitoring Network. My role has involved support on the 2019 in-house vegetation surveys including collating and preparing data for publication from Braunton Burrows and May Moss surveys.

Recently I have been working on air quality and vegetation data to get this ready for publication. I have thoroughly enjoyed working on LTMN, met some amazing people and greatly improved my botany skills along the way! I am sure this placement will benefit me greatly upon my return to university and further career. Thank you LTMN!

## Vashli Gwynn

Like Bethany, my work on LTMN forms my placement year towards my BSc in Ecology and Conservation at MMU. Starting in June 2019, I was straight into survey season, and it's amazing how fast tiny green things resolve themselves into identifiable species when you spend the day face-down in a quadrat. Once the surveys wrapped, I started work on collating the data, as well as reformatting and quality-assuring

datasets from previous years. More recently, I've been working on LTMN's extensive (and fragmented) climate data, stretching back to 1960 – quite a challenge to collate! I've learned a vast amount about botany, survey procedure, and data management (and more about Excel than I ever thought there was to know...). I know it's going to be invaluable, and I'll hopefully be back on some of the 2020 surveys – as a civilian this time!

## Goodbye to Rob

Rob has been the 'face of LTMN' almost from the beginning! He was a main player in setting up the sites, the seven monitoring protocols and running the various surveys. His larger-than-life, generous personality and dynamic ways have brought the project to life and inspired many others to get involved – colleagues, surveyors and students alike.

Rob initiated the Space to Eye Lens project, using earth observation techniques to assess bog quality, and is now moving fully into the Earth Observation Service team, where he'll be focussing on the Living England project and integrating earth observation for the uplands, linked to the Defra & NE Peat Pilots.

For the rest of us in the LTMN team, we are wondering quite how we'll manage – but know that he's not far away and won't be able to resist delving back into the project now and again.



Photo: Sarah Grinsted



Photo: Sarah Grinsted

## High Accuracy GPS

Natural England have recently purchased some new kit in collaboration with the Earth Observation team. This equipment will allow us to record the location of our LTMN plots with an accuracy of 1cm! The new equipment is much more lightweight than previous machines and is incredibly user-friendly. We hope to pinpoint the location of all of our plots in due course to ensure that they can be easily found for each survey. The GPS devices have already been put to good use in relocating fenomarkers at five sites with high levels of success.

## Maxemail Service

We are trialling a new email provider to keep volunteers up to date. This will allow us to maintain our contact database, whilst remaining GDPR compliant as well as create more visually appealing emails. Once ready, we will circulate sign-up details so you can stay up to date with LTMN and upcoming surveys.