LONG TERM MONITORING NETWORK: NEWSLETTER

Welcome to the 2nd edition of the Long Term Monitoring Network Newsletter!
This newsletter aims to keep all of our volunteers updated on what we are doing within the network, including updates on all of the protocols, innovation and planning for this year's vegetation surveys.

LTMN 2018 - what's the plan?

The Long Term Monitoring Network has a very exciting 2018 lined up. From vegetation and soil surveys to earth observation we are, like always, continuing to innovate and develop ideas as well as moving forward with the key principles of the project.

LTMN vegetation 2018

This year we have 4 vegetation surveys which you can volunteer to attend:

- **Lower Derwent Valley NNR : 18th – 21st June**
- **Malham Tarn NNR : 9th – 12th July**
- **Stiperstones NNR : 23rd – 26th July**
- **Lullington Heath NNR : 6th – 9th August**

Come rain or shine our volunteers have surveyed over 2112 plots and have contributed to the Long Term Monitoring Network. These surveys allow you to:

- Learn new skills and build up your species ID skills from experts.
- Meet new people from NE, partner organisations and external volunteers who all have the same interest as you.

Everyone taking part will receive a brief introduction or refresher training appropriate to their skill levels. The real training happens in the field. You will spend two or three days in a mixed ability group surveying permanent quadrats, identifying every plant you find.

If you are interested in taking part in any of the surveys then please send an email to the LTMN mailbox: LTMN@naturalengland.org.uk.

LTMN soil surveys 2018

Once again we will be going out to do soil surveys and this year we will be visiting:

- **Lullington Heath NNR**
- **Ingleborough NNR**
- **Thursley NNR**
- **Martin Down NNR**

Innovation

The LTMN team will be continuing to innovate during the year testing some new apps developed in house and continuing with our Earth Observation projects.

Open data

This April we will be publishing a number of datasets including:

- **Vegetation datasets 2016.**
- **Soil data 2016.**

New members of the LTMN Team:

Sarah Grinsted- Evidence Lead Adviser

Sarah has recently joined the LTMN Team and will be organising the Stiperstones NNR and Lullington Heath NNR vegetation surveys.

Sarah Cross – Evidence Lead Adviser

Sarah joined our team last year and organised vegetation survey at The Lizard NNR. This year she will be helping our soils specialist Matthew Shepard to organise the LTMN soil survey season.

Huw Buckley- Evidence Adviser

Huw has recently joined the team and will be supporting Kathryn and Sarah to organise the LTMN vegetation surveys this year.

The LTMN Steering Group- who are we?

The LTMN project has a core steering group which oversee and advise on the work that we do on the project. This includes Andy, John, Rob, Kathryn and Morgan from the last edition but we also have….

Sarah Escott – Manager of NE's Evidence Services team

Sarah is a manager in Evidence Services and was responsible for the design and securing senior NE support for the LTMN network. She attends the steering group to provide a steer on future direction of LTMN and enjoys getting involved in at least one survey per year (keeping her ID skills up-to-scratch).

Mike Morecroft- Principle Specialist- Climate Change

I'm Principal Specialist for Climate Change; as such I need to know what's changing in the natural environment and why. I've worked on monitoring myself, particularly the Environmental Change Network, when I worked at the Centre for Ecology and Hydrology and I led the project which developed the original blueprint for LTMN. My role on the steering group is providing advice on the science, both in terms of the design of the network and outputs from it.

Matthew Shepherd- Senior Specialist- Soils

My role is to develop and deliver the LTMN soils monitoring programme, and coordinate this with the rest of the LTMN and external initiatives. It involves setting up and managing soil analysis contracts, organising and delivering fieldwork, and collating and reporting on the results for soils.

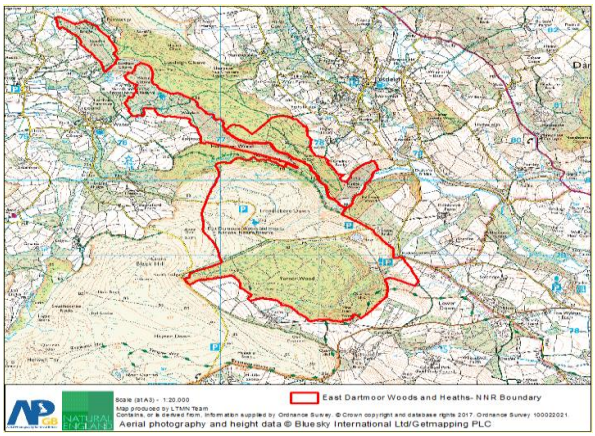
Sarah Wilson – Team leader in NE Evidence Programme

Most (but not all) the NE staff who deliver the Long Term Monitoring Network are in my team. My contribution to the Steering Group is around staff resourcing – ensuring that we have the staff time and expertise to deliver the network's priorities. I also have team members working on many other projects within our Evidence Programme so I am able to share ideas and best practice from other projects with the network.

Spotlight on our LTMN NNRs: East Dartmoor Woods and Heaths NNR

East Dartmoor Woods and Heaths NNR contains Yarner Wood which in 1952 was England's first NNR. The reserve includes The Bovey Valley, Trendlebere Down and Yarner Wood covering a range of habitats which include broadleaved mixed woodland, heathland and mires. East Dartmoor NNR was one of the first sites to be added to the LTMN network in 2009 but what makes East Dartmoor Woods and Heaths NNR such a special site for long term data evidence? East Dartmoor NNR Reserve Manager Albert Knott explains…..

Yarner Wood from the outset has been seen as an open air laboratory. From the early 1950s, data has been collected here improving our understanding of the wildlife features it contains and the factors which affect them. Most of this has been done by, or organised by reserve staff over time, as they realise how long term data can inform management. Climate data has been collected on site since 1964 mainly by hand, now automatically. Likewise vegetation data has been collected, since the late 1950's and others since the early eighties and some of our LTMN plots were put in the same areas to extend this monitored data into the future. Bird nest box data also existed from 1950s and the BBS transect builds on this by gathering data on the breeding bird assemblage for which the site is special. Yarner Wood soils have also been surveyed in the past and they have a whole series named after them, the surveys today collect the properties and record the biology found in them. Butterflies have been recorded on site since the early seventies and the site is used as an air quality monitoring station since 1987.



Map 1: East Dartmoor Woods and Heaths NNR

Trendlebere Down is a recent (declared in 1998) part of the reserve and contains a more dynamic lowland heathland community that contrast with the more stable Atlantic western oak wood that that make up component parts of the South Dartmoor Woods SAC.

This extensive dataset can be found on our LTMN East Dartmoor Woods & Heaths NNR data pages which we are currently updating with all the data mentioned.

The NNR is of huge importance and can significantly help us to understand what is effecting the natural environment. Not only does it already hold time series data for a large number of our protocols, it has also been the interest of many other studies which can feed in to this project including a long running study on pied flycatchers. It is sites like East Dartmoor that have a continuous presences in the research community that will allow us to understand the reasons for the changes in the natural environment.

Figure 1:pied flycatcher © Mark Taylor

The Hole Truth

As the summer's vegetation monitoring activity across the Long Term Monitoring Network sites comes to an end a few people are just getting ready to start.

A big white van is loaded up with a curious selection of field equipment: clingfilm; ziplock bags; hundreds of plastic tubes and gardening gloves; ranging poles and bundles of bamboo flags; pruning saws; mallets; wooden blocks; kitchen knives; folding rulers; secateurs; scissors; tape measures and 50 m surveyor's reels. All this activity heralds the start of the soil monitoring fieldwork season. We're off to poke holes in National Nature Reserves!

In contrast to the vegetation monitoring, the soils work looks at only 20 plots over 4 sites each year. However, each of these plots gets a very thorough assessment, with each plot taking two or three people half a day or more to complete. The fieldwork is delivered by Natural England's Senior Soil Specialist Matthew Shepherd with an ever changing troupe of volunteers and staff from across the country.

So far 71 people have enjoyed an unusual if challenging experience. Fieldwork always involves discussion, learning about the soils and a deeper exploration of how each ecosystem functions. Despite the difficulties of soil sampling, the procedure we've developed has been successfully used in habitats ranging from sand dunes to swamps and mountain tops to meadows. The results from the baseline are now complete and we are revisiting the sites to explore the changes.

If you'd like to experience all this, why not volunteer for this year's LTMN soils fieldwork which runs 15 September to 15 October? We'll be revisiting the relatively civilised environments of Martin Down and Thursley Common, the fairly prickly Lullington Heath and the wild and challenging Ingleborough. We might not be able to guarantee comfort and ease, but we can certainly promise a memorable experience, an unusual day out and a hole lot of fun!

To register your interest email LTMN@naturalengland.org.uk

LTMN Protocols: Air Quality and weather

Why are the protocols important?

We monitor the weather to understand how climate change is influencing biodiversity such as birds and butterflies. On each site we either have a weather station or we use Met Office representative data from a site close by. We record the weather at each of our sites by using Automatic Weather Stations (AWS). The AWS records wind speed and direction, rainfall, air temperature, relative humidity, ground temperature and solar radiation. Measuring all of these variables will help us to understand what effect the weather is having on our ecosystems and how this changes across the country. For example, we can investigate the effect of predicted heavy rainfall or drought conditions on plant communities. We have been working in partnership with the Met Office who manage the network of AWS that we use.

The air quality protocol allows the network to monitor atmospheric ammonia and precipitation chemistry. This information will allow us to understand nitrogen deposition and track the flow from the atmosphere to soil and how that influences plant and soil communities. We are working in partnership with the UK Eutrophying and Acidifying Pollutants network (UKEAP) where we have recently added 17 of our LTMN sites contributing to modelling of nitrogen critical loads across the UK.

Working in partnership with other organisations allows us to collect highly accurate, reliable data in a cost effective way.

Links to where the data can be found for both of these protocols can be found on the individual protocol pages on the Access to Evidence Catalogue LTMN pages.

More information

LTMN report: "Taking the long view - an introduction to Natural England's long term monitoring network 2009 - 2016" This is a brilliant summary of the network and protocols.

For any LTMN queries please contact the LTMN mailbox: LTMN@naturalengland.org.uk