

LONG TERM MONITORING NETWORK: NEWSLETTER

Welcome to the 3rd 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 next year's vegetation surveys.



LTMN Survey Season 2018.

Vegetation surveys: As always this year we surveyed four of our LTMN sites in-house. These surveys are a brilliant way to get outside, develop your knowledge of the site and habitats, and learn to identify some plants from our fantastic roaming experts. This year we ran surveys at:

Lower Derwent Valley NNR – target habitat neutral grassland

Malham Tarn NNR – target habitat upland blanket bog

Stiperstones NNR - target habitat heathland

Lullington Heath NNR - target habitat calcareous grassland

Due to our incredible volunteers and LTMN site managers, we have had a fantastic survey season. 142 volunteers took part including NE staff, partners and NNR volunteers, all of whom dedicated their time to help us complete the surveys in very hot and dry conditions (apart from the last day at Lullington Heath!).

We can't thank our volunteers enough - this would not have been achieved without you!

Dave Stone, Deputy Chief Scientist, said: *It was really nice to meet you all. In my role it is nice to be reminded of the realities on the ground which is one of the things I enjoy about going on LTMN. I had a great week: good botany, nice site and good company (almost sounds like a holiday!).*

So what happens now? The data that has been collected will now be collated by our LTMN team, quality checked by our NE staff and

roaming experts, and then published on our [Access to Evidence Catalogue](#).



We also let contracts for vegetation surveys at nine sites, which will be reporting in November: **Chippenham Fen, Dark Peak, Dersingham Bog, Epping Forest, Ingleborough, Kielderhead, Ludham & Potter Heigham Marshes, Roudsea Woods & Mosses, and Motte Meadows.**

Soils surveys: This September our soils team travelled the country collecting soil samples at the following sites :

Lullington Heath NNR, Ingleborough NNR, Thursley NNR, Martin Down NNR

Please see our soils fact later in the newsletter!



At Lullington Heath we used high accuracy gps to mark the precise location of all the monitoring plots - which overcomes a problem of lost feno markers here.

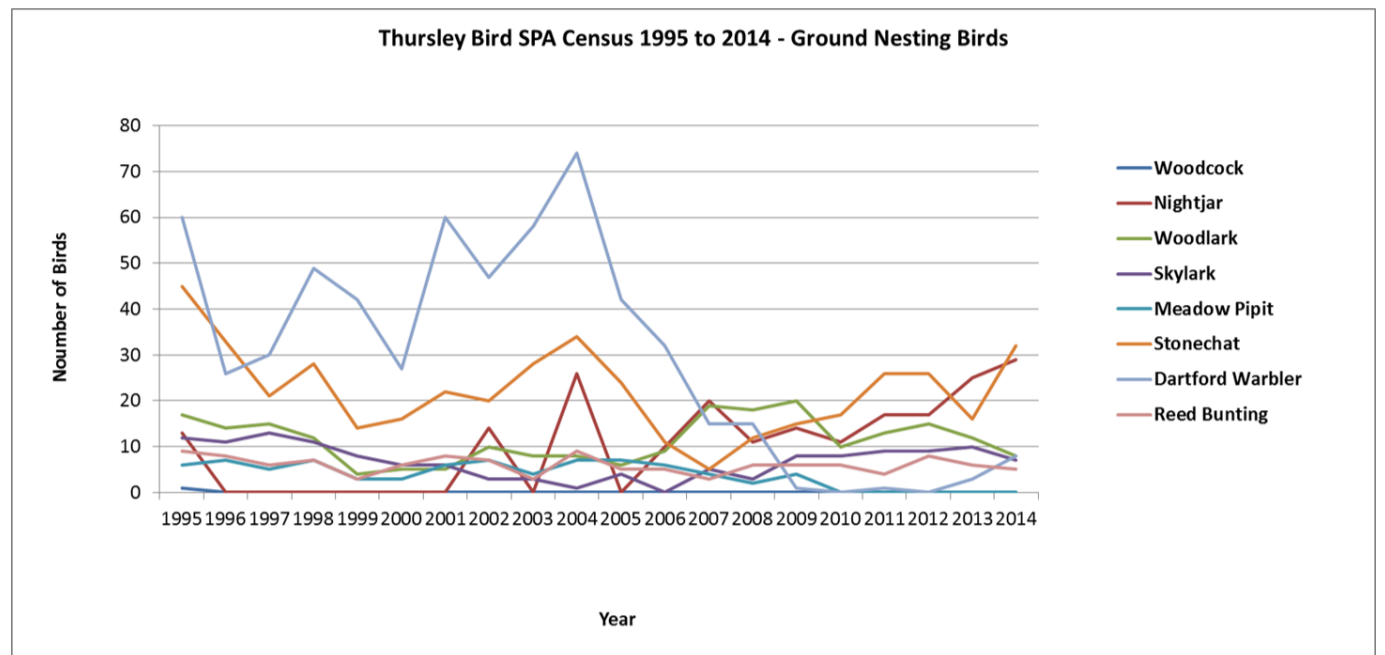


LTMN protocols: Birds and Butterflies

Within the Long Term Monitoring Network we monitor both drivers of change i.e. weather, air quality and site management, and indicators of change i.e. vegetation, soils, birds and butterflies. Currently nearly two thirds of our LTMN sites are being monitored for birds and butterflies, which is good coverage but if some of the other sites could take part too this would significantly strengthen LTMN's portfolio!

Why monitor birds?

Wild bird populations are an important indicator of the health of the countryside. Knowledge of the trends in bird populations is fundamental to the conservation of birds as well as an indicator of wider biodiversity. For example, by plotting data for ground-nesting birds at Thursley NNR, we can see that a fire that broke out in 2006 had a significant effect on some species particularly the Dartford Warbler.



The bird data is collected by NNR and LTMN recorders who follow the Breeding Bird Survey (BBS) methodology. This involves going out early in the morning (between 6 and 7am), three times (once to record habitat) over the spring/early summer season, and walking two 1-km transects within a square. All birds that are seen or heard are recorded - at species level, whilst distinguishing between song, call and visual is optional. Recorders are literally up with the lark whilst a lot of us are still snoozing!

Butterflies.

Butterflies are indicator species with rapid lifecycles and, in many cases, high sensitivity to environmental conditions.

The butterfly data is collected by recorders as part of the UK Butterfly Monitoring Scheme (UKBMS). This involves walking a fixed-route transect (1-2km in length) once a week - suitable weather allowing - during April to September. Butterfly species and numbers, and % sunshine, are recorded. To get a better idea of what's involved, you can read about Ron Moyes who volunteers at Ainsdale Sand Dunes NNR, in the LTMN report - [Taking the long view](#) (p.22). Ron presents an excellent case for the benefits, for wildlife and for him, of taking part in butterfly monitoring!



This has been a fantastic effort to date, with surveyors walking their patches, abiding by the method and using their identification skills, and gradually accumulating increasingly valuable and insightful records sets, over years or in many cases decades. At the LTMN end, we need to make progress with this data. We are intending an audit of the stage and format of data collection for each site; a data mobilisation and QA process, working with the British Trust for Ornithology, the UKBMS and CEH, and our own specialists; and finally to publish as Open Data.

We are also hoping to establish both these protocols on all 37 LTMN sites, if possible - with help from yourselves, the NNR managers and potential new volunteers.

Therefore, we will be seeking your help with these things soon!

Spotlight on Martin Down NNR

If you go to Martin Down National Nature Reserve, you are sure to be entranced by the savannah-like landscape, the ancient Bokerley Dyke and quality chalk grassland stretching for miles. The reserve is jointly managed by Natural England and Hampshire County Council.

Monitoring on the reserve includes following all seven LTMN protocols. Particular thanks are due to Graham Johnstone, Senior Reserve Manager currently on secondment, for helping pilot the Land Management Protocol here.



Soils are being monitored for changes in physical, chemical and biological characteristics - first in 2011 and again this year. Mike Fussell, Reserve Manager for Hampshire County Council, and Matt Shepherd, our Senior Specialist, are in the photo doing a soil profile description.

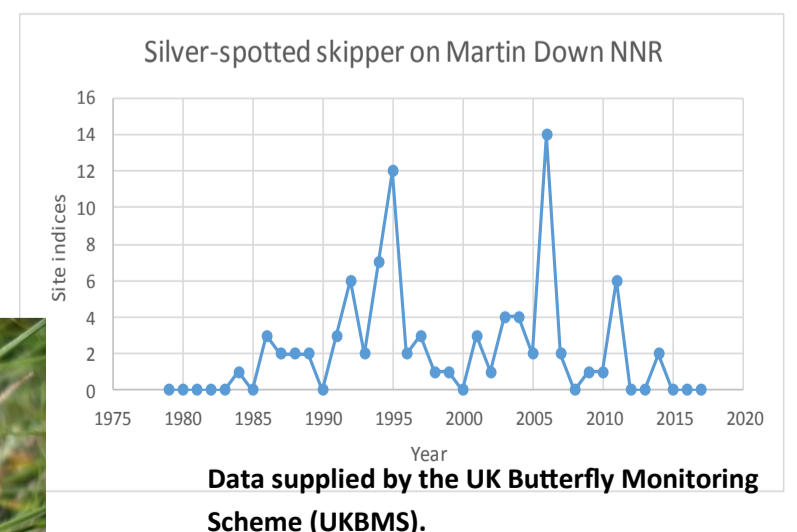
The LTMN **vegetation survey** started in 2010, setting up and surveying 50 no. 2m² plots, then repeating this in 2014. At the same time, the NNR staff had been running 55 no. 1m² plots set up between 1979-81 – and some of these were co-located within the newer LTMN plots. A report by Clive Bealey in March 2014 looked at the botanical variation and change across the plots. One of his observations was that the grassland communities appeared to have become more homogenized from ‘a number of calcareous and mesotrophic grassland types present in 1979, towards the general CG2 *Festuca ovina*-*Avenula pratensis* and CG3 *Bromopsis erecta* types’. He attributed this to lack of management and only localized grazing up until 1978, followed by more systematic sheep

grazing going forwards. The movement towards CG2b *Succisa pratensis* - *Leucanthemum vulgare* sub-community was characterized by increased frequency and cover of the nationally scarce Dwarf sedge *Carex humilis*, plus other characteristic species such as Chalk milkwort *Polygala calcarea* and Bastard toadflax *Thesium humifusum*.

More recently, some cattle and summer grazing are being introduced to reduce coarser grasses where these are dominant e.g. Upright brome (*Bromopsis erecta*) and Tor-grass (*Brachypodium pinnatum* agg.). The LTMN protocols will monitor change e.g. using ‘frequency abundance’ i.e. the proportion of cells within the vegetation survey plots in which these species were recorded; and correlate such change with the environmental variables being measured e.g. atmospheric nitrogen deposition, soil properties and grazing. This illustrates a key aim of LTMN – that the causes of change are correctly identified, given that organisms are responding to both climate change and air pollution, and distinguishing their effects is a major challenge (Morecroft 2006).

What about butterflies?

Under the UK Butterfly Monitoring Scheme (UKBMS), three transects are carried out and also species-specific transects for Marsh fritillary and Silver-spotted skipper. The recorders submit their transect records on-line and subsequently data or summaries can be requested from UKBMS@CEH.ac.uk. For example, the silver-spotted skipper has been recorded in low numbers over a 39-year period on Martin Down, and is assessed as ‘stable’ at the local and national scale.



Silver-spotted skipper
Photo: Marion Nesbitt

Soils fact:

Soil mesofauna comprise those animals just about visible to the naked eye e.g. mites, springtails, nematodes, tardigrades, insect larvae and more. They live in the top few centimetres of soil where the living is easy i.e. most of the soil resources are supplied and re-cycled.

Some of the LTMN soil samples have been analysed for soil mesofauna and the initial results were interesting and beg that this side of things is progressed. The total number of soil mesofauna animals and the number of broad taxa appeared to be relatively high on some of our NNRs, compared to the same habitats from the Countryside Surveys in 1998 and 2007.

Soil mesofauna communities and how these change over time, is a potentially revelatory area of work - and along with other soils data , could be used to help identify indicators of good soil health, which is part of Defra's 25 Year Environment Plan.

At the same time, soil DNA metabarcoding data is under development and is a rapid technique, so could transform what we know about soil life.

We would happily receive help with more soil sample analysis, as part of university projects! If you are approached by MSc or PhD students looking for soil or invertebrate-related projects, please speak to Dr. Matt Shepherd.

For further information see: [Long Term Monitoring Network: monitoring soils 2011 to 2016](#) (Natural England Evidence Information Note EIN024).

Latest recruit to the LTMN team:

Francesca Ferraro – Student Placement and part-time Support Adviser



Frankie joined us in June as a volunteer Student Placement from Manchester Metropolitan University and more recently, with NE staff changes, has been working for us as a part-time Support Adviser. She helped organise the vegetation surveys in the summer, is collating and QAing the survey data, and planning her dissertation.

Recently, we took part in a workshop to progress a Shared Nitrogen Action Plan at Fenn's, Whixall & Bettisfield Mosses NNR, as part of the Marches Mosses BogLIFE project. Long term monitoring data will be used to monitor nitrogen loads from agriculture and road traffic, and vegetation change, whilst local counter-measures are put in place.

Read more:

The LTMN report '[Taking the long view - an introduction to Natural England's long term monitoring network 2009 - 2016](#)' is an excellent summary of the network and protocols.

The LTMN data for vegetation and soils can be found on the individual protocol pages on the [Access to Evidence Catalogue LTMN pages](#).

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