



explore/engage/enjoy

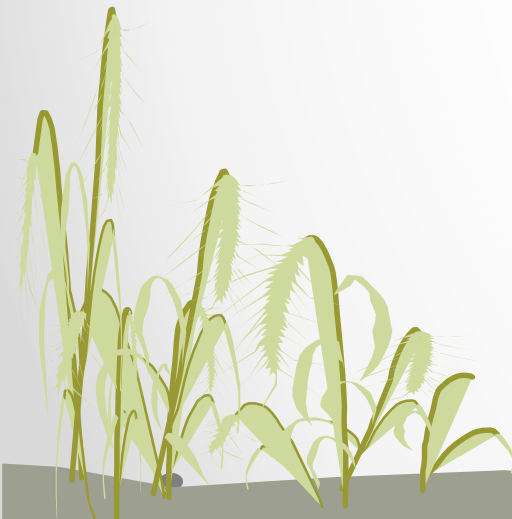


CEDaR
Centre for Environmental
Data and Recording



Centre for Environmental Data and Recording

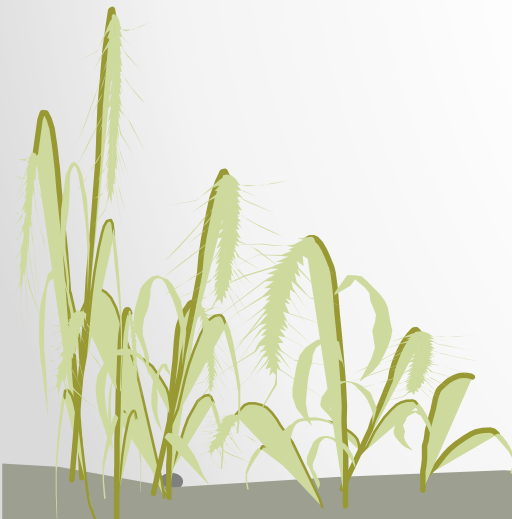
Pauline Campbell
CEDaR Database Officer



NPMS Partners



National Plant Monitoring Scheme



Purpose of NPMS

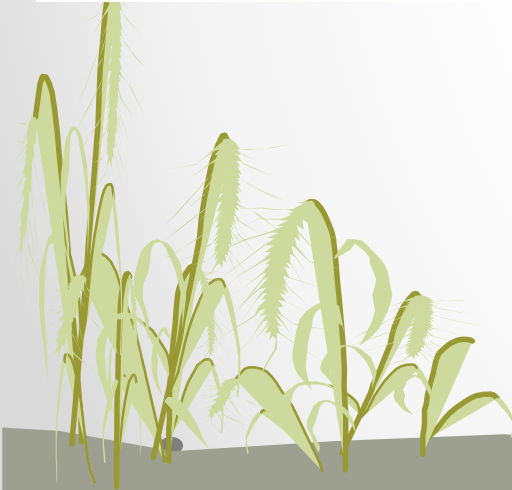
- Not to be confused with NBDC's Plant Monitoring Scheme. NPMS covers **GB and Northern Ireland**.
- The National Plant Monitoring Scheme (NPMS) is a new **long term monitoring** scheme designed to collect data to provide an annual indication of **changes in habitats** by looking at **plant abundance and diversity**.
- Launched **2015**
- NPMS is a **citizen science based project**



How the scheme operates

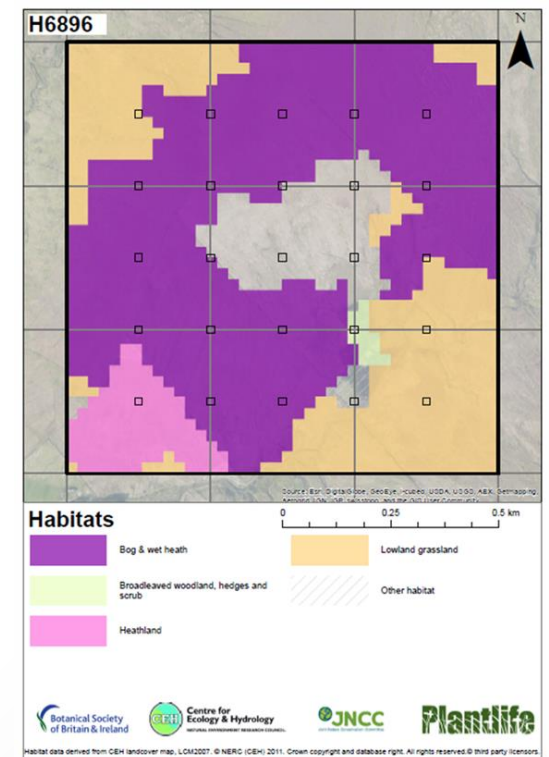
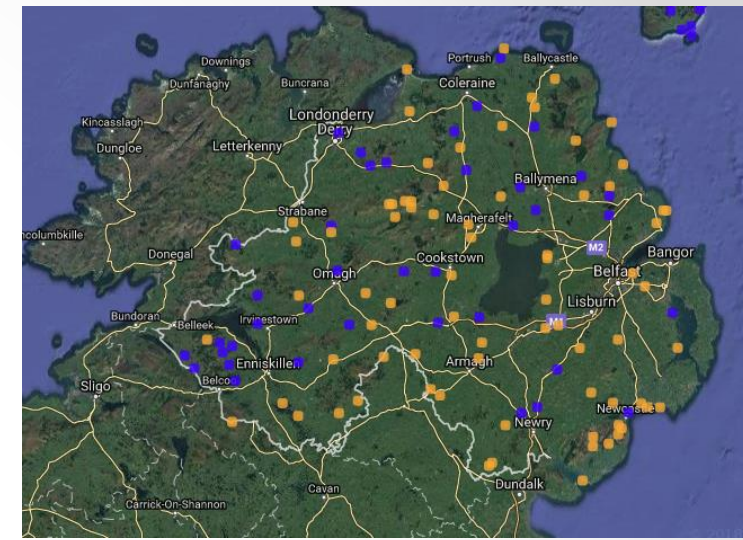


- The aim of the NPMS is to be simple, repeatable and attractive to volunteers
- It offers three levels of survey: Wildflower, Indicator and Inventory.
- Allows the reporting of species' trends, and changes in the quality of semi-natural habitats.
- Surveyors record the presence and abundance of plant species in 5 plots (most either 5x5m or 1x25m) within a sample of 1 km squares ('monads').
- Plots are located in the majority of terrestrial semi-natural habitat. Improved grassland and agricultural land is not in the scheme.



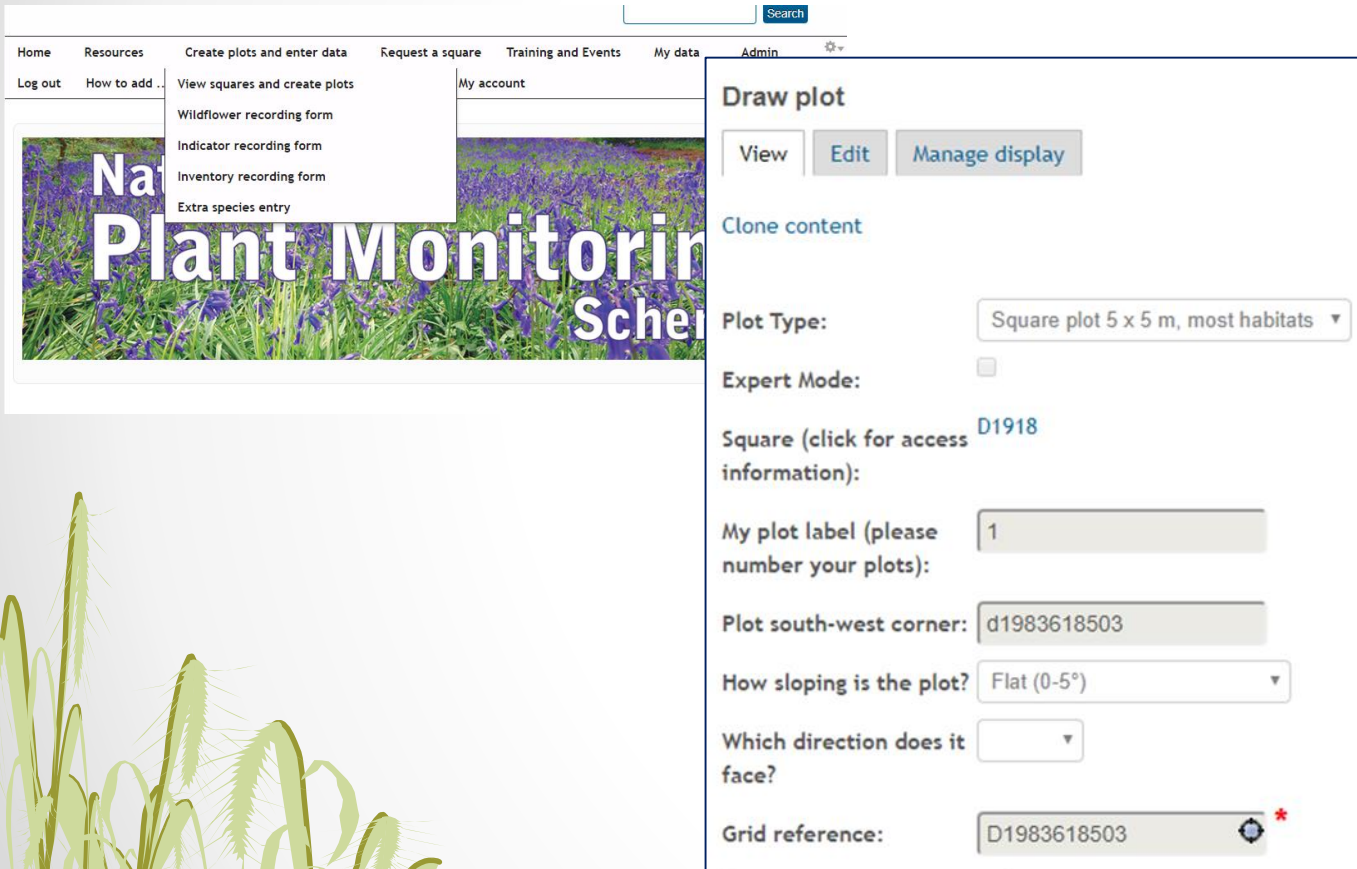
Design

- The NPMS stratified-random selection is weighted towards **monads with a higher cover of semi-natural habitat** (based on existing inventories such as the CEH Land Cover Map).
- For each square, you will receive a map with broad habitats identified
- NPMS calculates areas of each broad habitat being monitored in each monad and adds them to a collective total area for that particular habitat
- The species on the indicator list have been selected as either positive or negative indicators 'Nationally'
- These species are drawn from inventory monitoring data
- Species that are likely to be confused or misidentified were excluded, or in a few cases aggregated (e.g. *Arctium minus/nemorosum*)



NPMS Data Management

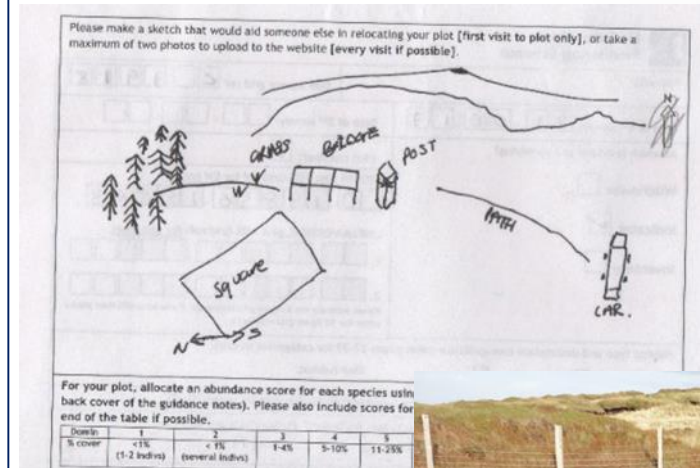
- Data is entered via NPMS online system. Firstly, you will enter details about your plots, upload directions/sketches and photos.



The screenshot shows the NPMS website interface. At the top, there is a navigation menu with links: Home, Resources, Create plots and enter data, Request a square, Training and Events, My data, and Admin. A search bar is located to the right of the menu. Below the menu, there is a banner for the 'National Plant Monitoring Scheme' featuring a field of purple flowers. A dropdown menu is open under 'How to add...', listing options: View squares and create plots, My account, Wildflower recording form, Indicator recording form, Inventory recording form, and Extra species entry.

The 'Draw plot' form is displayed in the foreground. It includes the following fields and options:

- Draw plot** (Title)
- Buttons: View, Edit, Manage display
- Clone content (Link)
- Plot Type: Square plot 5 x 5 m, most habitats (Dropdown)
- Expert Mode:
- Square (click for access information): D1918
- My plot label (please number your plots): 1 (Text input)
- Plot south-west corner: d1983618503 (Text input)
- How sloping is the plot?: Flat (0-5°) (Dropdown)
- Which direction does it face?: (Dropdown)
- Grid reference: D1983618503 (Text input with a location icon and a red asterisk)



- Then you can select this plot and add data against it.
- This system is iRecord based and will hook into the network of iRecord verifiers, locally and nationally.

Habitat type: Bog and wet heath ▼ Please select... ▼ *

Management (optional)

Options:

- Arable cropping
- Burning
- Coppicing
- Cutting / mowing
- Ditch-clearance
- Fenced to exclude grazing
- Fertilised to improve soil fertility
- Grazing - livestock
- Grazing - rabbits / deer
- Hedge-laying
- Herbicides to control weeds
- Path, track or road works
- Quarrying
- Scrub clearance / tree felling
- Silage production (i.e. black bags)
- Tree planting
- Water regime regulation
- Other

Select all the options that apply

Other:

Describe the other management observed.

Grazing (optional)

Grazing pressure:

- Low
- Moderate
- High

Which animals were grazing?

1. Location → 2. Survey details → 3. Species records → 4. Submit Record

Species records

Mouse users click in the empty species box, start typing the species name and click on the correct name from the list when it appears. Click on the abundance drop down list and select the value. Repeat.

Keyboard users type the species name in the species column. You can arrow down to the correct name in the list suggestions and tab to select. Key the abundance code and tab to move to the next row.

PLEASE NOTE: the NPMS species dictionary currently follows edition two of the *New Flora of the British Isles* (Stace, 1997). These names are given in parentheses for Indicator Species in the NPMS species ID guide. For species not in the NPMS guide, please either type the common name, or use the older scientific name (e.g. Lesser Celandine would be *Ranunculus ficaria*, not *Ficaria verna*).

Species	Abundance	Add photos
<input type="checkbox"/> <i>Calluna vulgaris</i> Heather flowering plant		▼ Add images
<input type="checkbox"/> <i>Trichophorum cespitosum</i> flowering plant		▼ Add images
<input type="checkbox"/> <i>Erica tetralix</i> Cross-leaved Heath flowering plant		▼ Add images
<input type="checkbox"/> Hare's-tail Cottongrass Hare's-tail Cottongrass flowering plant		▼ Add images
<input type="checkbox"/> Bog Asphodel Bog Asphodel flowering plant		▼ Add images
<input type="checkbox"/> <i>Tormentil</i> Tormentil flowering plant		▼ Add images
<input type="text"/>		▼ Select a species first

[< Prev step](#) [Submit](#)

My visits

View Edit Manage display

Clone content

Google

ID	Survey	Square Grid Ref	Date	Actions
2701121	Indicator survey	D1965518170	2017-07-19 21:37:35	edit
2701083	Indicator survey	D1976018598	2017-07-19 21:26:37	edit
2701037	Indicator survey	D1983616503	2017-07-19 21:17:51	edit



NPMS Data Management

- Once the data has been verified, it can be downloaded, shared and will be sent to NBN Atlas.
- Ideally data needs to be collected for 10 years to produce robust trend analysis, but the models being used now can produce some results in shorter terms.



A non-hierarchical linear model was proposed by Walker et al. (2010) for interval-censored cover data. We assume that the unknown percentage cover at site j in year i is expressed as a proportion p_{ij} and is observed only to lie within the interval (l_{ij}, u_{ij}) where $l_{ij} \geq 0$ and $u_{ij} \leq 1$. We then assume the logit-transformed proportion is normally distributed: Eqn 3 $\text{logit}(p_{ij}) = \log [p_{ij} / (1 - p_{ij})] \sim N(\mu_i, \sigma^2)$ Then the probability of an observation lying within (l_{ij}, u_{ij}) is simply $\Phi(U_{ij}) - \Phi(L_{ij})$ where $\Phi(\cdot)$ is the cumulative distribution function of a normal distribution and U_{ij} and L_{ij} are respectively equal to $\text{logit}(u_{ij})$ and $\text{logit}(l_{ij})$. Finally, to account for change over time, we define the expected coverage in year i via $\mu_i = \alpha + \beta \text{Year}_i$ with α and β additional parameters to be estimated.

Training Courses

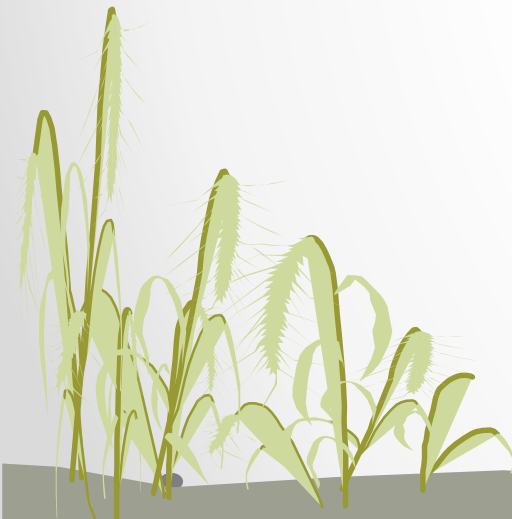
CEDaR have developed a *Species Identification Training Course Programme*. Courses encourage recording, or provide additional training to support recording schemes such as the National Plant Monitoring Scheme.



Bryophytes Training Course, Tattynure.



Aquatic Plants Training Course, Portmore Lough.





Kevin Walker, Oliver Pescott, Felicity Harris, Christine Cheffings, Hayley New, Niki Bunch and David Roy

A new National Plant Monitoring Scheme for the United Kingdom has been launched. Here, the authors explain why it is necessary, and what it can achieve.

Early-purple Orchids, among other plants, in a woodland habitat. Richard Revels

Central to the design of the NPMS, will be its capacity to track both positive and negative changes in habitat quality, including those from unpredicted drivers that come to light in the future.



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<http://www.npms.org.uk/>

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Agency
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