Floodplain Meadows Partnership Botanical Monitoring

The Floodplain Meadows Partnership would like to standardise botanical monitoring methods across the country both for existing sites and restoration sites. This will make data collected easier to compare between sites, and allow the data to be incorporated into the "Meadows' database.

This monitoring protocol applies to large field-based sites. If you have very small plots please contact the Floodplain Meadows Partnership direct for a tailored method to meet your needs.

Sampling Positions

The key requirement is for sampling positions which can be relocated at each survey. The spatial variation within wet grasslands means that randomly placed quadrats generate more noise than in most habitats. The best approach is to set out a line of sampling stations that follow a major gradient of variation within the site. On floodplain meadows this normally involves a transect along a topographic gradient, or if the site has no clear topography then a cross section between major water courses is often useful e.g. from a river to a back drain.

The species record.

The standard sampling unit for botanical monitoring in floodplain meadows is a 1m x 1m quadrat. This is smaller than the typical 2m x 2m recommended for grassland in some other methodologies, because in floodplain meadows the vegetation is often species rich and the spatial heterogeneity is high due to changes in microtopography.

Within each quadrat, one should list all species of vascular plant (that includes grasses, sedges and forbs) and the principal mosses (of which there are usually few).

Once all species in the quadrat have been listed, assign them cover values, using visual estimates of % cover. This involves looking down on the quadrat and determining what proportion of the ground area within the quadrat each species covers. It is often the case that the total cover exceeds 100%, but in grasslands is unlikely to exceed 130%. If it does exceed 130%, we suggest you recheck the amounts allocated to the dominants! Species present at <1% can be noted as present with a '+' on the data sheet.

Please refrain from using the DOMIN scale of relative abundance, since it is less sensitive and less amenable for integration with other datasets.

Setting out the botanical monitoring plots.

Transect lines are best for this type of repeat monitoring since they can be set out more easily than randomised positions. If you have access to "Total Station" surveying equipment or a GPS with real time correction giving an accuracy of <5 cm, then such devices will speed the mapping and relocation of sampling points. If neither of these is available, then the job can still be satisfactorily achieved with low-tech equipment.



The Light Owler Trust





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You will need:

- o A sighting compass
- o 50m tape
- o Marker posts at the end of your transect or means of marking existing features (paint or tape)
- 0 1.5m bamboo canes to mark out a line and 0.9 m canes to mark sampling locations along it
- o Possibly a few metal plates to bury at know positions along the line assuming you have access to a metal detector for re-finding them.
- o 1m x 1m quadrat (this can be created using 4 x 1m canes, or folding rulers)
- o Customised data sheets (which we can supply)

It is always best to start from a point that is easily relocated. If this is not possible then consider putting in a robust marker post (fence posts are ideal).

From this marked point sight on another obvious feature on the other side of your site. Note the compass bearing. If there is no obvious feature then choose an appropriate compass bearing and put in another post. Try and get a measurement of the location of these posts from some fixed feature that is unlikely to move (i.e. gate post) just in case they go missing.

If you have a standard GPS (without the real-time correction facility), then use this to fix the marker posts; most devices are only accurate to c. 5 m, so you will still need to re-find your exact start point post for future resurveys. Similarly, the GPS is not accurate enough to relocate the individual quadrats, the tape and compass bearing should give greater accuracy. GPS fixes will however allow you to plot your markers on a map, which will help future surveyors locate the positions.

Note the bearing between your two fixed points and mark out a line using the long canes at regular intervals. This will require 2 people - one at the start point to keep the other on-line whilst placing out the canes. Once the line is defined with these long canes, use the tape to place quadrats at known distances apart. A spacing of at least 10 m is necessary if you wish to treat the locations as independent samples. Typical spacings range from 15m to 30 m depending on the size of the site. Mark these positions temporarily with short canes as you go. If you have small metal pegs or plates it can be useful to place one or two of these along the line to aid future accurate relocation, but it is not vital and would require access to a metal detector.

Make a careful sketch plan of the position of your end markers relative to other features, the compass orientation of your line and the distances between quadrats (see sketch below).



Take photographs of the end points and along the line with the quadrat markers in place. Make a note of where you took the photos from.

Then record your plots. It is best if the distance you have measured and marked on your map defines the centre of the 1m x 1m quadrat. Orientate your quadrat parallel with the line.

Fig. 1. Generic plan of botanical quadrat locations.