



Case Study 10.8
Broad Meadow, Northamptonshire –
converting an arable field to a floodplain
meadow



About the site

Broad Meadow was species-rich floodplain meadow until the 1970s, when the farmer gave up dairying and converted to arable. The fields were used for arable production until 2007 when the last crop of oilseed rape was harvested. During this time artificial fertiliser was used as required. The field floods from the river each autumn and spring.



Broad Meadow in 2012. © RNRP

Technique used

Soil analysis undertaken in August 2007 showed that phosphorus levels were on the upper edge of the expected range for a species-rich floodplain meadow (phosphorus 16 mg/kg⁻¹, potassium 96 mg/kg⁻¹, magnesium 129 mg/kg⁻¹, pH 6.3). Emorsgate Meadow Seed Mixture for Wetlands (EM8) was chosen on the basis of the soil fertility and hydrological conditions, and included 17 wildflowers and seven grasses.

The seed was sown at 3 g/m² in April 2008 after the field had been ploughed and rotavated. A small section that had not been used for arable cropping was treated with the herbicide glyphosate. After sowing, the meadow was cut four times during the first six months. No grazing took place in the first year.

In 2009 a hay cut was taken. The cut was timed to remove the maximum amount of nutrients, and took place on 30 June. It was baled on 2 July, making 242 large bales from approximately 7 ha.

Ongoing management

The meadow is cut for hay annually during June or July and is then grazed by sheep and/or cows until late autumn. The farmer cuts and bales the hay and then sells it. A grazier provides livestock for aftermath grazing.

Monitoring

- A botanical survey using ten 1 x 1 m quadrats, 15 m apart is carried out in June each year by surveyors from the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire and the River Nene Regional Park. The abundance of all plant species is recorded.
- A butterfly transect is undertaken by the farmer's wife once a week from April to September (as per UKBMS43 criteria).



The prepared seed bed at Broad Meadow. © RNRP

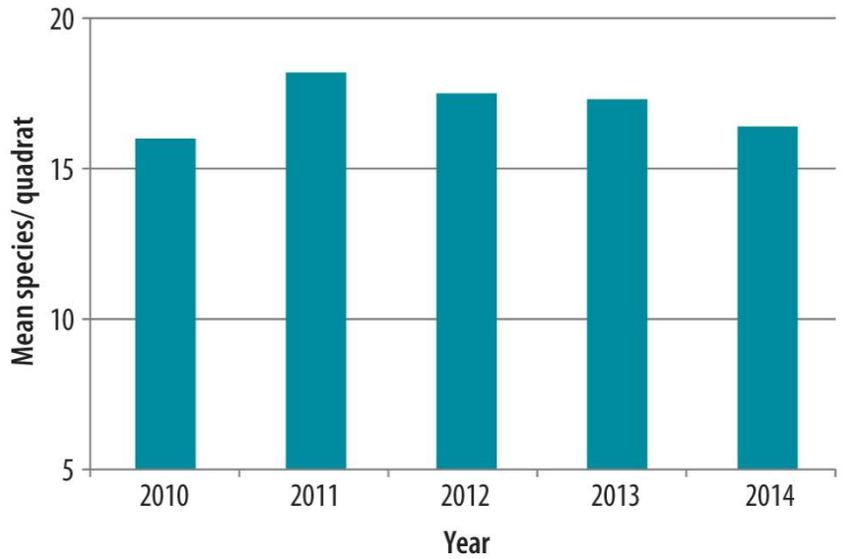


Results

Species-richness

At Broad Meadow there has been little change in mean species richness between years since the start of the trial (see Figure 10.9). However, this does not mean that there have not been substantial changes in the composition of the vegetation, as the balance of species has changed.

Figure 10.9 Species-richness (the mean value based on ten quadrats) over time at Broad Meadow, Northamptonshire.

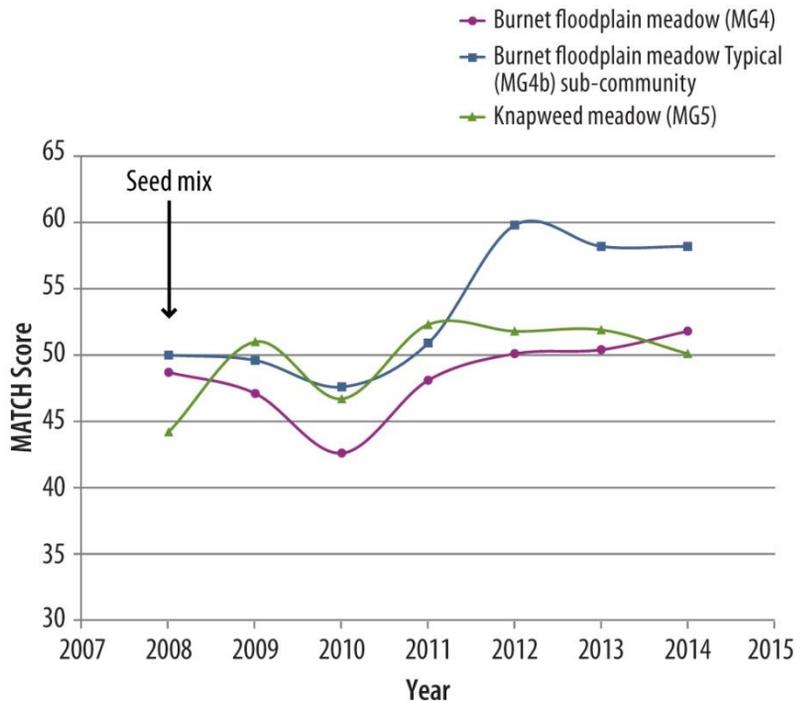


Goodness-of-fit to NVC communities

- The degree of similarity with NVC communities was calculated using the MATCH programme for:
- the species list of the seed mix (2008 values);
 - a species list for 2009 (no constancy values were available for that year);
 - constancy tables based on ten quadrats recorded each year between 2010 and 2014.

The progression of the sward towards Burnet floodplain meadow (MG4) community can be seen in Figure 10.10. The MATCH score is approaching 60, which is generally considered as representing an acceptable level of agreement.

Figure 10.10 MATCH Scores for the seed mix applied in 2008, a list of species recorded in 2009 and constancy values for species recorded in ten quadrats annually between 2010 and 2014 at Broad Meadow, Northamptonshire.





The restoration has been so successful that the site has now been designated as a Local Wildlife Site and several site visits have been conducted with other interested farmers, which have led to another 100 ha of species-rich meadow restoration being undertaken.

Costs

Covered by Natural England's Higher Level Scheme and the landowner.

- Seed: £16,000.
- Fencing and new hedges: over £15,000.
- Ongoing management and creation of new permissive path: approximately £4,500 per year for ten years.

Partners

Natural England, River Nene Regional Park CIC and Mr and Mrs Banner (landowners).

Benefits

- Reduced nutrient inputs to River Nene from cessation of artificial fertilisers.
- Increased offtake of nutrients from Nene catchment through removal of hay crop.
- Economic benefit through sale of hay and grazing.
- A new permissive path increases public access.
- Creation of 7 ha of flower-rich pollinator habitat.
- Creation of a demonstration and discussion site.

