Site Visit Assessment Form The Eye and Long Field– FAI farms, Oxfordshire

Site Name The Eye and Long Field	**Grid Ref** SP 46826 10072	**County** Oxfordshire	
River Thames	**Ownership** FAI farms	**Designation** None	**Size** 10 ha
Date 26th May 2016 May 2018	**Meeting with** Jo Copping No-one in 2018	**Managed by** FAI Farms	
Management and History			
Agri environment agreement			
AG00340415 HK7 (but hasn't come up on our list of AE agreements from NE for some reason).			
Current management			
Hay cutting approximately 1 year in 3, then aftermath grazed, or grazed for a minimum of 6 weeks between May and September.			
Restoration			
Technique used/Dates			
Green hay spread from Pixey in 2011, grazed only in 2012. Hay cut some of the years since but not every year. Hay cut 2016. More info on what mechanism actually used.			
Hydrology Flooding regime Water management Soil-water levels (indicated by auger hole/any other data)	Floods regularly, groundwater movement through gravels. Drier towards river as bank rises slightly. Water drains towards the back (southern) ditch, between this field and Hagley		
Historical information			
None known			

Current site interest	Attached excel spreadsheet for botanical data

The Eye and Long Field were surveyed in 2012 as one field because the hedge between them had been removed (McDonald, 2012). The number of plant species per quadrat varied from 3 to 14, with perennial ryegrass *Lolium perenne,* creeping bent grass *Agrostis stolonifera* and Yorkshire fog *Holcus lanatus* being the dominant species in the sward. On The Eye in 2013, the number of species per quadrat increased up to 10-16, which was almost the same in 2016. The number of species on the Long Field were to be even higher (10 to 22 species per square metre in 2013). It stayed the same or slightly increased on some quadrats in 2016. The abundance of *Lolium perenne* dropped from 20-90% in 2012 down to 2-20% on both fields. *Agrostis stolonifera* halved its presence across both fields, and *Holcus lanatus* decreased even more. However, other grass species became dominant in 2013 – rough meadow grass *Poa trivialis*, reached 30-60% cover, and smooth brome *Bromus racemosus* up to 25% cover. By 2016, on some locations, another grass –red fescue *Festuca rubra* reached 30-50% cover, while *Poa trivialis* decreased accordingly. However, on the other quadrats *Poa trivialis* remains dominant and even increased up to 85% in places on The Eye.

The ratio of Dicot/Monocot (1.26) did not change between 2013 and 2016. However, some positive changes in the species composition were recorded on the Long Field. Indicator species of disturbed grounds, such as greater plantain *Plantago major,* spear thistle *Cirsium vulgare,* and annual meadow grass *Poa annua*, disappeared or significantly decreased. The appearance of such typical meadow species as bird's foot trefoil *Lotus corniculatus,* oxeye daisy *Leucanthemum vulgare,* autumn hawkbit *Leontodon autumnalis,* pepper saxifrage *Silaum silaus,* cuckooflower *Cardamine pratensis,* meadowsweet *Filipendula ulmaria,* and common knapweed *Centaurea nigra* were noted in 2016 for the first time in a few locations but in very small amounts. The cover of ribwort plantain *Plantago lanceolata* increased in several locations which can be also considered as a positive change in the vegetation on the Long Field. On The Eye, the Dicot/Monocot ratio improved from 0.71 in 2013 to 1.1 in 2016, demonstrating the positive trend in the community composition. On the other hand, the abundance of forbs is still incredibly low, as just 1-2 plants were found on the occasional plots.

In 2013, top NVC communities on The Eye were MG11a and MG7B. In 2016, vegetation types were not identified. On the Long Field, NVC type MG6a dominated in 2013. The appearance of the MG4 community in third place for NVC communities, looks very encouraging in 2016.

There are other encouraging signs on the restoration fields. The slight decrease in Ellenberg scores for fertility suggests some success in decreasing the level of nutrients in the soil. Thus, on The Eye, Ellenberg N decreased from 6 down to 5.7, from 6.2 to 5.7 on Long Field, and from 6.2 down to 5.84 on Hagley. A similar trend showing a slight decrease in soil moisture was observed across the sites. Soil pH remains above the typical floodplain meadow score of 6 on all sites which indicates favourable conditions for the growth of many plants.

In 2018, a re-survey of 10 of the quadrats on the Long Field highlighted the variability of the microtopography. Ellenberg's indicator scores, which estimate soil conditions based on vegetation, showed a significant gradient from 4.9 to 5.9 for soil wetness and 4.8 to 6.5 for soil fertility. Soil reaction is more uniform across the site, ranging from 6.3 to 6.8, indicating pH in the area to be close to neutral. There is no sign of the soil fertility decreasing yet, as exactly the same range of Ellenberg's indicator scores was calculated for the field in 2016. Occasional double cuts would be desirable to help to control soil nutrients in a more effective way than hay cut and aftermath grazing mixed with just grazing. The species richness, on average, is 15.4 species per 1 m^2, varying from 12 to 20. It hasn't changed much compared to 2013 and 2016; no new species have arrived from the neighbouring fields. However, species distribution and composition on the site has been improving. The similarity coefficient with NVC meadow communities has shifted from MG6a *Lolium perenne-Cynosurus cristatus* grassland, typical sub-community in 2013 and 2016 towards MG4b *Sanguisorba officinalis-Alopecurus pratensis*, typical subcommunity with a score of 62%. This positive trend is due to herbs slowly spreading across the site. Grasses are still very dominant on the field and a regular annual hay cut is recommended to control their vigour in order to allow a further spread of herbs across the field.	
Phosphorus levels	P data from Long Field June 2010 gave available P level of 10.8 mg/l^{-1} (from data provided by FAI) but 30-35 mg/kg^{-1} in 2013 (FMP data). This is likely to be as a result of the extensive flooding in winter 2012-13, where we saw P levels rise dramatically across many sites.
Soil auger photo and findings	

Soil profile (taken at quadrat Q712)
A-horizon
0-10 cm humic layer
10-15 cm Clay loam

B-horizon
15-30 cm Clay loam with clear signs of gley

30-40 cm Silty grey clay, strongly gleyed. Some organic material and gravel inclusions.

40-70 cm More orange/grey clay. Very sticky, makes a 'ring'. Gleyed throughout. Numerous coarse sand and small gravel particles, some organic material.

70-100 cm Very sticky silty clay, grey/orange.. Some small gravel (<5%) and organic material.

C-horizon was not found at the depth of 100 cm

Site manager aspirations/objectives

A more species-rich meadow as part of the HLS objectives. Also need somewhere to summer graze, hence the rotating hay cut.

Management recommendations

An annual hay cut would be better for species diversity if alternative grazing can be found from April-June. An option might be to cut earlier (June) and then aftermath graze, giving more grazing time later in the year. This is especially important in the early phase of a restoration project when the nutrient removal of the hay cut allows the sward to diversify. Another option would be to graze the initial growth in April/early May, then shut up for hay in mid-May and then cut after just 6 weeks, then graze again.

Table 1. Ellenberg, species richness and NVC communities on Long Field and The Eye

	Long Field			The Eye	
	2013	**2016**	**2018**	**2013**	**2016**
Ellenberg F (moisture tolerance)	5.8	5.5	5.51	5.9	5.77
Ellenberg N (soil fertility)	6.2	5.7	5.57	6	5.7
Ellenberg R (pH)	6.3	6.3	6.54	6.12	6.17
Species/quadrat (mean/1 x 1 m^2 and range)	15.9 (10-22)	16.8 (10-23)	15.4 (12-20)	13 (10-16)	12.7 (10-16)
Ratio dicots-monocots	1.26	1.26		0.71	1.1
NVC (top 2 MAVIS subcommunities)	MG6a MG7	MG6a MG6	MG4b MG9	MG11a MG7B	n/a not enough quadrats

Table 2. Soil properties on the Oxford restoration fields, 2013.

Field	Quadrat	Soil-pH	Total-P, %	Olsen-P, mg/kg PO4-P
Long Field	N719	7.8	0.136	35.1
Long Meadow	N707	7.5	0.125	13.0
The Eye	N713	6.9	0.144	30.0
Hagley	N703	6.5	0.133	21.6