



## **Recording of the Monitoring Plots, The Frith and Oak Tree Fen 2025**

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Little Ouse Headwaters Project**

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## **1. AIMS**

The Little Ouse Headwaters Project set up three monitoring plots at The Frith (OHES 2010, Stone 2017a) and one at Oak Tree Fen (Stone 2017b). The plots all occupied grasslands or in the case of the Frith, one area of low-lying rush pasture.

In 2025 a full resurvey of the plots was commissioned as part of the ongoing survey and monitoring programme.

This report summarises the resurvey undertaken in May 2025. The current floristics of the plots was to be compared to those of previous monitoring rounds.

## 2. METHODS

The survey methods described by OHES (2010) and Stone (2017a, b) were used to resurvey the four plots on the sites. They were described by Stone (2017a, b) as follows:

### The Frith

**F01 Rush-dominated Vegetation.** This plot represents the transitional area between the fringes of the peatland – where a band of Soft Rush-dominated rush-pasture is well established – and a zone of degraded fen meadow.

**F02 Ordinary Dry Grassland – Acidic.** This plot is located in association with the slightly acidic variant of the Ordinary Dry Grasslands in the main field at The Frith. The monitored area has been deliberately placed around the boundary of this sward with an area where Creeping Thistle is still prevalent.

**F03 Ordinary Dry Grassland – Calcareous.** This plot is located within the more developed of the two stands of the slightly calcareous variant of the Ordinary Dry Grassland at The Frith.

### Oak Tree Fen

**Plot E01 Alluvial Meadow,** which can be regarded as a grass-dominated Alluvial Meadow, with Amphibious Bistort, Reed Canary-grass and Wild Angelica indicating periodic topsoil saturation.

OHES (2010) gives the four phases of monitoring common to all of the LOHP site monitoring projects, summarised in Table 1.

**Table 1: The Four Phases of Monitoring (OHES 2010)**

Survey intensity	Fieldwork Element		Function within the Survey
Rapid	1	Locating Monitoring Plots	To establish locations for the Monitoring Plots
	2	Photographic Record	To produce a record of surveillance images showing the condition of the developing fen vegetation
Full	3	Vegetation structural characters	To record features of the vegetation structure against which management requirements can be established.
	4	Floristic sub-sampling	To record the floristic composition of the plot in order to judge to success of the restoration measures against target floristic conditions.

Item 1, Location of Monitoring Plots, was undertaken at The Frith in June 2017 (Stone 2017a) and at Oak Tree Fen in July 2017 (Stone 2017b), along with a first recording of the plots (Items 2-4).

This report is the second survey of all of the plots.

Plot and marker details are given in Stone (2017a, b), reproduced in Table 2 and Figure 1a, b. The marker posts are topped with white paint, but this is now fading and needs repainting.

Plant nomenclature is according to Stace (2019) and Hill et al (2008).

The recommended quadrat size of 1m x 1m was used, with recording of 20 sub-samples in each plot. Neither OHES (2011) nor Stone (2017a, b) specify how sub-samples are to be located within the plot. Hence in 2025, sub-samples were relocated using random number tables and measuring tapes along two of the plot sides.

Note that the plot location for E01-02 was incorreced in Stone (2017b), and has been corrected below. There is also no plot marker on the ground. It was relocated visually from diagram and text details in Stone (2017b). There is therefore the possibility of mis-registration with the original plot location. The relative homogeneity of the vegetation, its species-poverty and the large plot size should minimise any impacts on comparability. A new post should be installed at the location given in Table 2 and on Figure 1b.

**Table 2: Monitoring Plot Locations at The Frith and Oak Tree Fen, reproduced from OHES (2011) and Stone (2017a, b).**

VEGETATION TYPE	PLOT CODE	MARKER POSTS	Marker Post Location	EASTING	NORTHING	Plot location
<b>The Frith</b>						
Rush-dominated Vegetation	F01	F01-01	This free-standing post is located on the boundary; also the F02-02 marker.	603883	279116	The northern corner of the plot is 35 m along the line from post 01 to 02. The plot is west of that line.
		F01-02	This free-standing post is located along an internal management boundary.	603905	279064	
Ordinary Dry Grassland - Acidic	F02	F02-01	This free-standing post is located in open grassland.	603865	279168	The northwest corner of the plot is situated 25 m along the line from post 01 to 02.
		F02-02	This free-standing post is located on the boundary; also the F01-01 marker	603883	279116	
Ordinary Dry Grassland - Calcareous	F03	F03-01	This marker post lies on the fence-line.	603630	279319	The northeast corner of the plot is situated 15 m along the line from post 01 to 02.
		F03-02	This free-standing post is located due south of F03-01, in line with a linear depression in the field.	603630	279279	
<b>Oak Tree Fen</b>						
<b>Alluvial meadow</b>	E01	E01-01	This post is free-standing along the southern margin of Stand A, close to the ditch junction between the woodlot and Middle Fen	601566	278854	The southwest corner of the plot is 25 metres north of E01-01
		E01-02	This post is almost due north of marker post E01-01, close to the northern margin of Stand A.	601574	278909	

**Figure 1a: Location of Plot Marker Posts. The Frith** (c) Aerial Bing Satellite.



**Figure 1b: Location of Plot Marker Posts. Oak Tree Fen (posts E01-01 and E01-02) (c) Aerial Bing Satellite.**



### 3. RESULTS

#### 3.1 The Frith F01: Rush-dominated vegetation

##### 3.1.1 Photographic Record

##### F01 Rush dominated vegetation: Whole Plot



##### F01 Rush dominated vegetation: Quadrants

South West	South East
	



### 3.1.2 Vegetation Structural Characters

<b>Monitoring Plot</b>		The Frith F01					
<b>Recorder</b>		Mike Harding					
<b>Survey Date</b>		15th May 2025					
<b>Character of the ground surface</b>							
Flat and rather peaty. Micro-topography provided by rush tussocks. Plot lies towards the bottom of a very gentle slope from the north of the Frith to the "river".							
<b>Soil Wetness</b>							
Dry, dusty		Dry, firm	Slightly damp	Moist	Wet	Saturated	
			III				
		<b>Quadrant</b>				<b>Average</b>	
<b>Attribute</b>		<b>SW</b>	<b>SE</b>	<b>NW</b>	<b>NE</b>		
<b>Layer height</b>		Standing water (cm)	0	0	0	0	
		Plant litter (cm)	5	10	10	7	6.75
		Woody seedlings (cm)	0	0	0	0	0
		Large sedges / rushes (cm)	50	60	60	65	58.75
		Reed-like grasses (cm)	0	0	0	0	0
		Woody saplings (cm)	0	0	0	0	0
<b>Cover value</b>		Standing water (%)	0	0	0	0	
		Trampling (%)	0	0	0	0	0
		Dunging (%)	0	0	0	0	0
		Bare ground (%)	0	0	0	0	0
		Plant litter (%)	60	80	70	70	70
		Bryophytes (%)	0.5	0.5	0.5	0.5	0.5
		Woody seedlings (%)	0	0	0	0	0
		Large sedges / rushes (%)	80	90	90	90	87.5
		Reed-like grasses (%)	0	0	0	0	0
		Woody saplings (%)	0	0	0	0	0

### 3.1.3 Floristic Sampling

<b>Monitoring Plot</b>	The Frith F01
<b>Recorder</b>	Mike Harding
<b>Survey Date</b>	15 <sup>th</sup> May 2025

	Sample Number																				Frequency	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	2025	2017
Juncus effusus	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100	100
Agrostis stolonifera	P	P	P		P	P	P	P	P	P		P	P		P	P	P	P	P		80	95
Juncus inflexus		P	P	P		P	P	P		P	P			P	P	P	P		P		65	80
Cirsium arvense	P		P		P	P			P	P	P			P	P				P	P	55	65
Holcus lanatus	P		P	P			P		P		P			P			P	P	P		50	30
Galium palustre			P		P		P		P			P	P					P			35	80
Urtica dioica			P			P				P			P				P		P	P	35	40
Potentilla anserina	P			P		P			P					P				P			30	80
Ranunculus repens		P	P			P		P					P							P	30	50
Rumex conglomeratus					P		P					P				P			P		25	5
Carex hirta				P				P				P	P				P				25	15
Carex acutiformis	P					P										P					15	5
Epilobium parviflorum		P									P			P							15	5
Mentha aquatica			P						P					P							15	
Cardamine pratensis													P					P			10	40
Glechoma hederacea								P								P					10	30
Deschampsia cespitosa												P									5	15
Phalaris arundinacea					P																5	
Festuca rubra																						20
Epilobium obscurum																						20

Elymus repens																						15
Juncus subnodulosus																						10
Rumex acetosa																						5
Eleocharis palustris																						5
																					Mean	
<b>No. Species</b>	<b>6</b>	<b>5</b>	<b>9</b>	<b>5</b>	<b>6</b>	<b>8</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>5</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>4</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>4</b>	<b>6.05</b>	<b>8.1</b>

### 3.1.4 Commentary

#### Vegetation structure

The plot is dominated by a dense and even tier of rushes, mostly *Juncus effusus* with some tussocks of *J. inflexus*. This canopy of tough rush shoots is supplemented with tall herbs. It is a dense upper tier, of even 60cm height, penetrated only occasionally by taller but sparse shoots of *Phalaris*. Beneath, in the occasional gaps or growing sprawled over the tussocks, is a ground of rush pasture grasses and lower-growing herbs. There is the rare weft of moss (not recorded in quadrats) and a great deal of plant litter, mostly of old rush shoots, covering most of the ground to 5-10cm depth.

#### Floristics

The stand is heavily dominated by *J. effusus* with frequent *J. inflexus*. At the base of the rush tier and often overgrowing litter and rush tussocks are frequent *Agrostis stolonifera* and *Holcus lanatus* although cover is not especially high. *Carex acutiformis* and *Carex hirta* are occasional, the stand supplemented by other wetland herbs such as *Galium palustre*, *Mentha aquatica*, *Cardamine pratensis* and *Epilobium parviflorum*, mostly at low frequency. More prominent are less desirable species indicative of eutrophic or disturbed conditions, such as *Urtica dioica*, *Cirsium arvense*, *Rumex conglomeratus* and *Glechoma hederacea*.

Overall, it is a rather species-poor type of MG10 *Holcus lanatus*-*Juncus effusus* soft rush pasture, the *Juncus inflexus* sub-community. It is very species-poor, much poorer than the typical community profile published in Rodwell (1992).

#### Summary of records and events

The plot has been grazed with sheep each year (although not in 2024) but a more detailed history of management is not available.

#### Relation to past and target conditions

Comparison of the plot with 2017 shows a significant decline in quality, with species number per quadrat reducing from 8.1 in 2017 to 6.05 in 2025. The vegetation seems to have been of similar height and density in 2017, perhaps with a little less litter. The overall community floristics shown some changes – *Mentha aquatica* and *Phalaris arundinacea* have both appeared while a larger group have not been recorded, including *Juncus subnodulosus*, *Eleocharis palustris* and *Rumex acetosa*. Most of the species still recorded in 2025 are at reduced frequency suggesting greater dominance by rushes at the expense of the wider plant assemblage. The worsening condition of the stand is likely to be due to insufficient cropping allowing the rushes to overwhelmingly dominate the stand.

### 3.2 The Frith F02: Ordinary Dry Grassland - Acidic

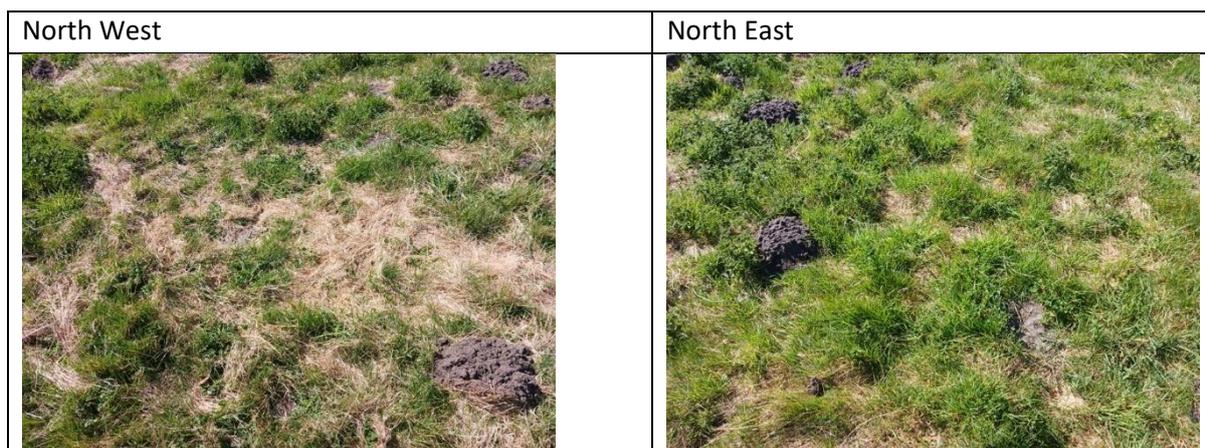
#### 3.2.1 Photographic Record

F02 Ordinary Dry Grassland – Acidic. Whole Plot View



F02 Ordinary Dry Grassland – Acidic. Quadrants

South West	South East
	



### 3.2.2 Vegetation Structural Characteristics

<b>Monitoring Plot</b>	The Frith F02					
<b>Recorder</b>	Mike Harding					
<b>Survey Date</b>	13 <sup>th</sup> May 2025					
<b>Character of the ground surface</b>						
Very flat with some old molehills. Soil light sandy loam, very dry and friable.						
<b>Soil Wetness</b>						
Dry, dusty	Dry, firm	Slightly damp	Moist	Wet	Saturated	
	III					
	<b>Attribute</b>	<b>Quadrant</b>				<b>Average</b>
		<b>SW</b>	<b>SE</b>	<b>NW</b>	<b>NE</b>	
<b>Layer height</b>	Standing water (cm)	0	0	0	0	0
	Plant litter (cm)	3	4	2	3	3
	Woody seedlings (cm)	0	0	0	0	0
	Large sedges / rushes (cm)	0	0	0	0	0
	Reed-like grasses (cm)	0	0	0	0	0
	Woody saplings (cm)	0	0	0	0	0
<b>Cover value</b>	Standing water (%)	0	0	0	0	0
	Trampling (%)	0	0	0	0	0
	Dunging (%)	0	0	0	0	0
	Bare ground (%)	20	5	5	5	8.75
	Plant litter (%)	60	40	50	60	52.5
	Bryophytes (%)	0.5	0.5	0.5	0.5	0.5
	Woody seedlings (%)	0	0	0	0	0
	Large sedges / rushes (%)	0	0	0	0	0
	Reed-like grasses (%)	0	0	0	0	0
	Woody saplings (%)	0	0	0	0	0

### 3.2.3 Floristic Sampling

<b>Monitoring Plot</b>	The Frith F02
<b>Recorder</b>	Mike Harding
<b>Survey Date</b>	13 <sup>th</sup> May 2025

	Sample Number																				Frequency	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	2024	2017
	<i>Holcus lanatus</i>	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100
<i>Agrostis capillaris</i>		P	P	P	P	P	P	P	P	P		P		P	P	P	P		P	P	80	100
<i>Cirsium arvense</i>	P	P	P	P	P	P		P			P	P	P	P	P		P	P	P	P	80	100
<i>Festuca rubra</i>		P	P		P		P		P	P	P	P		P	P	P	P		P		65	80
<i>Dactylis glomerata</i>	P			P	P		P	P	P		P	P		P				P		P	55	25
<i>Stellaria graminea</i>	P		P	P			P			P	P			P		P		P		P	50	25
<i>Veronica chamaedrys</i>	P			P		P	P					P		P			P	P		P	45	85
<i>Bromus hordeaceus</i> <i>hordeaceus</i>		P	P		P		P			P			P		P		P				40	15
<i>Achillea millefolium</i>					P		P		P			P			P		P			P	35	30
<i>Agrostis stolonifera</i>			P			P		P		P			P					P	P		35	
<i>Poa trivialis</i>		P		P		P		P		P			P			P					35	40
<i>Arrhenatherum elatius</i>						P		P			P		P			P			P		30	
<i>Urtica dioica</i>	P			P			P			P				P					P		30	60
<i>Brachythecium rutabulum</i>							P		P			P			P		P				25	65
<i>Phleum bertolonii</i>					P			P	P					P					P		25	10
<i>Taraxacum officinale</i>			P	P				P								P			P		25	80
<i>Anthoxanthum odoratum</i>					P				P		P									P	20	

Cerastium fontanum							P			P			P				P					20	60		
Cirsium vulgare					P		P		P								P						20	20	
Kindbergia praelonga		P				P							P	P									20		
Lolium perenne					P		P			P			P										20	85	
Glechoma hederacea																	P		P				P	15	
Ranunculus repens										P									P	P				15	15
Alopecurus pratensis						P							P											10	
Poa humilis	P																						P	10	
Trifolium repens							P		P															10	90
Juncus effusus																							P	5	
Rumex acetosella																									65
Brachytecium albicans																									45
Veronica arvensis																									25
Rhytidiadelphus squarrosus																									10
Geranium molle																									10
Cerastium glomeratum																									5
Rumex acetosa																									5
Capsella bursa-pastoris																									5
																									Mean
<b>Species Number</b>	<b>7</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>11</b>	<b>9</b>	<b>14</b>	<b>9</b>	<b>11</b>	<b>10</b>	<b>7</b>	<b>9</b>	<b>9</b>	<b>12</b>	<b>7</b>	<b>8</b>	<b>10</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9.2</b>	<b>12.5</b>	

### 3.2.4 Commentary

#### Vegetation structure

The vegetation is generally short, of even height, very open with much bare ground and an extensive layer of litter. There is the basal grassy turf, which is generally dense, with a patchy upper tier of *Urtica dioica* and shorter emerging stems of *Cirsium arvense*. The reduced growth reflects a particularly dry spring with ongoing cropping by a flock of sheep.

#### Floristics

This stand is dominated by a grassy sward of *Holcus lanatus* with patchy *Agrostis capillaris*, *Bromus hordeaceus hordeaceus* and *Festuca rubra* with less frequent and abundant other grasses. The latter include coarse grasses such as *Dactylis glomerata* and *Arrhenatherum elatius*. Large or prominent broadleaved herbs are restricted, with *Urtica dioica*, *Cirsium arvense* and *Achillea millefolium* being the most obvious. There is a sprinkling of small grassland species such as *Veronica chamaedrys*, *Stellaria graminea*, *Cerastium fontanum* and *Trifolium repens*, but overall, the sward is quite species-poor. Mosses are infrequent and of low cover, restricted to the more catholic species *Kindbergia praelonga* and *Brachythecium rutabulum*.

The flora is typical of relatively low-quality mesotrophic grassland with no indicators of acid grassland and few that suggest old, unimproved pastures. Proximity to damper ground and the rush pasture to the south is suggested by *Juncus effusus* and *Poa humilis*, both at low frequency.

#### Summary of records and events

The plot has been grazed with sheep each year but may have been ungrazed in 2024.

#### Relation to past and target conditions

Comparison with the 2017 data shows that by 2025 there has been a significant decline in both quality and distinctiveness. Species number per quadrat has declined from 12.5 to 9.2, with loss of a number of acid grassland or meadow species, while those recruited often signify a sward out of condition – such as *Arrhenatherum elatius*, *Agrostis stolonifera*, *Kindbergia praelonga* and *Glechoma hederacea*. The community has lost all trace of acid grassland character with loss of *Rumex acetosella*, *Brachythecium albicans* and *Cerastium glomeratum* in particular. It is now clearly a mesotrophic grassland, possibly intermediate between MG1 *Arrhenatherum elatius* coarse grassland and MG6 *Lolium perenne*-*Cynosurus cristatus* agricultural grassland. More positively, the frequency of *Urtica dioica* has declined, but the sward is in need of regular and quite intense cropping to reduce the density of the grass sward and recover condition.

### 3.3 The Frith Plot F03 Ordinary Dry Grassland - Calcareous

#### 3.3.1 Photographic Record

##### F03 Ordinary Dry Grassland - Calcareous: Whole Plot View



##### F03 Ordinary Dry Grassland - Calcareous: Quadrants

South West	South East
	



### 3.3.2 Vegetation Structural Characteristics

<b>Monitoring Plot</b>	The Frith F03					
<b>Recorder</b>	Mike Harding					
<b>Survey Date</b>	13 <sup>th</sup> May 2025					
<b>Character of the ground surface</b>						
Overall flat with a gentle decline from north to south. Microtopography is provided by grass tussocks, and a number of ant hills and small mounds left by moles. Very dry sandy topsoil exposed in molehills.						
<b>Soil Wetness</b>						
Dry, dusty	Dry, firm	Slightly damp	Moist	Wet	Saturated	
	IIII					
	<b>Attribute</b>	<b>Quadrant</b>				<b>Average</b>
		<b>SW</b>	<b>SE</b>	<b>NW</b>	<b>NE</b>	
<b>Layer height</b>	Standing water (cm)	0	0	0	0	0
	Plant litter (cm)	6	4	4	6	5
	Woody seedlings (cm)	0	0	0	0	0
	Large sedges / rushes (cm)	0	0	0	0	0
	Reed-like grasses (cm)	0	0	0	0	0
	Woody saplings (cm)	0	0	0	0	0
<b>Cover value</b>	Standing water (%)	0	0	0	0	0
	Trampling (%)	0	0	0	0	0
	Dunging (%)	1	0	0	0	0
	Bare ground (%)	10	5	5	15	6.25
	Plant litter (%)	60	30	50	40	45
	Bryophytes (%)	1	1.5	1	0.5	1
	Woody seedlings (%)	0	0	0	0	0
	Large sedges / rushes (%)	0	0	0	0	0
	Reed-like grasses (%)	0	0	0	0	0
	Woody saplings (%)	0	0	0	0	0

### 3.3.3 Floristic Sampling

<b>Monitoring Plot</b>	F03 Ordinary Dry Grassland - Calcareous
<b>Recorder</b>	Mike Harding
<b>Survey Date</b>	13 <sup>th</sup> May 2025

	Sample Number																				Frequency	Frequency
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	2025	2017
<i>Dactylis glomerata</i>	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100	45
<i>Holcus lanatus</i>	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100	90
<i>Festuca rubra</i>	P	P	P	P	P	P	P	P	P	P	P		P		P	P	P	P		85	70	
<i>Achillea millefolium</i>	P	P		P	P	P	P		P		P			P		P	P	P		P	65	40
<i>Agrostis capillaris</i>	P		P		P		P		P	P	P	P		P		P	P	P	P		65	100
<i>Agrostis stolonifera</i>		P	P	P	P	P		P		P		P	P		P		P			P	60	10
<i>Anthoxanthum odoratum</i>	P		P		P		P		P		P	P	P	P		P		P	P		60	
<i>Arrhenatherum elatius</i>	P			P		P		P	P			P	P	P	P		P	P		P	60	5
<i>Phleum bertolonii</i>	P			P		P	P		P	P	P			P		P	P		P		55	40
<i>Poa trivialis</i>		P	P	P			P			P		P			P		P	P		P	50	35
<i>Trisetum flavescens</i>	P			P				P	P	P	P			P		P			P		45	55
<i>Brachytecium rutabulum</i>					P	P		P		P			P				P		P		35	65
<i>Bromus hordeaceus hordeaceus</i>			P				P	P		P				P		P			P		35	5
<i>Taraxacum officinale</i>		P	P	P						P	P							P		P	35	45
<i>Alopecurus pratensis</i>		P	P				P	P									P			P	30	
<i>Rhytidadelphus squarrosus</i>	t					P			P		P					P			P		30	25

<i>Stellaria graminea</i>									P	P	P			P				P			25	35	
<i>Lolium perenne</i>		P			P							P		P							20	40	
<i>Potentilla reptans</i>						P			P		P										15	10	
<i>Rumex acetosella</i>									P		P						P				15	15	
<i>Urtica dioica</i>				P	P													P			15	10	
<i>Veronica chamaedrys</i>			P													P			P		15	85	
<i>Cirsium vulgare</i>							P											P			10	10	
<i>Kindbergia praelonga</i>					P							P									10		
<i>Vulpia bromoides</i>									P					P							10		
<i>Cirsium arvense</i>																				P	5	95	
<i>Geranium molle</i>																						35	
<i>Veronica arvensis</i>																						20	
<i>Cerastium fontanum</i>																						15	
<i>Carduus nutans</i>																						10	
<i>Veronica serpyllifolia</i>																						10	
<i>Linum catharticum</i>																						5	
<i>Leontodon hispidus</i>																						5	
<i>Geranium dissectum</i>																						5	
																						Mean	
No. Species	10	9	11	11	11	10	11	9	14	12	13	10	6	13	5	12	11	12	11	9	10.5	10.4	

### 3.3.4 Commentary

#### Vegetation structure

The plot is on relatively flat slightly sloping ground with a short grass turf. The turf is dense with only occasional taller forbs such as *Urtica dioica*. Molehills and anthills break up the sward and the long-established ant hills have developed their own micro-flora in the more parched and open sandy soil. Otherwise, there is very little structural variation with a dense litter covering the ground and only the occasional wefts of moss.

#### Floristics

The grass turf is dominated by coarse grasses such as *Dactylis glomerata*, *Holcus lanatus* and *Agrostis stolonifera* with *Arrhenatherum elatius* less frequent. Also frequent is the finer leaved *Festuca rubra*, although this is not dominant. The rest of the sward is made up of a range of mesotrophic grasses, of which *Agrostis capillaris*, *Anthoxanthum odoratum*, *Poa trivialis*, *Phleum bertolonii* and *Trisetum flavescens* are the most prominent although there are other meadow grasses too, including *Bromus hordeaceus hordeaceus*, *Alopecurus pratensis* and *Lolium perenne*. There is relatively little space for broadleaved herbs in the dense grass. The open soils presented by moles give room for *Taraxacum officinalis* while the molehills have a micro-flora typical of parched grassland such as *Rumex acetosella* and *Vulpia bromoides*. *Achillea millefolium* is the only forb that achieves high frequency.

#### Summary of records and events

The plot was being grazed by sheep at the time of the survey.

#### Relation to past and target conditions

It was always a stretch to describe this plot as “calcareous” in 2017, with very few chalk indicators and a flora of predominantly circum-neutral grassland species. As Plot F02 has lost its very moderate acid indicators since 2017, so Plot F03 has lost the couple of calcareous grassland indicators it had at low frequency in 2017. The sward is now wholly neutral mesotrophic grassland, wholly dominated by grasses. Mean number of species per quadrat is almost identical in 2017 and 2025. However, this average hides a significant negative change; by 2025, the flora has lost many smaller and broadleaved herbs but gained additional mesotrophic grasses which appear in most quadrats. Richness is maintained but distinctiveness is lost.

This remains a species-poor plot of low conservation value which has lost what little distinctiveness it had. In NVC terms it sits between MG1 *Arrhenatherum elatius* grassland and MG6 *Lolium perenne*-*Cynosurus cristatus* agricultural grassland. It is now very similar to Plot F02. The deterioration is due to insufficient summer cropping.

One positive change is the very significant reduction in *Cirsium arvense* over the last 8 years.

### 3.4 Oak Tree Fen E01 Alluvial Meadow

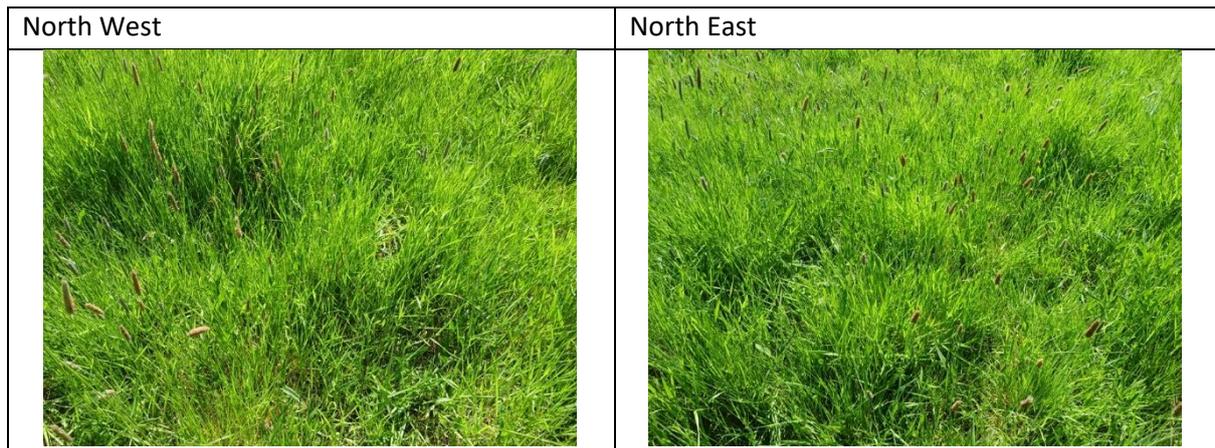
#### 3.4.1 Photographic Record

Plot E01 Alluvial Meadow: Overall View



Plot E01 Alluvial Meadow: Quadrants

South West	South East
	



### 3.4.2 Vegetation Structural Characteristics

<b>Monitoring Plot</b>		Oak Fen Plot E01 Alluvial meadow				
<b>Recorder</b>		Mike Harding				
<b>Survey Date</b>		17th May 2025				
<b>Character of the ground surface</b>						
Flat alluvial meadow, silty over peat, no significant micro-topography, not even tussocky grasses.						
<b>Soil Wetness</b>						
Dry, dusty		Dry, firm	Slightly damp	Moist	Wet	Saturated
		III				
	<b>Attribute</b>	<b>Quadrant</b>				<b>Average</b>
		<b>SW</b>	<b>SE</b>	<b>NW</b>	<b>NE</b>	
<b>Layer height</b>	Standing water (cm)	0	0	0	0	0
	Plant litter (cm)	3	2	4	2	2.75
	Woody seedlings (cm)	0	0	0	0	0
	Large sedges / rushes (cm)	0	0	0	0	0
	Reed-like grasses (cm)	0	0	0	0	0
	Woody saplings (cm)	0	0	0	0	0
<b>Cover value</b>	Standing water (%)	0	0	0	0	0
	Trampling (%)	0	0	0	0	0
	Dunging (%)	0	0	0	0	0
	Bare ground (%)	2	5	3	5	3.75
	Plant litter (%)	30	60	40	30	70
	Bryophytes (%)	0.5	0.5	0.5	0.5	0.5
	Woody seedlings (%)	0	0	0	0	0
	Large sedges / rushes (%)	5	5	2	3	3.75
	Reed-like grasses (%)	0	0	0	0	0
	Woody saplings (%)	0	0	0	0	0

### 3.4.3 Floristic Sampling

<b>Monitoring Plot</b>	Plot E01 Alluvial Meadow
<b>Recorder</b>	Mike Harding
<b>Survey Date</b>	17 May 2025

	Sample Number																				Frequency		
																					2025	2017	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
<i>Alopecurus pratensis</i>	P	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P	P	P	P	95	10	
<i>Poa trivialis</i>	P	P		P	P	P	P	P	P	P	P				P	P	P	P	P	P	80	95	
<i>Agrostis stolonifera</i>	P	P	P		P	P		P	P		P	P	P	P			P	P	P		75	100	
<i>Holcus lanatus</i>	P	P		P	P	P	P		P	P		P	P			P	P	P	P	P	75	95	
<i>Persicaria amphibia</i>	P	P	P	P	P	P	P	P	P	P	P	P	P	P							70	100	
<i>Phalaris arundinacea</i>		P	P	P		P		P	P		P			P	P	P			P		55	60	
<i>Elymus repens</i>			P		P		P		P		P	P		P		P	P		P		50		
<i>Cirsium arvense</i>		P	P	P		P			P		P		P			P					40		
<i>Lolium perenne</i>	P			P		P			P				P	P			P				35	70	
<i>Arrhenatherum elatius</i>		P					P					P		P			P		P		30		
<i>Persicaria maculosa</i>															P	P	P	P	P	P	30		
<i>Phleum pratense</i>									P	P			P					P			P	25	10
<i>Taraxacum officinale</i>							P		P				P					P		P		25	5
<i>Brachythecium rutabulum</i>									P				P		P				P			20	
<i>Ranunculus repens</i>					P			P				P						P				20	
<i>Urtica dioica</i>		P	P								P						P					20	
<i>Vicia sativa</i>	P			P			P											P				20	
<i>Cardamine pratensis</i>								P						P			P					15	

Cerastium fontanum									P			P						P				15	
Kindbergia praelonga				P				P							P							15	
Carex acutiformis											P		P									10	
Carex hirta																		P		P		10	
Galium uliginosum				P				P														10	
Trifolium repens						P			P													10	5
Carex riparia																				P		5	
Potentilla reptans									P													5	
Thalictrum flavum																						5	
Angelica sylvestris																							15
Quercus robur seedling																							5
																							Mean
<b>No. Species</b>	<b>7</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>7</b>	<b>9</b>	<b>8</b>	<b>10</b>	<b>14</b>	<b>5</b>	<b>10</b>	<b>7</b>	<b>10</b>	<b>8</b>	<b>6</b>	<b>9</b>	<b>13</b>	<b>7</b>	<b>11</b>	<b>5</b>	<b>8.65</b>	<b>5.7</b>	

### 3.4.4 Commentary

#### Vegetation structure

The plot is a relatively even and dense grassy sward with emergent sedges and some tall herbs, but these are infrequent and of low cover and do not constitute a vegetation layer (hence the tall sedges and rushes layer in the above table is not recorded). There is a thin spread of moss growing through the grass. The litter layer is quite extensive and thick in places, with bare ground relatively sparse.

#### Floristics

The plot is overwhelmingly dominated by grasses, particularly by dense stands of *Alopecurus pratensis*, *Poa trivialis* and *Agrostis stolonifera* with *Holcus lanatus*, *Elymus repens* and *Arrhenatherum elatius* making up the bulk of the vegetation. The wetland grass *Phalaris arundinacea* is frequent but not especially abundant. Other than the two species of *Persicaria*, and some *Cirsium arvense*, broadleaved herbs are uncommon and of low cover. While there are a couple of indicators of poor condition (*Cirsium arvense*, *Urtica dioica*), there are also some wetland plants indicating the potential for restoration to fen meadow – *Carex acutiformis*, *Galium uliginosum*, *C. riparia*, *Thalictrum flavum* and *Cardamine pratensis* for instance, albeit at low frequency. Mosses are infrequent and restricted to catholic species of a wide variety of habitats – *Brachythecium rutabulum* and *Kindbergia praelonga*. Overall, the sward is relatively species-poor and still heavily dominated by coarse and productive grasses typical of mineral soils managed for agricultural production, reflecting the long-term history of the site.

#### Summary of records and events

Management history is not known precisely. The plot is grazed most years.

#### Relation to past and target conditions

Since the set up of the plot in 2017 the vegetation has greatly improved with mean number of species per quadrat increasing from 5.7 to 8.65 in 2025. The sward is still heavily grass-dominated, but the range of grasses has widened and dominance has passed to *Alopecurus pratensis*. The most significant trend, though, is the recruitment to the plot of a variety of fen meadow species not recorded in 2017, described above. These additional species all indicate increased wetness and more favourable conditions for development of wetland habitats. Less welcome is the increase in *Cirsium arvense* and recruitment of *Urtica dioica*, both perhaps reflecting the disturbance associated with earlier restoration activities.

## 4. CONCLUSIONS AND RECOMMENDATIONS

### 4.1 The Frith

All three plots at the Frith have deteriorated significantly since the last recording. The two grassland plots have lost their distinctive calcareous or acid character (although this was always rather marginal) and have converged to present neutral grasslands typical of agricultural situations.

The two plots seem fairly representative of the whole of the Frith (suggested by a brief walkover), with the main cause being insufficient cropping in recent years. The policy of mowing nettles seems to be working, but otherwise the Frith is not achieving its conservation objectives.

These changes are easily reversible, but require much more intensive annual cropping.

The most effective method would be to crop the hay for a few years followed by quite intense aftermath grazing to reduce the vigour of the principal grasses. Subsequently, the grazing density needs to be increased significantly to keep the grass sward under pressure.

The rush pasture plot has also deteriorated because of insufficient cropping. This is more challenging to address because the dense and mature rush tussocks will be resistant to grazing. Dense grazing may only exacerbate rush dominance through poaching and seed germination. Cutting and removal of rush, ideally twice/year, followed by grazing of the emerging young shoots is the most effective treatment assuming weed wiping is not a favoured option.

Scrub appears to be colonising in this compartment.

### 4.2 Oak Tree Fen

The single plot here continues to be dominated by dense grasses. However, the direction of change is positive, with significant enrichment by a wide range of fen meadow herbs. The current management is clearly beneficial.

To accelerate improvement, further raising of the groundwater level would be beneficial. Most of all, increased cropping to reduce the dominance of the grass turf would be helpful. Hay cutting would help control thistle and nettle followed by aftermath grazing. If cut and removal is not possible, then consider more intense grazing possibly on a pulse (mob) grazing system which may be more practical for a small area.

### **4.3 Plot Numbers and Location**

The location of the monitoring plots are all well-chosen, and there are no recommendations for increasing the number of plots.

However, the permanent marker posts need repainting, with a new post set for Plot E01, post E01-02, on Oak Tree Fen.

## 5. REFERENCES

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