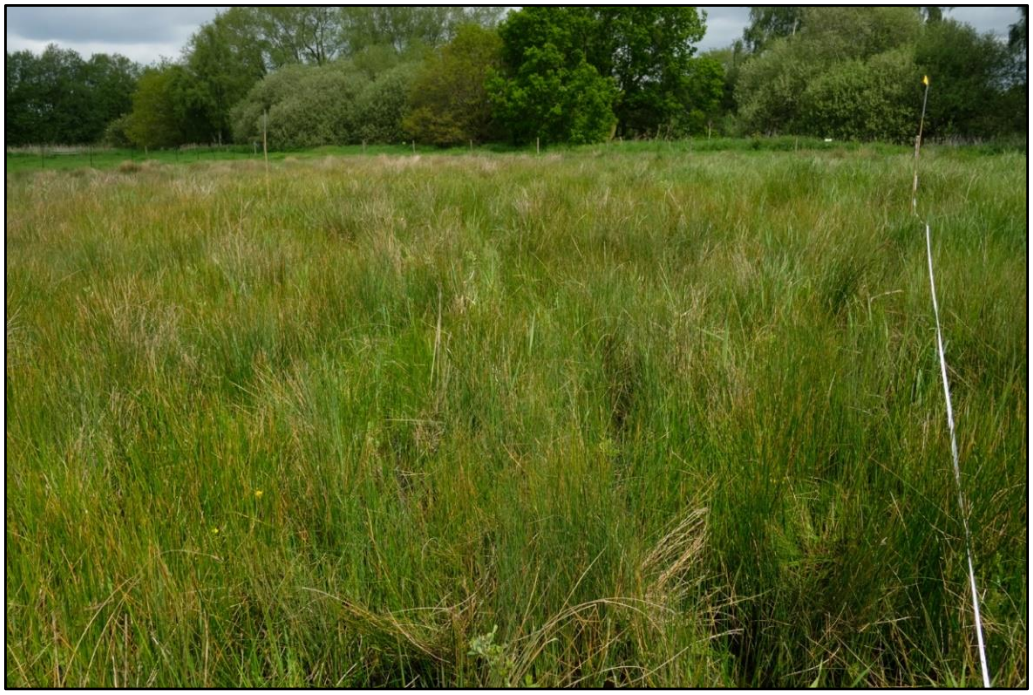
Hummingbird
Willowbank, 2 Mill Road,
Salhouse, Norwich,
Norfolk NR13 6QA
01603 720818
07776 301958
mh.hummingbird@btconnect.com

Recording of the Monitoring Plots,

Bleyswycks Bank and Parkers Piece 2023



Mike Harding on behalf of

Little Ouse Headwaters Project

August 2023

Little Ouse Headwaters Project
Conservation & Community

Contents

1. AIMS

The Little Ouse Headwaters Project set up four monitoring plots at Parkers Piece and two at Bleyswycks Bank, (OHES 2009, 2010, 2018). The plots occupied scrapes or adjacent habitat undertaken following acquisition by LOHP.

In 2023 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-July 2023. 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 (2018) were used to resurvey the six plots on the sites:

Parkers Piece:

Plot P0-1: Shallow Scrape (20cm). Located at the west end of the group of Plots. Situated on a flat surface of scraped peat 20cm below surrounding land level.

Plot P-02. Fen Pool. This plot extends from the margin into the deeper centre of the pond, excavated to 100 cm below the original peat surface.

Plot P-03 Peat scrape (40 cm) 1. Along with P-04, this plot is located in a deeper scrape, set at a depth of 40 cm below ground level.

Plot P-04 Peat scrape (40 cm) 2. As with P-03, this plot lies in the deeper scrape, and forms the eastern end of the sequence.

These plots are on the **WEST** side of the tapes.

Bleyswycks Bank

Plot B-01: Ordinary Wet Grassland – located on the west side of the small pool, in rush pasture.

Plot B-02: Ordinary Wet Grassland – Located on the east side of the pool just to the north. The south-west quadrant has a small section of pool which was not sampled.

The monitoring plots are on the **EAST** side of the tape.

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 in 2009 (OHES 2010), along with a first recording of the plots (Items 2-4). Stone (2018) provides the results of a second recording of Items 2-4, data recorded 2017. This report is the third survey of the plots, data recorded 2023. Although the gaps between re-survey are uneven (eight and then six years) the variation is small and probably not significant.

Plot and marker details are given in Stone (2018), reproduced in Table 2 and Figure 1. The marker posts are topped with white paint but this is now fading and needs repainting. All markers were present in 2023. Note that for Plots B-01 and B-02 there are typos in the original location description. The NW corner of the plot was recorded as 30m south of marker posts B-01-N and B-02-N. However, on B-01, the tape for this plot is only 37m long. This would place the plot somewhat beyond the tape and in a different habitat type. The correct distance is 20m, placing the plot in the heart of the Ordinary Wet Grassland. In Plot B-02, 30m would place the plot partially over the pond – this habitat is not recorded so again the NW corner must be 20m south of B-02-N.

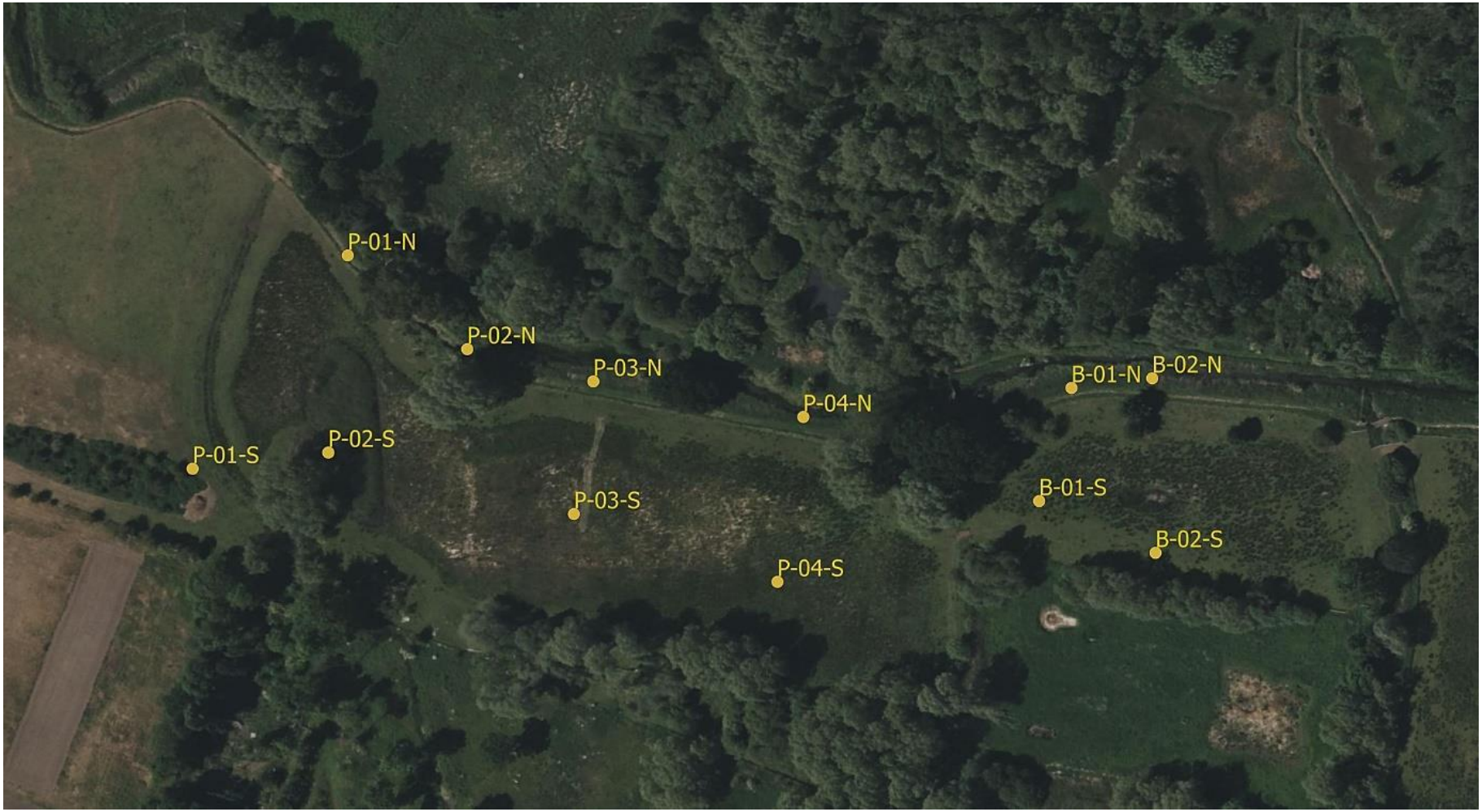
Plant nomenclature is according to Stace (2019) and Hill et al (2008).

The recommended quadrat size of 1m x 1m was used, with recording of 20 sub-samples in each plot. Neither OHES (2010) nor Stone (2018) specify how sub-samples are to be located within the plot. Hence in 2023, sub-samples were relocated using random number tables and measuring tapes along two of the plot sides.

Table 2: Monitoring Plot Locations Parkers Piece and Bleyswycks Bank, reproduced from Stone (2018) with corrections for B-01 and B-02.

VEGETATION TYPE (2017)	PLOT CODE	MARKER POSTS	Marker Post Location	EASTING	NORTHING	Plot location
Parkers Piece						
Rush-dominated vegetation	P-01	P-01-N	Fence post	601320	279020	NE plot corner is 25 m along the line between marker posts, south of the N post.
		P-01-S	NE corner of fenced exclosure	601272	278954	
Reed-dominated swamp with aquatics	P-02	P-02-N	Fence post	601357	278991	SE plot corner is 5 m along the line between marker posts, north of the S post.
		P-02-S	N post of piezometer cage	601314	278959	
Rush-dominated vegetation	P-03	P-03-N	Fence post	601396	278981	NE plot corner is 20 m along the line between marker posts, south of the N post.
		P-03-S	Free-standing	601390	278940	
Sedge-dominated vegetation	P-04	P-04-N	Fence post	601461	278970	NE plot corner is 35 m along the line between marker posts, south of the N post.
		P-04-S	Free-standing	601453	278919	
Bleyswycks Bank						
Ordinary Wet Grassland	B-01	B-01-N	The marker post is on the fence line.	601544	278979	The NW corner of the plot is 20m south of B-01-N
		B-01-S	The marker post is on the northwest corner of the dipwell enclosure.	601534	278944	
Ordinary Wet Grassland	B-02	B-02-N	The marker post is on the fence line.	601569	278982	The NW corner of the plot is 20m south of B-02-N
		B-02-S	The marker post is on the fence line.	601570	278928	

Figure 1: Location of Plot Marker Posts. On Parkers Piece, plots are to the west of tapes strung between marker posts. On Bleyswycks Bank they are to the east. Aerial Copyright Bing VirtualEarth**.**

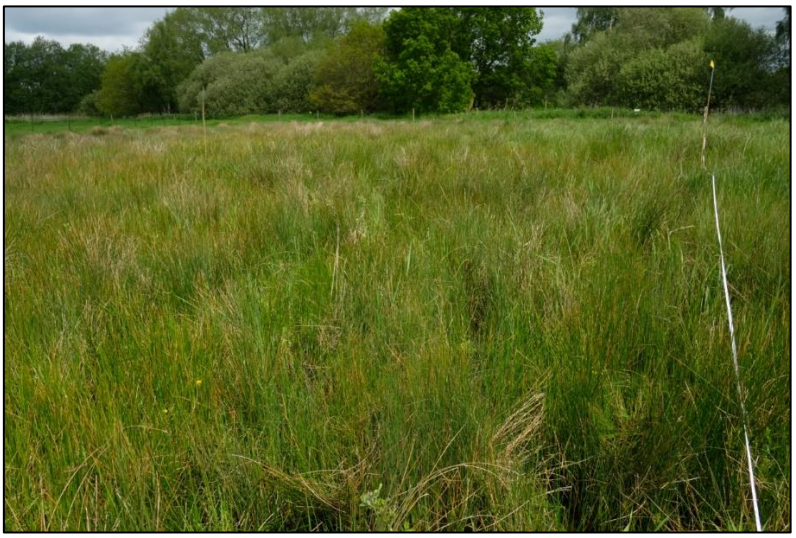


3. RESULTS

3.1 Plot P-01: Shallow Scrape (20cm)

3.1.1 Photographic Record

P-O1: Shallow Scrape (20cm) Whole Plot



P-O1: Shallow Scrape (20cm) Quadrants

South West	South East
	
North West	North East
	

3.1.2 Vegetation Structural Characters

Monitoring Plot	P-01
Recorder	Mike Harding
Survey Date	18th May 2023

Character of the ground surface

Flat ground from previous scraping, some micro-topographical variation with deeper water areas, and some localised variation from tussock development. Ground firm underfoot. Water above ground across the plot.

Soil Wetness

Dry, dusty	Dry, firm	Slightly damp	Moist	Wet	Saturated
					IIII

	Attribute	Quadrant				Average
		SW	SE	NW	NE	
Layer height	Standing water (cm)	10	15	25	25	18.75
	Plant litter (cm)	3	2	0	0	1.25
	Woody seedlings (cm)	0	0	0	0	0
	Large sedges / rushes (cm)	50	50	60	50	0
	Reed-like grasses (cm)	40	40	60	50	0
	Woody saplings (cm)	40	50	0	80	42.5
Cover value	Standing water (%)	90	90	95	95	92.5
	Trampling (%)	0	0	0	0	0
	Dunging (%)	0	0	0	0	0
	Bare ground (%)	0	0	0	0	0
	Plant litter (%)	20	10	5	5	10
	Bryophytes (%)	0	0	0	0	0
	Woody seedlings (%)	0	0	0	0	0
	Large sedges / rushes (%)	80	70	70	80	75
	Reed-like grasses (%)	10	20	20	10	15
	Woody saplings (%)	2	2	0	2	1.5

3.1.3 Floristic Sampling

Monitoring Plot	P-01
Recorder	Mike Harding
Survey Date	18th May 2023

	Sample Number																				Frequency		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**2023**	**2017**	**2009**
Mentha aquatica	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100	100	25
Juncus subnodulosus	P	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	95	75	
Lythrum salicaria	P	P		P	P		P	P	P	P	P	P	P	P	P		P		P		75	90	
Juncus inflexus	P	P	P	P	P	P	P	P	P				P				P	P	P	P	70	75	75
Juncus effusus	P	P	P	P		P	P			P	P		P			P			P	P	60	65	15
Ranunculus repens	P	P	P	P	P	P	P		P			P	P			P			P		60	35	15
Agrostis stolonifera				P	P	P	P	P	P	P			P		P	P	P	P			60	45	
Phalaris arundinacea			P	P	P	P		P	P			P					P	P	P	P	55	20	
Potentilla anserina					P	P	P	P				P			P	P			P	P	45	30	
Equisetum palustre					P		P	P				P	P	P	P	P				P	45		
Carex riparia	P	P	P		P				P	P	P		P								40	10	
Galium palustre	P					P		P		P		P	P	P					P		40		
Hydrocotyle vulgaris		P		P				P				P		P	P			P		P	40	30	
Thalictrum flavum				P	P			P				P			P	P					30	5	
Salix cinerea				P		P										P		P	P		25	15	
Carex hirta													P		P	P	P	P			25	25	
Salix fragilis	P				P										P			P			20	15	
Phragmites australis							P							P	P	P					20		
Persicaria maculosa		P							P											P	15	20	
Cardamine pratensis							P								P					P	15	5	
Carex acutiformis										P				P							10		
Eupatorium cannabinum										P						P					10	10	35

Poa trivialis																			P	P	10	50	20
Cirsium palustre																			P	P	10	10	10
Iris pseudacorus																	P				5		
Juncus articulatus																						50	40
Plantago major																						40	45
Salix cinerea seedling																						30	5
Cirsium arvense																						15	30
Urtica dioica																						15	5
Juncus bufonius																						5	10
Stellaria aquatica																						5	5
Salix alba sapling																						20	
Deschampsia cespitosa																						10	
Capsella bursa-pastoris																						5	
Chenopodium album																						5	
Epilobium palustre																						5	
Rorippa sylvestris																						5	
Bryum sp																							95
Alopecurus myosuroides																							60
Polygonum aviculare																							45
Stellaria media																							30
Barbula unguiculata																							25
Holcus lanatus																							20
Anagallis arvensis																							15
Leptobryum pyriforme																							15
Cirsium vulgare																							15
Conium maculatum																							15
Carex sylvatica																							10
Papaver sp.																							5
																					Mean		
SPECIES NUMBER	9	9	6	11	12	10	11	11	9	9	5	10	11	8	12	12	8	9	12	12	9.8		

3.1.4 Commentary

Vegetation structure

Structurally the plot is rather homogeneous, dominated by a tier of rushes. These are single-stemmed *J. subnodulosus* and tussocks of *J. inflexus* and *J. effusus*, although because of the mowing the latter have not formed dense stools but more open crowns. With the rush is a component of reedy grasses and sedges. These monocots provide the bulk of the vegetation in a sometimes open layer of relatively uniform height. Smaller lower growing herbs form a discontinuous lower tier along with the grass *Agrostis stolonifera.* There is no ground layer of mosses, although significant depth of water over the stand and a layer of litter at the base may have obscured some occasional strands. Emerging from the rush and sedge layer are occasional young, multi-stemmed saplings of willows, previously cut. No scrub seedlings were recorded.

Floristics

The stand is dominated by the three rushes described above with *J. subnodulosus* being most frequent, implying base-rich conditions. This rush appears to be increasing, with the others showing marginal decreases. There is frequent *Carex riparia* and *Phalaris arundinacea,* with rare *C. acutiformis,* reflecting the swampy conditions of the stand, both significantly increasing compared to 2017. This trend is emphasised by frequent *Galium palustre,* occasional *Phragmites* and rare *Iris pseudacorus* (none previously recorded). Fen herbs are present, mostly increasing (*Hydrocotyle vulgaris, Equisetum palustre, Thalictrum flavum*), although with a mean species number of 9.8 per $1m^2$ quadrat, this could not be described yet as species-rich. Some plants of pasture – *Ranunculus repens, Agrostis stolonifera* - are frequent and appear to have increased, while the inundation indicator *Potentilla anserina* has also increased. Plants of dryer or infrequently managed habitats such as *Poa trivialis, Cirsium arvense, Urtica dioica, Plantago major* and *Deschampsia cespitosa* are all declining or no longer recorded. Scrub has a mixed picture, with *Salix alba* and seedlings of *S. cinerea* no longer recorded, although the latter may simply have grown into the now more frequent saplings along with a slight increase in *S. fragilis* saplings.

Overall the community has shifted closer to a true M22 *Juncus subnodulosus-Cirsium palustre* fen meadow, although rather species-poor and closest to the Typical sub-community. In time and with good management it could progress to the more distinctive *Iris pseudacorus* sub-community with which it has some affinity.

Summary of records and events

The plot has been mown relatively recently but the history of management is not known.

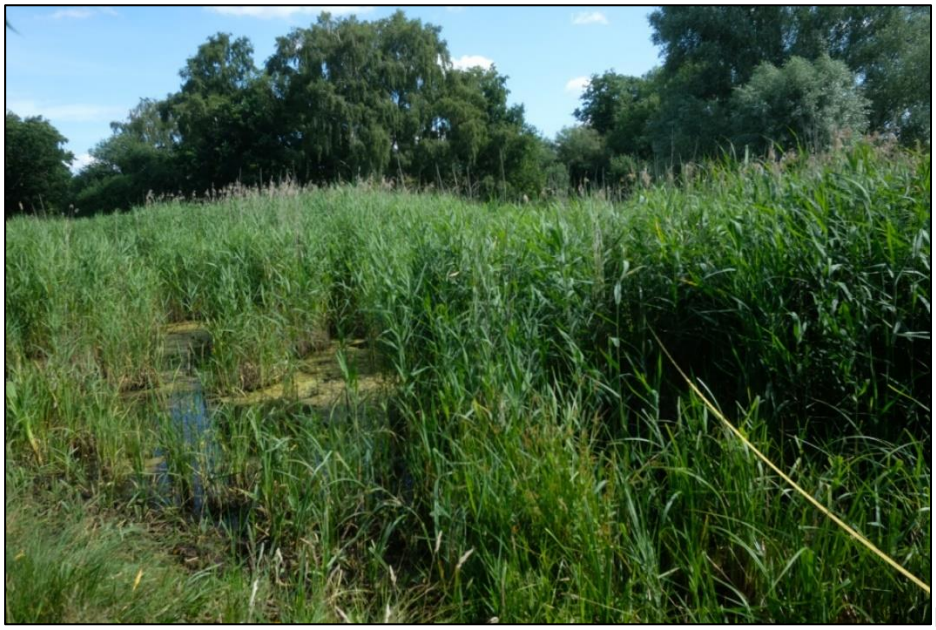
Relation to past and target conditions

While the stand is developing well and in the right direction toward M22, it would benefit from more frequent mowing, ideally annually, which would encourage cattle to graze the late season aftermath when the stand is dry enough to sustain stock. This would help open the stand up and promote species-richness.

3.2 Plot P-02: Fen Pool

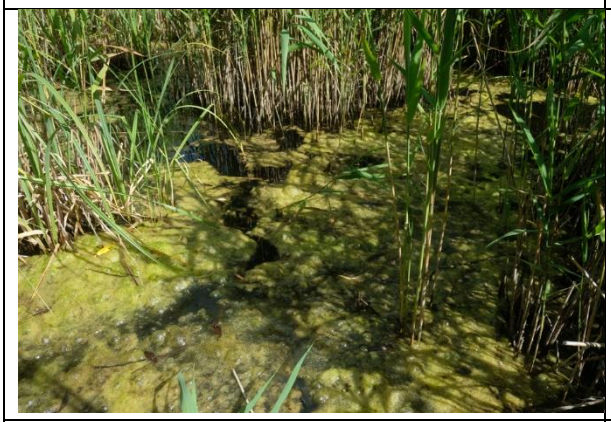
3.2.1 Photographic Record

P-O2: Fen Pool Whole Plot View



le Plot

P-02: Fen Pool Quadrants

South West	South East
	
North West	**North East**
	

3.2.2 Vegetation Structural Characteristics

Monitoring Plot	P-02 Fen Pool
Recorder	Mike Harding
Survey Date	10 July 2023

Character of the ground surface

A deep scrape to 1m depth. The deep thickness of reed rhizome is starting to be bouyant, verging on floating over the base. Wide tracks through the reed have been made (deer?) and here there is no rhizome mat but bare peat and silt which is very soft and has been churned up.

Soil Wetness

Dry, dusty	Dry, firm	Slightly damp	Moist	Wet	Saturated
					IIII

	Attribute	Quadrant				Average
		SW	SE	NW	NE	
Layer height	Standing water (cm)	70	80	70	80	75
	Plant litter (cm)	10	10	20	20	15
	Woody seedlings (cm)	0	0	0	0	0
	Large sedges / rushes (cm)	0	70	80	70	55
	Reed-like grasses (cm)	230	230	230	240	232.5
	Woody saplings (cm)	0	0	0	0	0
Cover value	Standing water (%)	98	98	98	98	98
	Trampling (%)	20	30	15	20	21.25
	Dunging (%)	0	0	0	0	0
	Bare ground (%)	20	40	10	20	22.5
	Plant litter (%)	50	30	60	30	42.5
	Bryophytes (%)	0	0	0	0	0
	Woody seedlings (%)	0	0	0	0	0
	Large sedges / rushes (%)	0	10	5	10	6.25
	Reed-like grasses (%)	80	70	90	80	80
	Woody saplings (%)	0	0	0	0	0

3.2.3 Floristic Sampling

Monitoring Plot	P-02 Fen Pool
Recorder	Mike Harding
Survey Date	10 July 2023

	Sample Number																				Frequency 2023	Frequency 2017	Frequency 2009
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**			
Phragmites australis	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100	100	
Algae-blanket weed	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100		
Lemna trisulca		P	P				P		P	P		P		P			P	P		P	50	85	
Typha latifolia				P						P			P		P			P			25	75	
Carex riparia	P							P					P				P	P			25	25	
Mentha aquatica	P					P					P										15		
Lemna minor					P											P			P		15	80	
Sparganium erectum										P					P			P			15		5
Lythrum salicaria			P												P						10		
Potamogeton berchtoldii					P																5	10	
Salix cinerea sapling																						5	
Juncus articulatus																							30
Chara sp.																							15
																					Mean		
	3	2	3	2	3	2	2	2	2	4	2	2	3	2	4	2	3	5	2	2	2.6		

3.2.4 Commentary

Vegetation structure

The stand is simply structured with a very tall tier of helophytes, mostly *Phragmites* (to around 2.4m) with a verse sparse under-layer of *Carex,* over a permanent pool of water with very little aquatic flora in the main deep water area. The striking feature at the water surface is a skim of blanket weed algae. There is a graded margin to the pool (not sampled) with a richer aquatic and fen flora, including on the east margin a dense growth of *Ranunculus trichophyllus*, probably the species with greatest conservation value. Through this vertical structure, there are trackways made presumably by deer where the reed rhizomes have been broken up and the bed of the pool churned over. These trampled areas have no vegetation.

Floristics

This is a very species poor vegetation with a mean of 2.6 species per quadrat with a range of 2-5. This species poverty is because of a combination of (i) deep permanent water excluding most species other than the swamp dominants *Phragmites australis* and *Typha latifolia* (ii) the density and dominance of the reed combined with a blanket of algae excluding aquatic macrophytes which need more open conditions. Where such open conditions have been created in the deer tracks, the constant churn, and the turbidity that results, have ensured the conditions are not suitable for aquatic macrophytes. A further damaging effect of the trampling is the mineralisation of the peat at the bed and the constant release of nutrients into the water column which may in part explain the abundance of algae in this stand.

The most frequent associates of the *Phragmites* are some strands of *Lemna trisulca* where there is space in or under the blanket week, and even rarer *Lemna minor*. *Typha latifolia* is a frequent accompaniment in the tall canopy, with occasional *Carex riparia* and *Mentha aquatica,* with rarer *Lythrum salicaria* and *Sparganium erectum*. In NVC terms this is S4 *Phragmites australis* swamp*,* the *Phragmites australis* sub-community.

Summary of records and events

The management history of the stand is not known.

Relation to past and target conditions

Since 2017, the most obvious change has been the appearance and dominance of the water surface by algae. There has been a significant decline in aquatic species, especially *Lemna* spp which were frequent. *Typha latifolia* has also declined, with other swamp and wet fen species entering the stand – *Mentha aquatica, Sparganium erectum, Lythrum salicaria*. These changes suggest a maturing of the reed vegetation, moving away from an entirely reed and aquatic plant community, progressing to a more diverse fen swamp.

While the stand is progressing as expected, the abundance of algae and the damage by trampling are both unwelcome and damaging to the future development of the stand.

3.3 Plot P-03: Peat Scrape (40cm) No.1

3.3.1 Photographic Record

P-03 Peat Scrape (40cm) No. 1 Whole Plot View

P-03 Peat Scrape (40cm) No. 1 Quadrants

South West	South East
	
North West	North East
	

3.3.2 Vegetation Structural Characteristics

Monitoring Plot	P-03 Peat Scrape (40cm) No. 1
Recorder	Mike Harding
Survey Date	10 July 2023

Character of the ground surface

Modest scrape of 40cm. Flat peat surface with some micro-topography from plant tussocks. The ground was inundated in spring/early summer but this has drained down rapidly. There is a skim of dried algae in patches.

Soil Wetness

Dry, dusty	Dry, firm	Slightly damp	Moist	Wet	Saturated
			IIII		

	Attribute	Quadrant				Average
		SW	SE	NW	NE	
Layer height	Standing water (cm)	0	0	0	0	0
	Plant litter (cm)	5	10	5	10	7.5
	Woody seedlings (cm)	0	0	0	0	0
	Large sedges / rushes (cm)	70	70	75	80	73.75
	Reed-like grasses (cm)	90	90	75	90	86.25
	Woody saplings (cm)	90	90	80	70	82.5
Cover value	Standing water (%)	0	0	0	0	0
	Trampling (%)	10	10	10	10	10
	Dunging (%)	0	0	0	0	0
	Bare ground (%)	10	10	5	5	7.5
	Plant litter (%)	90	90	90	90	90
	Bryophytes (%)	0	0	0	0	0
	Woody seedlings (%)	0	0	0	0	0
	Large sedges / rushes (%)	80	90	90	90	87.5
	Reed-like grasses (%)	5	1	5	5	4
	Woody saplings (%)	1	1	1	1	1

3.3.3 Floristic Sampling

Monitoring Plot	P-03 Peat Scrape (40cm) No.1
Recorder	Mike Harding
Survey Date	10 July 2023

	Sample Number																				Frequency	Frequency	Frequency
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	2023	2017	2009
Mentha aquatica	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100	70	20
Carex riparia	P	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	95	50	
Juncus inflexus	P	P	P	P	P	P		P	P	P	P	P	P	P	P		P	P	P	P	90	65	60
Agrostis stolonifera	P	P		P	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P	90	75	
Juncus subnodulosus	P	P		P	P	P	P	P	P	P		P	P	P	P	P	P	P	P	P	90	60	
Lythrum salicaria	P	P		P	P	P	P	P	P		P	P	P		P		P		P	P	75	45	
Phragmites australis		P	P		P			P	P		P		P		P	P	P	P	P	P	65	60	95
Juncus effusus	P		P	P					P		P	P	P	P	P	P			P	P	60	50	10
Carex acutiformis	P	P	P			P		P	P		P		P	P	P			P			55		
Persicaria maculosa	P		P	P	P			P		P		P	P		P			P		P	55	35	
Phalaris arundinacea	P	P	P	P			P	P		P			P			P				P	50		
Equisetum palustre	P								P	P			P	P		P		P	P		40		10
Galium uliginosum				P	P	P								P				P	P		30		
Poa trivialis	P		P						P					P							20	20	20
Iris pseudacorus		P							P							P	P				20	15	
Thalictrum flavum						P	P	P												P	20	10	
Salix cinerea											P					P		P	P		20	35	
Salix fragilis		P			P												P				15	20	
Rumex sanguineus															P						5		

Juncus articulatus																						40	80
Deschampsia cespitosa																						20	80
Sparganium erectum																						45	
Eupatorium cannabinum																							40
Stellaria aquatica																							10
Ranunculus repens																							25
Cirsium palustre																							5
Trifolium repens																							5
Ranunculus sceleratus																							15
Barbarea vulgaris																							10
Plantago major																							55
Bryum sp.																							30
Polygonum aviculare																							30
Stellaria media																							15
Jacobaea vulgaris																							15
Sonchus oleraceus																							10
Urtica dioica																							5
																					Mean		
Total Number Species	11	10	7	9	9	8	6	10	11	7	8	7	11	9	9	9	8	10	10	10	8.95		

3.3.4 Commentary

Vegetation structure

The plot is a quite dense stand of rushes and large pond sedges in an even tier about 75cm tall with occasional tall reed poking above to about 90cm, the latter being too sparse to consider as a tier. Re-growing *Salix* scrub is maintained to about the same height as the sedge and rush tier. There is a range of herbaceous plants within the stand but they grow up among the *Juncus,* so that a low field layer is not apparent, although there can be grassy patches of *Agrostis stolonifera* where the dense sedge and rush thins out. There is no ground layer of bryophytes, the peat surface being covered by a variable layer of litter. There was no surface water at the time of recording, although it was inundated in spring, as evidence by the dried-out patches of blanket weed.

Floristics

The main bulk of the vegetation is contributed by co-dominant *Carex riparia, Juncus subnodulosus* and *J. inflexus*. More patchy but still significant where present are *Juncus effusus* and *Carex acutiformis*. These form a relatively dense and even rush and sedge layer with a variety of fen meadow associates – most frequently *Mentha aquatica,* an understorey of *Agrostis stolonifera* which can be abundant in more open areas, and some *Lythrum salicaria.* Other fen species are occasional and sometimes patchy, such as the sprawling *Galium uliginosum*. The taller helophytes of *Phragmites* and *Phalaris arundinacea* are quite frequent but never abundant. Scrub is occasional but kept in check by mowing. The combination of prolonged inundation in spring and early summer, followed by rapid drawdown and the overwhelming dominance of the rush/sedge tier and the dense litter together mean there are no bryophytes in the stand.

With a mean of around 9 species per quadrat this is a relatively species-poor fen meadow. In NVC terms, the stand is difficult to place but may best fit M22 *Juncus subnodulosus-Cirsium palustre* fen meadow.

Summary of records and events

The stand is mown in summer/autumn, but the frequency is unknown, although it is not annual, judging by the amount of litter on the ground.

Relation to past and target conditions

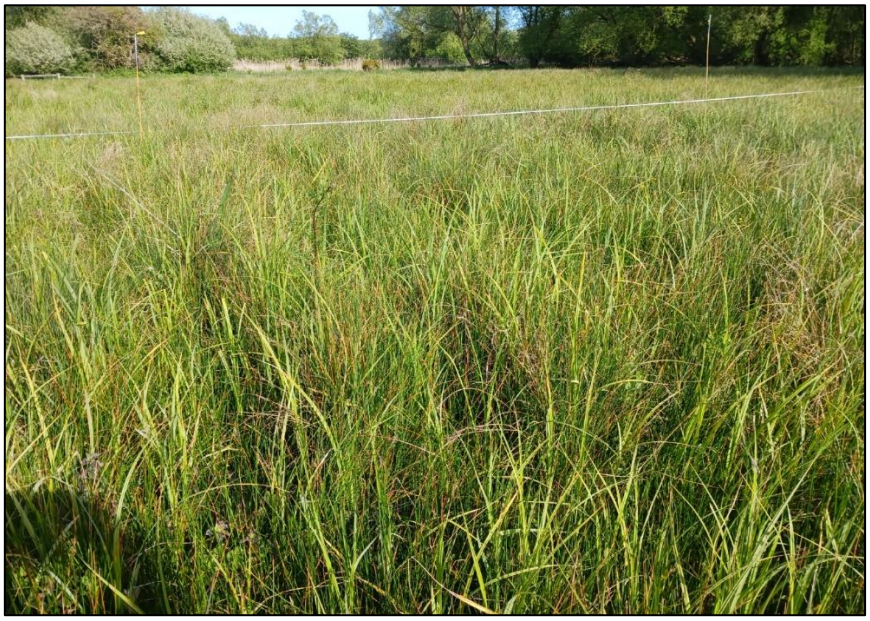
Since 2017, the stand has become more diverse, with the addition of fen species such as *Galium uliginosum, Equisetum palustre, Carex acutiformis*, and the increase in frequency of *Mentha aquatica, Lythrum salicaria, Thalictrum flavum* and *Juncus subnodulosus. Juncus inflexus* and *Carex riparia* have also increased, creating a much denser rush-sedge layer. *Phalaris arundinacea* has entered the community at quite high frequency. The swamp species *Sparganium erectum* was not recorded, neither were *Juncus articulatus* and *Deschampsia cespitosa*, all relatively frequent in previous monitoring rounds.

Overall the progression toward a better quality fen meadow community is welcome, as is the small reduction in scrub, but this remains a relatively species-poor community which would benefit from more frequent management.

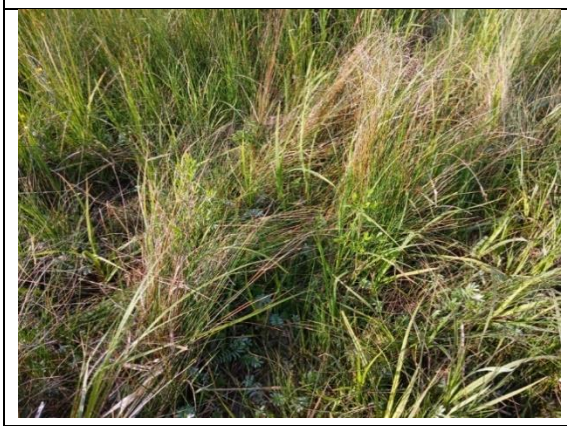
3.4 Plot P-04: Peat Scrape (40cm) No.2

3.4.1 Photographic Record

P-04: Peat Scrape (40cm) No. 2 Overall View



P-04: Peat Scrape (40cm) No. 2 Quadrants

South West	South East
	
North West	North East
	

3.4.2 Vegetation Structural Characteristics

Monitoring Plot	P-04: Peat Scrape (40cm) No. 2
Recorder	Mike Harding
Survey Date	29 May 2023

Character of the ground surface

Overall flat ground from past peat scraping operations. Some micro-variation due to rush tussocks. No surface water due to the recent dry period, but the underlying peat is saturated.

Soil Wetness

Dry, dusty	Dry, firm	Slightly damp	Moist	Wet	Saturated
					IIII

	Attribute	Quadrant				Average
		SW	SE	NW	NE	
Layer height	Standing water (cm)	0	0	0	0	0
	Plant litter (cm)	5	5	5	6	5.25
	Woody seedlings (cm)	0	0	0	0	0
	Large sedges / rushes (cm)	40	50	50	60	50
	Reed-like grasses (cm)	40	45	45	0	32.5
	Woody saplings (cm)	40	0	0	65	26.25
Cover value	Standing water (%)	0	0	0	0	0
	Trampling (%)	20	15	10	20	16.25
	Dunging (%)	0	0	0	0	0
	Bare ground (%)	10	10	15	10	11.25
	Plant litter (%)	70	70	60	55	63.75
	Bryophytes (%)	1	0	0	0	0.25
	Woody seedlings (%)	0	0	0	0	0
	Large sedges / rushes (%)	95	95	90	85	91.25
	Reed-like grasses (%)	1	1	1	1	1
	Woody saplings (%)	1	0	0	5	1.5

3.4.3 Floristic Sampling

Monitoring Plot	P-04: Peat Scrape (40cm) No. 2
Recorder	Mike Harding
Survey Date	29 May 2023

	Sample Number																				Frequency		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	2023	2017	2009
Juncus inflexus	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100	100	30
Mentha aquatica	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100	100	25
Juncus subnodulosus	P	P	P		P	P	P	P		P	P	P	P	P	P	P	P	P	P	P	90	35	
Carex acutiformis			P	P	P	P	P		P	P	P	P	P	P	P	P	P	P	P	P	85	30	
Carex riparia	P	P		P		P	P	P	P	P	P	P			P	P	P		P	P	75	100	
Agrostis stolonifera	P	P	P	P	P				P		P	P	P		P			P	P	P	65	40	
Lythrum salicaria					P	P		P	P	P	P	P	P	P	P			P		P	60	70	
Salix cinerea	P	P						P		P	P	P	P		P		P		P	P	55	5	
Equisetum palustre			P		P		P				P		P	P		P		P	P	P	50		5
Persicaria maculosa	P	P		P	P			P	P	P	P	P				P					50		
Ranunculus repens		P						P		P		P	P	P		P	P	P			45		30
Galium uliginosum					P		P	P		P	P			P				P			35		
Thalictrum flavum				P	P						P				P		P			P	30		
Phalaris arundinacea	P									P					P			P	P		25		
Carex disticha		P					P		P							P		P			25		5
Iris pseudacorus					P							P		P							15		
Potentilla anserina							P									P	P				15	5	
Lycopus europaeus									P	P	P										15		

Cardamine pratensis													P	P							10		
Carex hirta	P																P				10		
Juncus effusus																			P	P	10	5	15
Phragmites australis							P					P									10	30	30
Salix fragilis																	P				5	5	
Calliergonella cuspidata																		P			5		
Juncus articulatus																						55	70
Deschampsia cespitosa																						10	80
Salix cinerea seedling																						5	15
Brachythecium rutabulum																						80	
Oxyrrhynchium speciosum																						25	
Poa trivialis																						15	
Potentilla reptans																						10	
Stellaria aquatica																						5	
Plantago major																							40
Eupatorium cannabinum																							30
Bryum sp																							25
Cirsium palustre																							10
Leptobryum pyriforme																							10
Cirsium arvense																							10
Stellaria media																							10
Senecio jacobaea																							10
Angelica sylvestris																							5
Juncus bufonius																							5
																					Mean		
Total Number Species	9	9	6	7	11	6	10	9	9	12	13	12	10	10	10	10	11	12	10	11	9.85		

3.4.4 Commentary

Vegetation structure

The Plot is a relatively even sward of rushes and large sedges at around 50cm height with occasional willow saplings starting to emerge from the rush layer in places. Below the rush layer are the smaller fen plants forming a sub-layer grading from ground level to the upper canopy, mostly herbs such as *Mentha aquatica* with *Agrostis stolonifera*. Later in the season taller fen plants such as *Lythrum*, *Iris* and *Thalictrum* will emerge above the rush canopy. Uncommon sprawlers such as *Galium uliginosum* weft through the stand.

Floristics

As with the other two Plots within the shallow scrapes at Parkers, this stand is dominated by rushes, a combination of *Juncus inflexus* and *Juncus subnodulosus*. The rarity of *J. effusus* suggests conditions are base-rich. The pond sedges *Carex riparia* and *C. acutiformis* are also very frequent, but not as abundant as the rush tier. Beneath, there is usually some *Agrostis stolonifera,* often quite abundant, and some sparse but frequent *Equisetum palustre*.

The bulk of the associated herbs are typical fen meadow species – *Mentha aquatica* is ubiquitous, with frequent *Lythrum salicaria* and occasional *Thalictrum flavum, Galium uliginosum* and *Phalaris arundinacea*, and less commonly, *Carex disticha, Iris pseudacorus, Lycopus europaeus* and even some records for *Cardamine pratensis.*

There are a few species of dryer rush pasture – *Ranunculus repens, Persicaria maculosa* and some *Potentilla anserina* providing continuity with the rush pastures recorded in Bleyswycks Bank.

Scrub as *Salix cinerea* is quite frequent although plants remain small and not abundant. They are a risk – without clearance soon, scrub could easily and rapidly thicken to threaten the developing sward.

The stand is an example of the Typical sub-community of M22 *Juncus subnodulosus-Cirsium palustre* fen meadow but is rather species-poor (9.85 species per quadrat) and lacking in a wide range of species typical of that NVC community.

Summary of records and events

Management history is not known. The plot is grazed by cattle as evidenced by the trampling recorded, but their effectiveness in cropping the coarse herbage is questionable at the densities observed during monitoring. Regular mowing in summer may be carried out together with rogueing of scrub.

Relation to past and target conditions

The stand appears to be developing well towards a richer kind of M22. As well as the great increase in *Juncus subnodulosus* itself since 2017, there has been recruitment or significant expansion of a body of fen meadow species such as *Carex acutiformis, Lythrum salicaria, Equisetum palustre, Galium uliginosum, Thalictrum flavum, Lycopus europaeus, Cardamine pratensis, Carex disticha* and *Iris pseudacorus.* Bryophytes are lacking with a single (new) record for the wetland moss *Calliergonella cuspidata*.

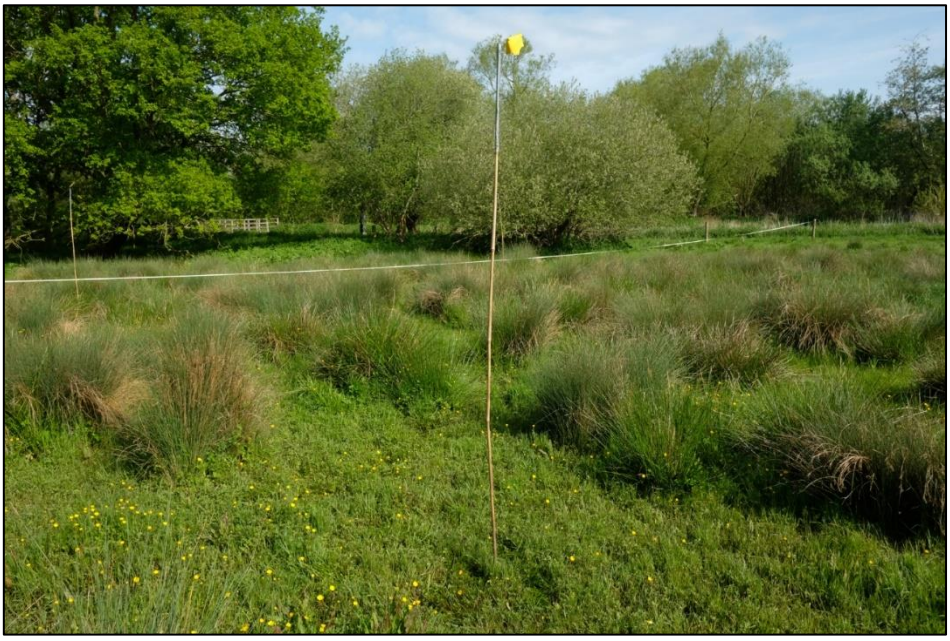
By contrast, there has been a significant decline or loss of damp meadow, non-fen and dryland species recorded in 2017 and 2009. Exceptions are *Ranunculus repens, Persicaria maculosa* and *Potentilla anserina* which have increased.

The site has improved and is progressing towards fen meadow. It will need additional mowing and regular control of scrub to continue on this favourable trajectory.

3.5 Plot B-01: Ordinary Wet Meadow

3.5.1 Photographic Record

B-01: Ordinary Wet Meadow: Whole Plot



B-01: Ordinary Wet Meadow Quadrants

South West	South East
	
North West	North East
	

3.5.2 Vegetation Structural Characteristics

Monitoring Plot	B-01 Ordinary Wet Meadow
Recorder	Mike Harding
Survey Date	17th May 2023

Character of the ground surface

Uneven with wetter hollows and dryer rises, a micro-topographical range of c.20cm across c.5m range. Otherwise generally flat. Ground appears to be mineral soil, firm.

Soil Wetness

Dry, dusty	Dry, firm	Slightly damp	Moist	Wet	Saturated
					III

	Attribute	Quadrant				Average
		SW	SE	NW	NE	
Layer height	Standing water (cm)	2	5	0	5	3
	Plant litter (cm)	2	5	10	0	4.25
	Woody seedlings (cm)	0	0	0	0	0
	Large sedges / rushes (cm)	40	50	40	40	42.5
	Reed-like grasses (cm)	0	0	15	0	3.75
	Woody saplings (cm)	0	0	0	0	0
Cover value	Standing water (%)	30	20	0	20	17.5
	Trampling (%)	5	0	10	0	2.5
	Dunging (%)	0	0	0	0	0
	Bare ground (%)	5	5	0	0	2.5
	Plant litter (%)	20	10	5	5	10
	Bryophytes (%)	0	0	0	0	0
	Woody seedlings (%)	0	0	0	0	0
	Large sedges / rushes (%)	50	25	50	60	46.25
	Reed-like grasses (%)	0	0	0	0	0
	Woody saplings (%)	0	0	0	0	0

3.5.3 Floristic Sampling

Monitoring Plot	B-01 Ordinary Wet Meadow
Recorder	Mike Harding
Survey Date	17 May 2023

	Sample Number																				Frequency		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**2023**	**2017**	**2009**
Agrostis stolonifera	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100	100	
Ranunculus repens	P	P	P	P	P	P	P		P	P	P		P	P	P	P	P	P	P	P	90	100	100
Juncus effusus	P	P	P	P	P	P	P	P		P	P	P		P	P	P	P	P	P	P	90	90	10
Trifolium repens	P	P	P	P			P	P	P	P	P		P	P			P		P		65	65	
Carex otrubae	P	P	P			P	P	P	P	P	P	P				P	P		P		65	45	5
Poa trivialis	P	P	P	P		P	P	P			P	P	P	P			P		P		65	100	90
Juncus inflexus		P	P	P	P		P	P			P	P	P	P		P	P		P		65	80	10
Rumex obtusifolius		P		P	P	P				P				P	P	P		P		P	50	15	
Phragmites australis		P			P			P			P	P	P	P	P			P		P	50	35	5
Mentha aquatica			P		P	P	P			P		P		P		P		P		P	50		
Carex acutiformis							P					P		P	P	P		P		P	35		
Rumex crispus	P		P								P			P			P		P		30		
Holcus lanatus				P			P		P				P				P		P		30	15	10
Carex hirta								P	P			P		P			P		P		30	70	
Urtica dioica		P					P					P					P				20		
Plantago major	P																P		P		15	55	35
Lythrum salicaria							P											P		P	15	25	
Juncus articulatus															P			P		P	15	95	
Vicia cracca								P						P							10	5	
Brachythecium rutabulum								P											P		10	25	
Epilobium tetrapterum			P																		5		

Carex riparia																P					5	20	
Taraxacum officinalis agg																					0	15	
Oxyrrhynchium hians																					0	10	
Leptobryum pyriforme																					0	30	
Rumex conglomeratus																					0	30	
Juncus bufonius																					0	25	
Glechoma hederacea																					0	5	
Veronica serpyllifolia																					0	5	
Cirsium arvense																					0		25
Linaria vulgaris																					0		25
Bryum sp.																					0		20
Conium maculatum																					0		10
Epilobium hirsutum																					0		5
Veronica beccabunga																					0		5
Galium aparine																					0		5
Senecio vulgaris																					0		5
Erysimum cheiranthoides																					0		5
Scrophularia aquatica																					0		5
																					Mean		
SPECIES NUMBER	8	10	10	8	7	7	12	10	6	7	9	10	7	13	7	9	12	9	12	9	9.1		

3.5.4 Commentary

Vegetation structure

This Plot is typical rush pasture in structure. There is an upper tier of rushes, 40-50cm high and variable in density with some glade-like open areas. Poking through the rushes are a few medium height species such as coarse *Rumex* and bulky sedges (*Carex acutiformis, C. otrubae*) and *Phragmites.* Below this level, and starting to grow into it, is the mixed herbaceous layer typical of rush pastures. Across the ground there were no bryophytes but a thin layer of litter under a patchy and generally shallow cover of surface water which is unlikely to remain into summer. There was no scrub layer.

Floristics

This is a typical rush pasture dominated by *Juncus effusus, Agrostis stolonifera, Ranunculus repens,* with a range of frequent species which can have high cover, particularly *Carex otrubae, Trifolium repens, Juncus inflexus* and the coarse grass *Poa trivialis.* True wetland species have moderate frequency suggesting some development of a fen meadow component, such as *Phragmites, Mentha aquatica, Carex acutiformis* and less frequently, *Lythrum salicaria, Juncus articulatus*.

Still prominent are dryland and ruderal species reflecting the plot's origins. Bryophytes are very rare, just a few occurrences of *Brachythecium rutabulum* which was at low cover. The stand is quite species-poor at around 9.1 species per $1m^2$ quadrat.

Overall the plot is MG10 *Holcus lanatus-Juncus effusus* rush pasture, the *Juncus inflexus* sub-community. This is associated with more base-rich substrates and to the south and east of England.

Summary of records and events

The plot is subject to grazing (six cattle were on the site during surveying). Grazing is throughout the summer.

Relation to past and target conditions

Since 2009 and then 2017, the plot has gradually progressed away from dry and ruderalised grassland with limited wetland interest to a wet rush pasture. The main dominants have remained at similar frequency to 2017, with *Juncus articulatus* showing a strong decline. Wetland species such as *Carex acutiformis, Mentha aquatica* and *Phragmites australis* have been recruited or increased significantly while some dryland species such as *Poa trivialis* and *Plantago major* have declined.

Against this trend has been a significant increase in some ruderal species – *Rumex obtusifolius, R. crispus* and *Urtica dioica.*

A rather mixed picture, then, with overall a trend in the right direction toward wetland developmnet but some indicators of poor condition also increasing.

3.6 Plot B-02: Ordinary Wet Meadow

3.6.1 Photographic Record

B-02: Ordinary Wet Meadow: Overview

B-02: Ordinary Wet Meadow: Quadrants

South West	South East
	
North West	North East
	

3.6.2 Vegetation Structural Characteristics

Monitoring Plot	B-02 Ordinary Wet Meadow
Recorder	Mike Harding
Survey Date	29 May 2023

Character of the ground surface

Overall flat but with a slope southwards to the pond with a consequent wetness gradient. One small part of the pond was included in the SW quadrant but not included in sampling or the quadrant data below. Some micro-topographical variation was created by rush tussocks. There would have been some standing water in the parts of the southern quadrants near the pond just a couple of weeks before survey, but dry weather meant this drained down rapidly.

Soil Wetness

Dry, dusty	Dry, firm	Slightly damp	Moist	Wet	Saturated
			II		II

	Attribute	Quadrant				Average
		SW	SE	NW	NE	
Layer height	Standing water (cm)	0	0	0	0	0
	Plant litter (cm)	3	5	1	1	2.5
	Woody seedlings (cm)	0	0	0	0	0
	Large sedges / rushes (cm)	60	70	50	45	56.25
	Reed-like grasses (cm)	60	70	0	0	32.5
	Woody saplings (cm)	0	0	0	0	0
Cover value	Standing water (%)	0	0	0	0	0
	Trampling (%)	10	5	0	0	3.75
	Dunging (%)	0	0	0	0	0
	Bare ground (%)	15	20	5	3	10.75
	Plant litter (%)	10	20	5	3	9.5
	Bryophytes (%)	0	0	0	0	0
	Woody seedlings (%)	0	0	0	0	0
	Large sedges / rushes (%)	60	80	70	60	67.5
	Reed-like grasses (%)	10	20	1	0	7.75
	Woody saplings (%)	0	0	0	0	0

3.6.3 Floristic Sampling

Monitoring Plot	B-02 Ordinary Wet Meadow
Recorder	Mike Harding
Survey Date	29th May 2023

	Sample Number																				Frequency 2023	Frequency 2017	Frequency 2009
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
Juncus effusus	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	100	80	15
Ranunculus repens	P	P	P	P	P	P		P	P	P	P	P			P		P	P	P	P	80	65	85
Agrostis stolonifera	P	P	P	P	P	P		P	P	P	P	P	P	P			P		P		75	95	10
Poa trivialis	P	P	P		P		P	P	P	P	P	P			P		P	P	P	P	75	80	100
Juncus inflexus		P	P			P	P	P		P	P	P					P	P	P	P	60	45	10
Phalaris arundinacea				P	P	P	P	P		P		P	P	P	P	P					55	20	
Mentha aquatica	P			P	P		P					P		P	P	P		P	P		50	40	
Carex otrubae	P			P		P	P	P	P		P		P				P			P	50	20	10
Potentilla anserina					P	P	P		P	P	P		P	P						P	45	35	
Trifolium repens	P	P	P					P	P	P	P						P		P		45	50	
Rumex obtusifolius				P	P		P		P			P	P	P	P	P					45	15	
Rumex sanguineus	P		P			P		P	P								P			P	35	20	
Holcus lanatus	P	P								P								P	P		25		10
Plantago major			P					P	P										P		20	30	20
Carex disticha			P					P									P			P	20		
Festuca rubra	P	P								P										P	20		
Lythrum salicaria						P								P	P						15	15	
Phragmites australis			P									P				P					15	20	
Urtica dioica																	P	P	P		15		

Veronica catenata						P						P										10	20	
Carex hirta			P						P													10	25	
Carex riparia																		P				5	15	
Equisetum fluviatile															P							5		
Juncus articulatus																							50	
Veronica serpyllifolia																							35	
Leptobryum pyriforme																							25	
Persicaria maculosa																							20	
Typha latifolia																							15	
Phleum pratense																							15	
Mentha arvensis																							15	
Elodea canadensis																							10	
Juncus bufonius																							10	
Salix fragilis sapling																							5	
Salix cinerea																							5	
Carex remota																							5	
Taraxacum agg																							5	
Cirsium arvense																								40
Glechoma hederacea																								35
Bryum sp																								15
Barbarea vulgaris																								10
Conium maculatum																								10
Senecio vulgaris																								5
Sonchus arvensis																								5
Stellaria media																								5
Scrophularia aquatica																								5
Total Number Species	10	8	11	7	8	10	8	11	11	10	8	10	6	7	8	5	11	8	10	9	8.8	**Mean**		

3.6.4 Commentary

Vegetation structure

The Plot has an upper layer of rushes and medium sedges, with occasional emerging fen grasses such as *Phalaris* and *Phragmites* near to the pond, although at the time of survey these had not yet risen above the rush. Forming a variable sub-layer, between the ground and the top of the rush layer, is the wide range of herbs and monocots typical of rush pasture and fen meadow. This group of plants dominates in the open glades between rush tussocks when the sward can be very meadowy. Spatially the plot is a mosaic of dense rush and sedge with patches of these open glades, the latter more extensive in the dryer northern half of the plot. The reed-like fen grasses are more prominent in the southern half of the plot, in the low areas next to the pond which have a swampier structure where the rush tussocks are more open and the fen meadow layer much less dense. There is no ground layer of bryophytes and relatively thin and sparse plant litter.

Floristics

The plot is dominated by the tussocks of *Juncus effusus* with *Juncus inflexus* common especially in the dryer parts of the plot. Rush pasture species such as *Agrostis stolonifera, Ranunculus repens, Potentilla anserina* and *Poa trivialis* are also constant. Damp and fen meadow plants are characteristic, with *Mentha aquatica, Carex otrubae, Trifolium repens* now frequent, while *Carex disticha, C. hirta, C. riparia* and *Lythrum salicaria* occur occasionally. In the lower, wetter areas near the pond, there is a clear change with rushes, especially *J. effusus* still very prominent, but the fen meadow species much reduced and wet swamp species more prominent, such as *Phalaris arundinacea, Phragmites australis, Veronica catenata* and *Equisetum fluviatile.*

Ruderals or species typical of dryer, disturbed habitat are now uncommon, but the docks *Rumex sanguineus* and *R. obtusifolius* are occasional with a few records for *Urtica dioica*.

Overall the plot is MG10 *Holcus lanatus-Juncus effusus* rush pasture, *Juncus inflexus* sub-community. It is relatively species poor with a mean of 8.8 species per quadrat. Most are common species, although *Veronica catenata* is notable.

Summary of records and events

The Plot is grazed by cattle – a group of 4-5 adults with young calves were present during the survey. Grazing is annual. The plot is not mown.

Relation to past and target conditions

Most of the dryland and ruderal species recorded in 2009 and 2017 have disappeared with the floristics of the plot progressing towards a more stable rush pasture and fen meadow community. The odd 2017 record for *Elodea canadensis*, an aquatic, must have been recorded in the wet swampy margin of the pond. No open water was recorded in that survey, so the pond itself cannot have been included in sampling.

Dominance by rushes has clearly increased over the monitoring period as has the diversity and frequency of fen meadow species such as *Carex disticha, Mentha aquatica, Carex otrubae* and *Potentilla anserina.* The swamp grass *Phalaris arundinacea* has also increased but other swamp indicators such as *Carex riparia, Phragmites australis* or *Typha latifolia* have decreased. The docks have increased, as has *Urtica dioica,* although the latter is still rare. Overall, quality has improved.

4. CONCLUSIONS AND RECOMMENDATIONS

Most of the plots are progressing in the right direction towards more coherent wetland plant communities.

On Parkers Piece, Plots P-01, P-03 and P-04, occupying shallow peat scrapes of 20-40cm, are all moving towards a more mature fen meadow, transitioning to the M22 *Juncus subnodulosus-Cirsium palustre* community. They are becoming more species-rich, losing some of the non-fen species recorded quite frequently in previous monitoring rounds while adding or increasing true fen species. Despite this, species-richness is consistently low – 9.8, 8.95 and 9.85 species per quadrat respectively – with overwhelming dominance by rushes and bulky sedges. All of these plots would benefit from increased mowing, as grazing alone appears to be insufficient.

The 100cm scrape (P-02) sustains permanent deep water. It has developed into a *Phragmites* reed swamp and is typically species-poor. The dense reed has started to develop a thick rhizome matter which is showing buoyancy and may progress to hover. Some of the richest stands of vegetation in Broadland (and historically in the Little Ouse and Waveney Valley fens) have developed over mown hover originating in turf ponds. This could be one long-term outcome for this plot if it were mown, perhaps later in the succession. For now, the stand is adversely affected by the many tracks opened up by deer which have broken up the reed stands and churned the silty peat at the bed of the pond. The tall reed may afford the deer good cover in the open valley landscape, such that cutting of the reed could reduce the attractiveness of the plot. There are few aquatics in the water now, while the swamp is starting to recruit fen species, showing some characteristics of the swamp succession.

The pond is especially badly affected by blanket weed algae, not recorded in previous monitoring rounds. The deeper Plot P-03 on Parkers showed evidence of patches of algae on the surface, too. These patches were dry by the time of the survey but suggest the issue is widespread in the swampy hollows on Parkers. Whether this blanket weed has arisen because of rapid nutrient cycling associated with warm shallow water and release of nutrient from the disturbed peat, or it has arisen from river flooding, is not known. It should be monitored, because it suggests eutrophication and is adversely affecting the quality of the fen and pool.

The two plots on Bleyswycks Bank also show general signs of improvement, developing into a rush pasture that is starting to acquire some characteristics of fen meadow. The plots are grazed and this managements seems to suit them and should continue.

In all of the plots except the pool on Parkers, scrub continues to be a threat. It is not adequately controlled by cattle and needs regular removal.

In terms of monitoring efficiency, the plot on Bleyswycks Bank nearest the Pool (B-02) was difficult to relocate and includes an area of the pool. It mostly duplicates plot B-01 and could be dropped without great loss of information. On Parkers Piece, all of the Plots individually provide useful information and are reliable to re-record, but three plots in very similar fen meadow vegetation seems excessive. One could reasonable be dropped for efficiency – with Plot P-03 being the most likely as it duplicates a 40cm scrape plot, it is the least species-rich and shows least overall change since 2017.

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