



Hinksey Meadow
NVC survey
2020



Report to the Environment Agency

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1 Introduction

Hinksey Meadow lies between the Seacourt Stream and the Bulstake Stream. It is a traditional floodplain meadow, regularly flooding in both winter and summer. Flood water comes from surface water in the streams which is augmented by considerable underground water movement. The site forms part of an Oxford City Council Local Wildlife Site (Osney Meadows, 40Y04).

Hinksey Meadow has probably been a hay meadow for much of the last thousand years and when Oxford Preservation Trust purchased the meadow in 1997, its boundaries were much the same as in 1870 (Ordnance Survey, 1st edition). It is now managed traditionally with a hay cut each July followed by aftermath grazing by cattle, though has experienced variations in management regime over the past twenty years, including a period of all year-round grazing with horses at low stocking density.

Hinksey Meadow forms part of the proposed Oxford Flood Alleviation Scheme. This will lower the existing floodplain to the west of Oxford to create more space for water. The scheme area will be approximately 5km long and begins north of Botley Road and ends south of the A423 near Kennington, where it joins the River Thames. The scheme will involve lowering an area of land close to the Seacourt Stream which forms the western boundary of the Meadows.

Two NVC surveys of Hinksey Meadow have been undertaken in recent years. In 2016 an NVC survey of the whole site was carried out by Tim King of Oxford University (King, 2016), while in May 2019 a partial survey of the south-east part of the site was carried out by Hilary Wallace of Floodplain Meadows Partnership (Wallace, 2019).

The aim of the current survey was to complete coverage of the 2019 survey, to enable an accurate estimate of the current extent of MG4 *Alopecurus pratensis*-*Sanguisorba officinalis* grassland to be made.

2 Methods

The site was surveyed on the weekend of 13/14th June 2020. Initially a walkover survey of the site was undertaken, during which the main areas of homogenous vegetation were identified and roughly mapped, and community plant species lists were made. An initial assessment of the NVC communities likely to be present was made on the basis of the data obtained.

A total of 33 1 m² quadrats were sampled in grassland vegetation ensuring that all the potential communities identified were sampled. The percentage cover of all vascular plants and bryophytes in each quadrat was recorded. Sampling effort was greater in marginal communities to enable accurate identification of boundaries between different NVC types. The centre point grid reference for each quadrat was recorded using the GB Grid Converter app for iPhone, and a note was taken of the accuracy of the reading.

The area of swamp vegetation occupying the Jubilee Scrape, which is located near the northern end of the survey area, was not sampled with quadrats; NVC communities for this area were assessed by eye and are not mapped accurately. No quadrat recording was carried out in the south-eastern part of the site which had been recorded in 2019, though there was some overlap between the current survey and the 2019 survey in its north-east corner.

The locations of the quadrats are shown on Figure 1 and the centre-point grid references are given in Table 1. The community boundaries were mapped with the assistance of aerial photographs obtained from Google Earth.

Individual quadrat data were entered into Tablefit, which produced a percentage similarity between the recorded species list and the top five NVC communities and sub-communities. While this was helpful, it did not always accurately discriminate between sub-communities, and the final NVC community and sub-communities ascribed to quadrats have been determined through a combination of Tablefit data and comparison of the vegetation with the published descriptions.

3 Results

Community species lists for the main NVC communities are given in Table 2, and the full species data for the three main grassland communities recorded is given in Tables 3 to 5.

The majority of the survey area supports MG4 grassland, with areas of more species poor MG15 grassland around the periphery, and along the margins of the Jubilee Scrape where there is more prolonged flooding. The communities present are characteristic of river floodplains and have developed in response to differential frequencies in flood duration and nutrient levels, as well as past and current management. Vegetation with characteristics of the following NVC communities was recorded in June 2020:

- MG4a *Alopecurus pratensis-Sanguisorba officinalis* grassland, *Dactylis glomerata* sub-community
- MG4b *Alopecurus pratensis-Sanguisorba officinalis* grassland, Typical sub-community
- MG15a *Alopecurus pratensis – Poa trivialis – Cardamine pratensis* grassland, *Agrostis stolonifera* sub-community
- MG15b *Alopecurus pratensis – Poa trivialis – Cardamine pratensis* grassland, *Lolium perenne – Ranunculus acris* sub-community
- S5 *Glyceria maxima* swamp
- S6 *Carex riparia* swamp
- OV21b *Poa annua – Plantago major* community, *Lolium perenne* sub-community
- OV26 *Epilobium hirsutum* community
- OV28a *Agrostis stolonifera - Ranunculus repens* community

The approximate extent and distribution of the NVC communities is shown on Figure 2 and the detailed characteristics of the main NVC communities and sub-communities are described more fully in Section 4. It should be noted that much of the vegetation is transitional between different communities and sub-communities, so the mapped boundaries are approximate and may shift from year to year depending on the frequency and duration of flooding.

4 NVC communities

Much of the central part of Hinksey Meadow supported MG4 *Alopecurus pratensis – Sanguisorba officinalis* grassland. The sward was herb-rich, consisting of between 40 and 90% herbs, with a mean of approximately 60%. Constant grass species present at moderate cover included *Agrostis stolonifera*, *Bromus racemosus*, *Festuca rubra*, *Holcus lanatus*, *Hordeum secalinum*, *Lolium perenne* and *Poa trivialis*. Species present at lower cover and abundance included *Alopecurus pratensis*, *Anthoxanthum odoratum*, *Briza media*, *Cynosurus cristatus*, *Dactylis glomerata*, *Festuca arundinacea*, *Festuca pratensis* and *Phleum pratense*. The most frequent and locally abundant herbs included *Centaurea nigra*, *Galium verum*, *Lathyrus pratensis*, *Lotus corniculatus*, *Ranunculus acris*, *Sanguisorba officinalis*, *Silaum silaus* and *Trifolium pratense*. Other species present at moderately high frequencies, but generally low cover, included *Leontodon autumnalis*, *Leontodon hispidus*,

Plantago lanceolata, *Potentilla reptans*, *Tragopogon pratense* and *Vicia cracca*. Rare associates included *Crepis biennis* (at the eastern end), *Rhinanthus minor* (at the western end), *Lysimachia nummularia* and *Cardamine pratensis*.

All of the community species, and species characteristic of MG4a and MG4b in the floristic tables published in the plant communities section of the Floodplain Meadows Partnership website (<http://www.floodplainmeadows.org.uk/about-meadows/wildlife/plant-communities>) have been recorded from the site in 2019 and 2020, although some were less frequent than expected, particularly *Cynosurus cristatus*, *Trifolium repens* and *Cerastium fontanum*. *Succisa pratensis* and *Carex flacca* were very rare, recorded once each from the extreme north-eastern corner of the site. A number of species were much more frequent than expected overall, including *Agrostis stolonifera*, *Bromus racemosus*, *Centaurea nigra*, *Galium verum*, *Hordeum secalinum*, *Lotus corniculatus*, *Poa trivialis* and *Silaum silaus*; these species include species indicative of both dry and damp conditions and underline the transitional nature of the vegetation.

Much of the MG4 grassland shows features of both MG4a and MG4b, but there is a general trend towards the more species-rich MG4a *Dactylis glomerata* sub-community on the north-eastern side of the meadow, forming a broad band on the less frequently flooded ground. In places this grassland contained a high frequency of species characteristic of drier conditions. Ten species preferential to MG4a were recorded in 2020, but some characteristic species were either absent or much rarer than expected, including *Trisetum flavescens*, *Rhinanthus minor* and *Heracleum sphondylium*. Conversely *Galium verum* was much more abundant than expected.

A distinct band of vegetation in the eastern part of the site supported locally abundant *Leucanthemum vulgare*, *Briza media* and *Leontodon hispidus*, as well as scattered patches of *Pimpinella saxifraga*, a species more commonly associated with base-rich dry grassland and not usually present in MG4 grassland. There was also a small amount of *Ranunculus bulbosus*, though this was difficult to record as it was largely in seed. *Leucanthemum vulgare* was particularly abundant in a triangular area of vegetation near the north-west corner of the site, where there was also a population of *Rhinanthus minor*. This area showed strong similarities to MG5a *Centaurea nigra* – *Cynosurus cristatus* grassland, Typical sub-community.

The sampled MG4a vegetation contained a mean of 23 species per 1m² quadrat, which is lower than the figure of 28.4 obtained in May 2019, but broadly consistent with the published mean of 28 species in a 4 m² sample. This reduction in species-richness may be because a larger number of the sampled quadrats were intermediate in character with MG4b; the vegetation also seemed to be more species-rich at the eastern end, which was the focus of the 2019 survey, with a general decline in diversity further west. The extreme weather conditions experienced in winter and spring 2020 may also have affected the vegetation, with prolonged winter flooding between November and February being followed by extremely dry conditions in April and May. Some of the driest areas of MG4a vegetation appeared to have suffered from the prolonged spring drought with areas of burnt-off vegetation present.



Photograph 1 MG4a grassland in the north-east part of the main meadow area



Photograph 2 Area of vegetation with abundant *Leucanthemum vulgare* in the north-west part of the site, transitional between MG4a and MG5a

The MG4b grassland formed a broad band on the central to western side of the main meadow, with smaller areas in the north-east corner and at the west end. This area shared many characteristics of the MG4a grassland but had a low frequency of dry-ground species and a higher frequency and cover of moisture-loving species such as *Agrostis stolonifera* and *Filipendula ulmaria*. The vegetation was also slightly less species-rich than that of MG4a, with a mean of 20 species per 1m² quadrat. Several quadrats show similarities with both MG4b and MG15, particularly quadrats 9 and 22, which are located close to the edge of the site.



Photograph 3 MG4b vegetation in the southern part of the meadow

The vegetation on the boundaries of the site, and in low-lying areas close to the Jubilee Scrape was generally more species poor and grass-dominated, with *Alopecurus pratensis*, *Hordeum secalinum*, *Bromus racemosus* and *Poa trivialis* forming a canopy over a low sward of *Agrostis stolonifera*, *Lolium perenne* and *Ranunculus repens*, which is locally very abundant. *Phleum pratense* and *Festuca pratensis* are locally frequent. Taller herbaceous species are relatively sparse, but include *Ranunculus acris*, *Filipendula ulmaria*, *Silaum silaus* and *Lathyrus pratensis*. This type of vegetation is characteristic of the provisional NVC community MG15 *Alopecurus pratensis* – *Poa trivialis* – *Cardamine pratensis* grassland (Wallace & Prosser, 2017). Both sub-communities appear to be present, with the flood-tolerant MG15a *Agrostis stolonifera* sub-community being present in localised areas of prolonged flooding, while MG15b, the *Lolium perenne* – *Ranunculus acris* sub-community forms broad bands round the periphery of the site and grades into MG4b vegetation. MG15 is closely associated with the less species-rich forms of MG4 *Alopecurus pratensis* - *Sanguisorba officinalis* grassland and the two form a pair of 'accordian' communities tending to replace one another on suitable sites during alternating series of wetter and drier seasons. This community is of moderate species-richness: the MG15b vegetation has a mean of 15 species per 1m² and MG15a has a mean of 10, which are both slightly lower than the published means. The

very lowest-lying hollows supported OV28 *Agrostis stolonifera*-*Ranunculus repens* vegetation, but this was very limited in extent.



Photograph 4 MG15 vegetation along the eastern boundary of the meadow

Other NVC communities were present but were of more restricted occurrence. A narrow band of very species-poor, rank vegetation runs between the wooded stream margin and the path. This appears to be close to MG7C *Lolium perenne* – *Alopecurus pratensis* – *Festuca pratensis* grassland, but was not sampled. Locally, other boundaries support rather rank vegetation with abundant *Epilobium hirsutum*, *Filipendula ulmaria*, *Urtica dioica*, *Cirsium arvense* and invasive *Rubus fruticosus* agg. These were closest to OV26 *Epilobium hirsutum* community.

The scrape itself supported a mosaic of species-poor swamp communities. Much of the area is dominated by S6 *Carex riparia* swamp. Associated species include locally frequent *Carex acuta* as well as *Epilobium hirsutum*, *Phalaris arundinacea*, *Urtica dioica*, *Galium aparine* and *Solanum dulcamara*. *Carex riparia* also occurred sparsely in nearby MG4 and MG15 vegetation, which suggests that this area was undermanaged in the past but is now being reclaimed. At the south-western end of the scrape there was a small area of S4 *Glyceria maxima* swamp, with locally abundant *Thalictrum flavum*.



Photograph 5 S6 *Carex riparia* vegetation in the Jubilee Scrape, with a stand of *Carex acuta* in the centre

5 Comparison with previous surveys

The results of the 2020 survey were very similar to those of the 2019 survey (Wallace, 2019), with the same NVC communities identified, and continue the general pattern of vegetation recorded from the south-east corner. Mapped boundaries are always subjective to some extent because different grassland communities transition into each other very gradually, and they may also change from year-to-year in response to changing environmental conditions. The main differences from the 2019 survey were:

- The small area of MG4b vegetation shown in the south-east corner of the site appeared more similar to MG15b in 2020, and contained abundant *Rumex* spp. This may have been the result of prolonged flooding in winter 2019/20.
- The NVC communities were slightly less species-rich in 2020. This may have been a result of the unusual weather conditions experienced in 2019/20, with a very wet winter followed by the driest April and May on record. Also, the north-western part of the site appeared generally less species-rich than the south-east corner, which would have reduced the overall mean.
- Some species noted as being of lower than expected frequency in 2019 were found at much higher frequencies in 2020, particularly *Centaurea nigra*, while others noted as being more frequent than expected in 2019 were found at lower frequencies, such as *Festuca arundinacea*. These variations are partly a result of spatial patterning of vegetation: *Festuca*

arundinacea was most frequent at the eastern end of the site, while *Leucanthemum vulgare* was most frequent towards the north-west, and *Rhinanthus minor* was rare and restricted to the western end.



Photograph 6 Area of vegetation mapped as MG4b in May 2019, but more similar to MG15b in June 2020

There are more differences between the 2020 survey and the 2016 survey (King, 2016), which showed a large block of MG4a grassland occupying the whole of the main part of the meadow. This has now been subdivided into MG4a in the northern part and MG4b vegetation in the southern part of the meadow.

The peripheral vegetation noted as MG15 in the two more recent surveys was provisionally identified as MG6 *Lolium perenne-Cynosurus cristatus* grassland, which is semi-improved and relatively species-poor, though the author commented that it was difficult to classify. The provisional MG15 community was not published at the time of the 2016 report, and it is likely it would have been correctly identified if the source data had been available.

An area of grassland to the south-west of the Jubilee Scrape was mapped as an example of MG8 *Cynosurus cristatus-Caltha palustris* water-meadows in 2016, but in 2020 this area lacked small sedges and key herbaceous species such as *Caltha palustris* and was much closer to MG4b vegetation, albeit with a higher than expected frequency of dwarfed *Carex riparia*, which may have colonised from the scrape during a period of under-management.

Areas of flood meadow grassland in the northern corners of the site (shown as A & C) were mapped as MG4b in the 2016 report, but were much closer to MG4a in 2020, and indeed shared some features of MG5a, which is characteristic of drier conditions.

6 Area of MG4 grassland

The areas mapped as MG4a and MG4b grassland on Figure 2 are of high conservation value. Both sub-communities are UK BAP priority habitats and are qualifying communities for SSSI selection (Jefferson et. al. 2014). They are species-rich (>20 sp m²) and are good examples of traditional floodplain meadow. The area of MG4a grassland is 4.34 ha, while the area of MG4b is slightly greater at 4.48ha. Much of the vegetation show characteristics of both sub-communities and the relative areas are likely to shift from year-to-year. The total area of MG4 vegetation is shown on Figure 3 and amounts to 8.82ha.

The MG15 area is less species-rich but is still considered to be of some ecological value and is included in the list of communities potentially qualifying for SSSI selection (Jefferson et. al. 2014). MG15b is more species-rich than MG15a and contains a greater representation of unimproved grassland species such as *Silaum silaus* and *Lathyrus pratensis*.

Areas labelled MG7d, S6, S5 and OV26 are of lower nature-conservation value, but add diversity of structure and may be of value for some invertebrates.

7 References

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<http://www.floodplainmeadows.org.uk/about-meadows/wildlife/plant-communities>

<https://www.oxfordpreservation.org.uk/content/hinksey-meadows>

Table 1 Hinksey Meadow quadrat grid references

Quadrat	Grid reference	Accuracy (m)
1	SP4963805860	7
2	SP4959205837	5
3	SP4959305888	6
4	SP4956605871	6
5	SP4952505927	4
6	SP4951905855	4
7	SP4948105870	5
8	SP4947905951	5
9	SP4942605960	8
10	SP4937505917	7
11	SP4936105809	4
12	SP4947405815	4
13	SP4942305806	4
14	SP4937605849	7
15	SP4931905851	6
16	SP4933405737	5
17	SP4929405785	5
18	SP4933305811	5
19	SP4935405771	9
20	SP4925505831	7
21	SP4926005939	4
22	SP4921805914	4
23	SP4918905904	4
24	SP4923505966	4
25	SP4917005971	4
26	SP4914606009	12
27	SP4921205988	4
28	SP4925506012	4
29	SP4929105951	10
30	SP4929405990	12
31	SP4945405924	6
32	SP4957705797	4
33	SP4954105748	6

Table 2 Hinksey Meadow
Community Species Lists

Species with an asterisk were recorded in 2019 but not in 2020

Species	MG4a	MG4b	MG15	S6/OV26	OV28	OV21
<i>Agrostis canina</i> *		r				
<i>Agrostis capillaris</i>	lf					
<i>Agrostis stolonifera</i>	f	f-a	a	f	a-d	
<i>Alopecurus pratensis</i>	r	f-a	f-a			
<i>Anthoxanthum odoratum</i>	f	f				
<i>Arctium minus</i>				r		
<i>Arrhenatherum elatius</i>	r	r				
<i>Atriplex prostrata</i>				lf		
<i>Briza media</i>	lf-a					
<i>Bromus hordeaceus</i> *	r					
<i>Bromus racemosus</i>	f	f-a	a			
<i>Calystegia sepium</i>				r		
<i>Cardamine pratensis</i>		r				
<i>Carex acuta</i>				lf		
<i>Carex riparia</i>		r	r	ld		
<i>Carex flacca</i>	r					
<i>Carex hirta</i>		r	lf	lf		
<i>Carex nigra</i> *		r	r			
<i>Centaurea nigra</i>	f-a	f				
<i>Cerastium fontanum</i>	o	o				
<i>Cirsium arvense</i>				lf		
<i>Crataegus monogyna</i>		r		o		
<i>Crepis biennis</i>	o					
<i>Cynosurus cristatus</i>	o	o				
<i>Dactylis glomerata</i>	f	f	f			
<i>Deschampsia cespitosa</i>		r				
<i>Dipsacus fullonum</i>			r			
<i>Elytrigia repens</i>		r		r-lf		
<i>Epilobium hirsutum</i>				f-la		
<i>Equisetum palustre</i>		r	lf	lf		
<i>Festuca rubra</i>	a	f-a	o			
<i>Filipendula ulmaria</i>	r	o-f	o	lf		
<i>Galium aparine</i>				lf		
<i>Galium verum</i>	f-la	r				
<i>Geranium dissectum</i>		r				
<i>Holcus lanatus</i>	f	f	f			
<i>Hordeum secalinum</i>	f	f	a			
<i>Lathyrus pratensis</i>	f	f	o			
<i>Leontodon autumnalis</i>	f	f				
<i>Leontodon hispidus</i>	f	f				
<i>Leucanthemum vulgare</i>	f-la	r				
<i>Lolium perenne</i>	f	f				a-d
<i>Lotus corniculatus</i>	f-la	f				
<i>Lysimachia nummularia</i>		r				
<i>Lythrum salicaria</i>				o		

Species	MG4a	MG4b	MG15	S6/OV26	OV28	OV21
<i>Mentha</i> sp.				lf		
<i>Ophioglossum vulgatum</i> *	r					
<i>Persicaria amphibia</i>	r	r	r	lf		
<i>Persicaria maculosa</i>				o-f		
<i>Phalaris arundinacea</i>		r		lf		
<i>Phleum pratense</i>		o	o-f			
<i>Pimpinella saxifraga</i>	lf					
<i>Plantago lanceolata</i>	f	f	o			
<i>Plantago major</i>						la
<i>Poa pratensis</i>	r					
<i>Poa trivialis</i>	f	f	f	f		
<i>Polygonum aviculare</i>						lf
<i>Potentilla anserina</i>		r		lf		
<i>Potentilla reptans</i>	o					
<i>Prunella vulgaris</i>	o	r				
<i>Ranunculus acris</i>	f-a	f	o	o		
<i>Ranunculus bulbosus</i>	r-o					
<i>Ranunculus repens</i>	r	o-f	f-a	la	a-d	
<i>Rhinanthus minor</i>	lf	r				
<i>Rubus fruticosus</i> agg.				o		
<i>Rumex acetosa</i>	f	f	r			
<i>Rumex crispus</i>		r	o-lf	lf		
<i>Rumex obtusifolius</i>				lf		
<i>Salix alba</i>				o		
<i>Salix cinerea</i>				o		
<i>Salix x fragilis sens. lat.</i>				o		
<i>Sanguisorba officinalis</i>	f-la	f-a				
<i>Schedonorus arundinaceus</i>	o	o-lf				
<i>Schedonorus pratensis</i>	r	o-f	f			
<i>Silaum silaus</i>	f	f-a	f-a			
<i>Solanum dulcamara</i>				r		
<i>Sonchus arvensis</i> *			r			
<i>Sonchus oleraceus</i>				r		
<i>Stachys palustris</i>			r-o			
<i>Succisa pratensis</i> *	r					
<i>Symphytum officinale</i>				lf		
<i>Taraxacum</i> agg.	f	f	o			o
<i>Thalictrum flavum</i>				lf		
<i>Tragopogon pratensis</i>	o-f	o-lf				
<i>Trifolium pratense</i>	f	f	r			
<i>Trifolium repens</i>	r	r				
<i>Trisetum flavescens</i> *	o	r				
<i>Urtica dioica</i>				f		
<i>Veronica serpyllifolia</i> *	r	r				
<i>Vicia cracca</i>	o	r				
<i>X Schedolium loliaceum</i>	r		r			

Table 3 Hinksey Meadow quadrat data for MG4a

Species	Quadrat number													
	2	4	6	7	10	12	13	14	28	29	30	31	32	33
<i>Agrostis capillaris</i>				2					10	2	4			
<i>Agrostis stolonifera</i>	5	12	5			8	6	8	1			3	20	15
<i>Alopecurus pratensis</i>		1		1										
<i>Anthoxanthum odoratum</i>				3	1	3	5	2	2	3				1
<i>Arrhenatherum elatius</i>									1	1			1	
<i>Briza media</i>			5	5								4		
<i>Bromus racemosus</i>	1	3	1	1	1	5	2	2		1	1	1	10	1
<i>Calliargon cuspidatum</i>						2	2							
<i>Cardamine pratensis</i>														1
<i>Carex flacca</i>													1	
<i>Carex hirta</i>														1
<i>Centaurea nigra</i>	6	12	4	8	3	8		2		1	1	4	1	5
<i>Cerastium fontanum</i>									1	1				1
<i>Crepis biennis</i>	1													1
<i>Cynosurus cristatus</i>				1	1					1		1		
<i>Dactylis glomerata</i>	3	1	2	1	1		1		4	1	1		1	
<i>Elytrigia repens</i>						1								
<i>Festuca arundinacea</i>						2							1	2
<i>Festuca pratensis</i>												1		
<i>Festuca rubra</i>	3	5	4	8	4		4	1	20	2				
<i>Filipendula ulmaria</i>		2				2	8					2	6	6
<i>Galium verum</i>		3	5	20	4	15	25					5	7	
<i>Holcus lanatus</i>	3	1	5	5			1		1	2	2	1	4	5
<i>Hordeum secalinum</i>	3	5	8	5	4	5		5	4	3	3	1	4	2
<i>Lathyrus pratensis</i>	2	1	2	2	4	2	3	1					1	2
<i>Leontodon autumnalis</i>			2	2	2	1	3	2		1		3		
<i>Leontodon hispidus</i>	4	2	3	2	2	2		2	3	5	4	6		1
<i>Leucanthemum vulgare</i>	6		8	1		1	1		35		2			
<i>Lolium perenne</i>	8	8	10	15	4	2	8	3	4	3		1	1	8
<i>Lotus corniculatus</i>	4	20	4	2	2	1	20	4	6	60	15	4	5	2
<i>Lysimachia nummularia</i>													3	
<i>Oxyrhynchium hians</i>									1	1				
<i>Persicaria amphibia</i>														3
<i>Phleum pratense</i>			2										1	
<i>Pimpinella saxifraga</i>		1	8											
<i>Plantago lanceolata</i>				1		1	1	1	3	5	1	2		1
<i>Poa pratensis</i>														1
<i>Poa trivialis</i>	5	5		2	2	4	2			2	1	1	5	3
<i>Potentilla reptans</i>	1	3	2	1	1			1				1		
<i>Prunella vulgaris</i>							1		1	1		1		1
<i>Ranunculus acris</i>	3	8	1	1	3	2	2	4	2		4	3	2	3
<i>Ranunculus bulbosus</i>						1		1						
<i>Ranunculus repens</i>														1
<i>Rhinanthus minor</i>										1				
<i>Rumex acetosa</i>	1						1	1	1	1	1		1	1
<i>Sanguisorba officinalis</i>	6	1	1		6	30	5	30	5	15	60	30	2	2
<i>Silaum silaus</i>	30	8	16	4	55	5	8	35	2	5	8	35	8	20

Species	Quadrat number													
	2	4	6	7	10	12	13	14	28	29	30	31	32	33
<i>Taraxacum</i> agg.	3	3	2	1	2	3	1	1				2	2	1
<i>Tragopogon pratensis</i>	1	2												
<i>Trifolium pratense</i>		3	2	3	3	1	2	1		2	2	2	3	3
<i>Vicia cracca</i>												1	1	1
<i>X Festulolium loliaceum</i>								1						
Bare ground	4	0	10	2	3	0	0	0	2	0	0	4	4	2
Litter	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No of species	21	23	23	25	20	24	23	21	20	23	16	24	25	30

Table 4 Hinksey Meadow quadrat data for MG4b

Species	Quadrat number										
	1	8	9	11	15	18	19	21	22	26	27
<i>Agrostis stolonifera</i>	12	15	25	5	10	15		4	10		10
<i>Alopecurus pratensis</i>	1		1	3		3			5		
<i>Anthoxanthum odoratum</i>				3		3	5				
<i>Bromus racemosus</i>	3	5	3	2	5	3	10	4	2	2	12
<i>Carex riparia</i>			8					2	12	1	
<i>Carex hirta</i>	1										
<i>Centaurea nigra</i>	4	1	1		1	5	4	4	1		5
<i>Cerastium fontanum</i>							1				
<i>Crataegus monogyna</i>							1				
<i>Cynosurus cristatus</i>					1						
<i>Dactylis glomerata</i>	3	2	1				1			1	3
<i>Elytrigia repens</i>		1									1
<i>Equisetum palustre</i>			1		1					1	1
<i>Festuca arundinacea</i>					1						
<i>Festuca pratensis</i>				2			1		4	3	10
<i>Festuca rubra</i>	3	10		2			5	2	2		
<i>Filipendula ulmaria</i>		1		12	15		10	50	5	4	8
<i>Holcus lanatus</i>	5	10	5	4	3	2	10	1			2
<i>Hordeum secalinum</i>	4	20	5	4	4	8	8	5		3	6
<i>Lathyrus pratensis</i>	5	3	1	1	2	3	2	3	2		2
<i>Leontodon autumnalis</i>								1			
<i>Leontodon hispidus</i>			2	3			1				
<i>Leucanthemum vulgare</i>								1			
<i>Lolium perenne</i>	12	15	3	4	6	15	8	1	1	2	5
<i>Lotus corniculatus</i>	2		3	3	8	5	5	2	10	1	2
<i>Oxyrhynchium hians</i>								2		1	
<i>Phalaris arundinacea</i>									3		
<i>Phleum pratense</i>	1	1							1		
<i>Plantago lanceolata</i>			1					4	3	50	4
<i>Poa pratensis</i>					2						
<i>Poa trivialis</i>	10	5	3	3	2	4	8	5	4		8
<i>Potentilla reptans</i>					1						
<i>Ranunculus acris</i>	10	3	8	4	1	2	1	2	4	8	8
<i>Ranunculus repens</i>		7	1		1			15	10	8	
<i>Rhinanthus minor</i>										3	
<i>Rumex acetosa</i>		1	1	1		1	1	1		1	1
<i>Rumex crispus</i>											1
<i>Sanguisorba officinalis</i>	4	5	2	20		25	10			1	
<i>Silaum silaus</i>	20	15	25	20	30	12	18	3	15		3
<i>Taraxacum</i> agg.	5	1	1	3	3		2	1	3	1	1
<i>Trifolium pratense</i>					3	3	2	3		4	1
<i>Trifolium repens</i>			1							1	
<i>Vicia cracca</i>						1					
Bare ground	0	0	0	0	0	0	0	0	0	0	2
Litter	0	0	0	0	0	0	0	0	0	0	0
No of species	18	19	22	19	20	17	22	22	19	19	22

Table 5 Hinksey Meadow quadrat data for MG15

Species	Quadrat number							
	3	20	23	25	5	16	17	24
<i>Agrostis stolonifera</i>	25	10			25	20	10	
<i>Alopecurus pratensis</i>	4	5		1		2	3	3
<i>Arrhenatherum elatius</i>	1							
<i>Bromus racemosus</i>	8	25	3	6	20		2	1
<i>Carex hirta</i>		3						20
<i>Centaurea nigra</i>							1	
<i>Dactylis glomerata</i>	4		2	4				
<i>Festuca arundinacea</i>						10		
<i>Festuca pratensis</i>		3	4	2				
<i>Festuca rubra</i>			4	1				
<i>Filipendula ulmaria</i>		1		15				
<i>Holcus lanatus</i>	10			1				
<i>Hordeum secalinum</i>	10	10	15	3	25	10	4	
<i>Lathyrus pratensis</i>	5	3		2		1	2	
<i>Lolium perenne</i>	25	5	20	1	8	20	5	
<i>Lotus corniculatus</i>		2						
<i>Persicaria amphibia</i>			2			2		3
<i>Phleum pratense</i>		5	6	1		10	3	
<i>Plantago lanceolata</i>			1			1		
<i>Poa trivialis</i>	4	8	4	4	6	10	15	3
<i>Ranunculus acris</i>	5	1	10	2		3	2	2
<i>Ranunculus repens</i>	4	25	30	70	15	55	60	80
<i>Rumex crispus</i>				1				
<i>Silaum silaus</i>	2	1			6		5	
<i>Taraxacum</i> agg.	1	1	1					
<i>Trifolium pratense</i>							1	
<i>Vicia cracca</i>		1						1
<i>X Festulium loliaceum</i>							1	
Bare ground	3	0	0	0	10	0	0	0
Litter	0	0	0	0	0	0	0	0
No of species	14	17	13	15	7	11	15	8
NVC community	MG15 b	MG15 b	MG15 b	MG15 b	MG15 a	MG15 a	MG15 a	MG15 a

Figure 1. Quadrat locations on Hinksey Meadow

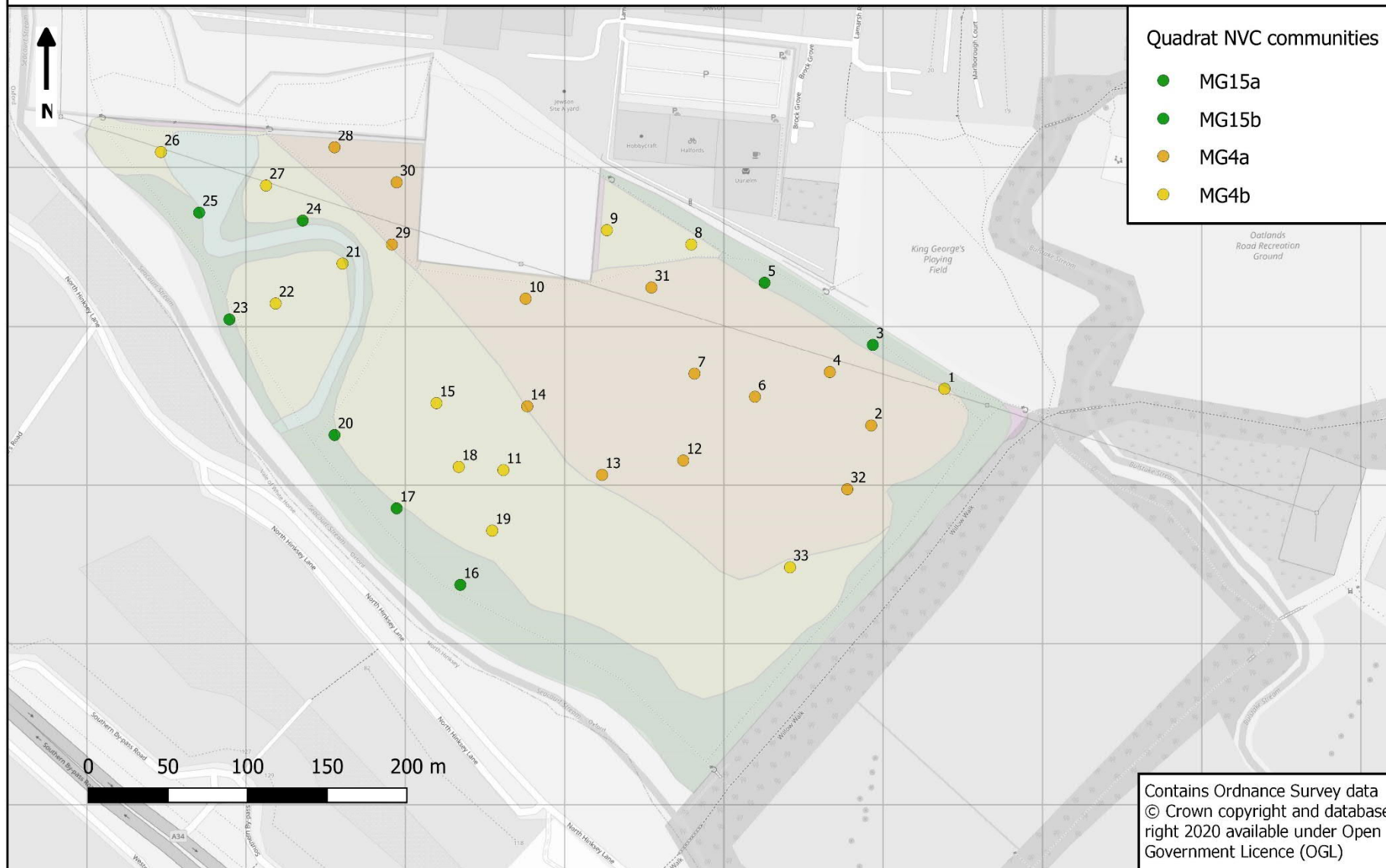


Figure 2. NVC map of Hinksey Meadow



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