

Site Visit Assessment Form – Banovallum House, Lincolnshire



Site Name Banovallum House	Grid Ref 1=TF 256 695 2=TF 255 695	County Lincolnshire	
River Bain	Ownership Lincolnshire Wildlife Trust	Designation None	Size (ha) 1=0.48 2=0.18
Date 13/07/2017 20/07/2022	Meeting with LWT staff	Managed by Lincolnshire Wildlife Trust	
Management and History			
In 2017, the site has been in HLS for 9 years. The house and grounds were bought in 1992. Until then it was part of the garden centre grounds. 'The Meadow' (field 1) and 'North Staunch Field' (field 2) are permanent grasslands managed as hay meadows. Hay is cut in both fields around the end of June and aftermath grazed with 11 – 13 sheep from August to November.			
Restoration			
Technique used/Dates			
Green hay from Sloothby LWS has been applied to the field every year for 5 years. Patches were sprayed and some flower seeds put in. Plug plants were sown by volunteers including meadow cranesbill <i>Geranium pratense</i> , common knapweed <i>Centaurea nigra</i> , selfheal <i>Prunella vulgaris</i> , cowslip <i>Primula veris</i> and oxeye daisy <i>Leucanthemum vulgare</i> .			
Hydrology		Floods occasionally during the big flood events.	
Flooding regime			

Water management Soil-water levels (indicated by auger hole/any other data)	
Historical information	
Current site interest	Attached excel spreadsheet for botanical data
<p>Meadow is surrounded by big trees, including alder <i>Alnus glutinosa</i>. A lot of nettles <i>Urtica dioica</i> and comfrey <i>Symphytum officinale</i> under the trees indicate nutrient-rich soil.</p> <p>The grass sward on the meadow is quite tall and very dense which is probably caused by the high level of soil nutrients. Ellenberg's indicator value for soil fertility was not particularly high (N=5.42), but the description of the soil profiles showed a very high content of organic matter not only in the top soil but even in the sand at the bottom of the soil profile.</p> <p>False oat-grass <i>Arrhenatherum elatius</i> and Yorkshire fog <i>Holcus lanatus</i> dominate both fields, with red fescue <i>Festuca rubra</i>, cock's-foot <i>Dactylis glomerata</i>, common bent grass <i>Agrostis capillaris</i> and couch grass <i>Elytrigia repens</i> reaching up to 30% cover in places. Hairy sedge <i>Carex hirta</i> and ribwort plantain <i>Plantago lanceolata</i> are abundant in patches. Red clover <i>Trifolium pratense</i> and common knapweed <i>Centaurea nigra</i> can be considered as well-established on the meadow. However, several other forbs like cowslip <i>Primula veris</i>, oxeye daisy <i>Leucanthemum vulgare</i> and meadow cranesbill <i>Geranium pratense</i> established from plug plants are really struggling to compete with the tall and vigorous grasses. Meadow buttercup <i>Ranunculus acris</i>, common sorrel <i>Rumex acetosa</i> and yellow rattle <i>Rhinanthus minor</i> were found on only one quadrat in very small amounts. The green-winged orchid <i>Anacamptis morio</i> was not recorded on the quadrats although it is present on the site. There is a risk of losing this species completely if measures are not taken to control the vigorous grass growth as soon as possible.</p> <p>Field 2 is also very grassy, with large presence of cock's-foot <i>Dactylis glomerata</i>, indicating it is drier than field 1.</p> <p>In 2022, a botanical survey was carried out on five 1 x 1 m quadrats in field 1 and a species list was recorded in field 2. Vegetation changes in the five years since 2017 show an increase in species richness ranging from 8 – 16 species/m² in 2017 up to 12 – 20 sp/m² in 2022.</p> <p>Plant communities were identified in 2017 as NVC MG9b (<i>Holcus lanatus</i> - <i>Deschampsia cespitosa</i> grasslands) and MG1a (<i>Arrhenatherum elatius</i> grassland) have both increased their similarity scores to over 60%.</p> <p>Ellenberg indicator values reflect small increases in soil moisture, while soil fertility and reaction showed little change. Grasses such as red fescue <i>Festuca rubra</i>, Yorkshire fog <i>Holcus lanatus</i>, and false oat-grass maintain their dominance in Field 1, while Yorkshire fog, false oat-grass and cock's-foot continue to dominate Field 2. The</p>	

high abundance of grasses keeps the functional diversity of the plant community balanced towards more competitive species. Cowslip and selfheal *Prunella vulgaris* are still found on Field 1, but lady's bedstraw *Galium verum* was not noted in Field 1 in 2022.

Field 1 would just about qualify as Priority Habitat Lowland Meadows (Condition B).

Phosphorus levels

Not known

Soil profiles



Soil profile at quadrat 247 (2017) – in the middle of the field. NB the quadrat locations were not recorded on the GPS (technical failure) for this site.

A horizon

0 – 30 cm – top soil, very rich with organic materials, sandy loam

B horizon

30 – 60 cm – brown, stony sandy loam

60 – 65 cm – layer of yellow sand 5 cm thick

65 – 80 cm - brown sand, organic rich, some iron and remains of big roots

Soil profile at quadrat 248 – towards the far end of the meadow (no photo)

Similar to 247, but colour is much darker, stones at 30-60 cm depth

A horizon

0 – 20 cm – top soil

B horizon?

20 – 30 cm – layer of charcoal and bricks, stones

30 – 60 cm – very organic-rich silty sand with some iron. Stony.

Site manager aspirations/objectives

Species rich meadow.

Management recommendations

A double hay cut (June and September) for 2-3 years would be the most effective way to reduce nutrient levels in the soil, reduce vigour of the grasses and allow a more species rich community to establish. Grazing, however hard, will not resolve the high nutrients because they are not actually removed from the field as happens with hay.

The fields are managed well with cutting hay in June and then grazing in the Autumn. Continue with this approach, aiming for an annual hay cut.

It is recommended to submit Field 1 (if not already) to the PHI team at Natural England HabitatInventories@naturalengland.org.uk if you want to include it for future Stewardship applications. Send this report with the botanical datasheet attached to the above email address.

Banovallum House		
	Field 1 -2017	Field 1 - 2022
Ellenberg F (moisture tolerance)	5.38	5.42
Ellenberg N (fertility)	5.42	5.40
Ellenberg R (Reaction)	6.36	6.28
Species/quadrat (mean and range /1 m x 1 m)	12.8 (8 - 16)	15.6 (14 -20)
NVC (top 2 MAVIS subcommunities)	MG1a MG9b	MG9b MG1a

Table 2. Five categories of meadow restoration progress, measured by indicator scales based on species richness, NVC similarity score and ratios of Grime's plant functional types. Adapted from Rothero, Tatarenko & Gowing, 2020.

Field 1	Score of success/progress				
Measure	1 Failure	2	3	4	5 Success
Average scores from five botanical quadrats per field. Calculated in MAVIS					
Species richness (number of species per 1 m ²)	<8	8 to 12	13-15	16-20	>20
NVC similarity score	<50%	50-55%	55-60%	>60%	>60%
C:S ratio	1.65	1.39	1.23	1.1	1.09
S:R ratio	0.67	0.79	0.81	0.89	0.93