

## Botanical Survey of Eynsham Fishponds Report

A botanical survey was carried out by members of the Wychwood Flora Group (formerly the Cotswold Rare Plants Group) during the summer of 2014. This was a follow-up survey to the one carried out by the group in 2004 before restoration work was undertaken at the Fishponds.

### Analysis of results

The overall total of individual species recorded on the site has gone up from 128 to 142.

No rare or unusual plants were found here.

Zone	Nos of individual species		Species recorded in both years (%)	Comments
	2004	2014		
<b>Areas where numbers of individual species recorded is more in 2014 than in 2004:</b>				
A	49	74	38	Present management regime appears to have encouraged an increase in number of common species; <i>Geranium rotundifolium</i> less common; Spanish Bluebell appears to have been introduced
D	42	59	20	Four of the more interesting plants recorded in 2004 were not found in 2014 but there has been an increase in number of species which tolerate mowing
F	29	47	26	It appears that the creation of a path through this area has opened it up allowing a greater variety of plants to grow here, including <i>Lamium maculatum</i> which is probably a garden escape
H	4	35	10	Species recorded here in 2014 were on the side of the pond which had been created since 2004 in this previously low lying wet area where vegetation had been recorded by Pascale
I + J	28	62	17	Impossible to walk through the pond areas – more diversity here now but most of the new plants recorded are fussy about where they grow – one exception was Bog Stitchwort which as its name suggests only grows in damp habitats – and were found near the paths
<b>Areas where numbers of individual species recorded is fewer in 2014 than in 2004:</b>				
B	65	41	20	Difficult to see why fewer species were found here unless creation of the path changed the habitat
E	45	21	66	The tree cover is probably denser now which could result in loss of species
<b>Areas where numbers of individual species recorded is similar in 2014 and 2004:</b>				
C	41	40	31	Most of the interesting species recorded in 2014 were along the edges of the mown area and were mostly the same as those recorded in 2004)
G	8	11	5	Over the 10 years between the surveys the vegetation has become even more dense and the area is impenetrable and no longer used as a children's den

## **Conclusions**

It is difficult to draw any conclusions from our surveys. As a result of the restoration and management work which has been done since the first survey was carried out in 2004 the Fishponds are very different now from what they were then as shown by the relatively low numbers of species which were recorded in both years in all zones. Although the overall total of individual species recorded on the site has gone up this probably does not mean that the area is now more biodiverse. It might just be because the expertise of the surveyors has improved! The 2004 survey was based on a map which divided the whole site into zones. These zones are not marked on the latest map which appears to be a map where the areas of open water have been created. This has made it difficult to compare the results from the two years.

## **Recommendations for Future Management**

Over most of the site it is difficult to recommend any change to the management that could enhance biodiversity. The one area that could be managed differently is Zone C (Heritage path area east). Here, on the south side, is a large area which is dominated by stinging nettles (see accompanying three maps). This is species-poor, offering little to wildlife and could be much improved by being turned into a meadow. This would provide a species-rich habitat with flowers which would be beneficial to insects, especially bumble bees. It would also be more attractive to look at over the summer. As this is quite a big undertaking and a lot of preparation is required over several years, an outline of what is involved is given below. The heritage path runs informally across this area. If the area of Zone C which will not be converted into a species-rich meadow is continued to be mown as it at present, the vegetation close to the pond and stream should continue to be left uncut to encourage marginals, i.e. those plants which like to be near water but not in it.

### **Creation of a meadow**

#### Preparation

Over the spring and summer as the nettles grow they should be cut down and removed from site. This treatment will gradually eliminate the nettles and the other coarse plants and reduce the fertility of the soil which is needed before a meadow can be established. It will probably take three years of this treatment before any improvement is noticed.

#### Introduction of meadow species

As it would take a long time in this situation for desirable species characteristic of a meadow to come in naturally, the next stage would be to introduce them either by scattering seeds into areas of soil from which the original vegetation has been removed or by introducing plug plants into the existing vegetation.

A decision will need to be made whether you want a spring or a summer meadow as they need to be treated differently.

##### Spring meadow:

Leave the meadow uncut from autumn until late June, allowing any plants to flower and set seed. Hand scything or strimming would be the best way to do this.

##### Summer meadow:

Cut the meadow fortnightly until May, then leave it until September or October. This allows flowering over the summer. Cut the meadow again once all the flowers have seeded. If the grasses become too dominant, introduce a summer cut in June or July

**Using plug plants.**

The area for planting should be close-mown prior to planting and the cuttings removed. The best planting time is August to October. It is advisable to create bare areas around the spot where the plug is to be introduced to reduce initial competition. Plant 4 or 5 plugs per square metre

During the second and subsequent seasons, cut between March and early May. Cease cutting in June to allow flowering and resume cutting/grazing between July and October. The amount of cutting may be reduced as competition from weeds and grasses becomes less. Never cut below a height of 3 inches and always remove all cuttings. This allows light and space for the young plants. This is important as this site is probably still fertile and grass still growing strongly. Mowing and removal of the cuttings will be vitally important until the inherent fertility falls.

Once the introduced plants are growing strongly and the meadow established, mowing will only be needed once a year in late summer after the seeds have been shed. The cuttings will still need to be raked off and removed from site.

**Using seeds.**

To prepare the area it should be cultivated and the weeds such as nettles, thistles, docks and vigorous grasses removed. The bare ground needs to be left bare for several weeks to allow any annual weeds to germinate. These should be removed before sowing your seed mix. Flatten the bare ground before sowing by using a roller or even just walking on it. Seed can be sown in spring or autumn.

**Future management**

Meadows are usually managed in one of two ways, depending on when most of the plants flower. If you have a meadow with a mixture of summer and spring flowering plants then follow the summer meadow regime.

The most important part of meadow management is raking up the cuttings to prevent the build-up of rotting vegetation, which stifles wild flowers and favours stronger growing grasses.

Some species to consider introducing are betony, cowslip, cuckooflower, moon daisy and ragged robin. Yarrow is already present. When creating a meadow one species is always recommended – yellow rattle which as it is semi-parasitic on grasses weakens them giving the finer species a better chance of flourishing. It is an annual which, if the option of using plugs is chosen, is introduced by scattering its seed in small areas where the existing vegetation has been removed or if reseeding is chosen it should be included in the seed mix.

Brenda Betteridge  
Secretary Wychwood Flora Group  
September 2014

Eynsham Fishponds Survey 2014 compiled by Brenda Betteridge

Plants were recorded on two visits:

(1) 16 May 2014 by Margaret Cochrane, Brenda Betteridge and Ken Betteridge

(2) 9 July 2014 by Nick Barber, Gwen McConnachie, Brenda Betteridge and Ken Betteridge

Key to zones:

A = area round and including car park (A1)

B = public footpath and Chilbrook Stream on south side

C = Heritage Path area east

D = Harvey's House and moat (D is mown; D1 is unmown)

E = Heritage Path area west

F = north side with path

G = originally designated childrens' den but now overgrown and not accessible

H = pond originally a water channel

I + J = areas of original fish ponds

Latin name	English name	Zones																				
		A		B		C		D			E		F		G		H		I	J	I+J	
		A (A + A1)	A	2014	2004	2014	2004	2014	2004	D	D1	D + D1	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004
<i>Achillea millefolium</i>	Yarrow	✓	✓		✓	✓	✓	✓	✓		✓		✓									✓
<i>Aegopodium podagraria</i>	Ground Elder	✓		✓	✓	✓	✓						✓									
<i>Agrimonia eupatoria</i>	Agrimony																					
<i>Agropyron caninum</i> ( <i>Elymus caninus</i> )	Bearded Couch			✓						✓												
<i>Agrostis canina</i>	Velvet Bent-grass										✓											
<i>Agrostis stolonifera</i>	Creeping Bent-grass													✓				✓				
<i>Alisma plantago-aquatica</i>	Water-plantain				✓																	
<i>Alliaria petiolata</i>	Garlic Mustard			✓	✓						✓											✓
<i>Alopecurus geniculatus</i>	Marsh Foxtail									✓												✓
<i>Alopecurus pratensis</i>	Meadow Foxtail	✓				✓	✓				✓		✓	✓								✓
<i>Angelica sylvestris</i>	Wild Angelica			✓	✓	✓	✓		✓			✓	✓	✓		✓	✓	✓		✓	✓	✓
<i>Anisantha sterilis</i>	Barren Brome	✓				✓						✓	✓	✓								✓
<i>Anthriscus sylvestris</i>	Cow Parsley	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓					✓
<i>Apium nodiflorum</i>	Fool's Watercress				✓																	✓
<i>Arctium lappa</i>	Greater Burdock												✓		✓	✓					✓	
<i>Arctium minus</i>	Lesser Burdock																					✓
<i>Arrhenatherum elatius</i>	False Oat-grass	✓	✓			✓			✓	✓			✓	✓							✓	✓
<i>Artemisia vulgaris</i>	Mugwort																		✓			✓
<i>Arum maculatum</i>	Wild Arum				✓					✓			✓									
<i>Ballota nigra</i>	Black Horehound	✓												✓	✓							

Latin name	English name	Zones																				
		A		B		C		D			E		F		G		H		I	J	I+J	
		A (A + A1)	A	2014	2004	2014	2004	2014	2004	D	D1	D + D1	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004
		2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	
<i>Bellis perennis</i>	Common Daisy	✓						✓						✓								
<i>Berula erecta</i>	Lesser Water Parsnip																			✓		
<i>Betula pendula</i>	Silver Birch		✓							✓				✓	✓							
<i>Brachypodium sylvaticum</i>	False Brome			✓										✓								
<i>Bromopsis erecta</i>	Upright Brome																					
<i>Bromopsis ramosa</i>	Hairy Brome	✓		✓										✓	✓							
<i>Bromus hordeaceus</i>	Soft Brome																					
<i>Calystegia sepium</i>	Hedge Bindweed	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓								
<i>Capsella bursa-pastoris</i>	Shepherd's Purse	✓	✓																			
<i>Cardamine flexuosa</i>	Wavy Bittercress	✓			✓															✓		
<i>Cardamine hirsuta</i>	Hairy Bittercress	✓																				
<i>Cardamine pratensis</i>	Cuckooflower																					
<i>Carduus crispus</i>	Wetted Thistle								✓													
<i>Carex pendula</i>	Pendulous Sedge			✓																		
<i>Carex otrubae</i>	False Fox Sedge																	✓				
<i>Carex riparia</i>	Greater Pond Sedge										✓							✓		✓		
<i>Carex sylvatica</i>	Wood Sedge																					
<i>Carex spicata</i>	Spiked Sedge																					
<i>Carpinus betulus</i>	Hornbeam		✓		✓																	
<i>Centaurea nigra</i>	Common Knapweed						✓						✓									
<i>Cerastium fontanum</i>	Common Mouse-ear					✓					✓									✓		
<i>Cerastium glomeratum</i>	Sticky Mouse-ear																			✓		
<i>Chaerophyllum temulum</i>	Rough Chervil			✓																		
<i>Chamerion angustifolium</i>	Rosebay																					
<i>Chelidonium majus</i>	Greater Celandine				✓																	
<i>Circaea lutetiana</i>	Enchanter's Nightshade																					
<i>Cirsium arvense</i>	Creeping Thistle	✓	✓		✓	✓	✓		✓	✓	✓	✓		✓	✓		✓		✓	✓		
<i>Cirsium palustre</i>	Marsh Thistle											✓										
<i>Cirsium vulgare</i>	Spear Thistle		✓											✓								
<i>Convolvulus arvensis</i>	Field Bindweed	✓			✓	✓	✓	✓		✓		✓		✓								
<i>Cornus sanguinea</i>	Dogwood	✓		✓	✓							✓	✓									
<i>Corylus avellana</i>	Hazel		✓	✓	✓							✓	✓	✓								
<i>Crataegus monogyna</i>	Hawthorn		✓		✓		✓				✓		✓	✓	✓				✓	✓		
<i>Crepis biennis</i>	Rough Hawksbeard	✓												✓								
<i>Crepis capillaris</i>	Smooth Hawksbeard		✓																			
<i>Crepis vesicaria</i>	Beaked Hawksbeard								✓													
<i>Dactylis glomerata</i>	Cock's-foot	✓				✓	✓	✓		✓	✓	✓	✓	✓								



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		A		B		C		D			E		F		G		H		I	J	I+J	
		A (A + A1)	A	2014	2004	2014	2004	2014	2004	D	D1	D + D1	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004
		2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	
<i>Hypericum maculatum</i>	Imperforate St John's-wort			✓																		
<i>Hypericum tetrapterum</i>	Square-stalked St John's-wort				✓																	
<i>Iris foetidissima</i>	Stinking Iris	✓											✓			✓						
<i>Juncus effusus</i>	Soft Rush		✓																			
<i>Juncus inflexus</i>	Hard Rush															✓				✓		
<i>Lamium album</i>	White Dead-nettle	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓				✓	✓		
<i>Lamium maculatum</i>	Spotted Dead-nettle												✓									
<i>Lapsana communis</i>	Nipplewort			✓	✓																	
<i>Lathyrus pratensis</i>	Meadow Vetchling					✓	✓						✓				✓			✓		
<i>Lemna sp.</i>	Duckweed																			✓		
<i>Leucanthemum vulgare</i>	Ox-eye Daisy				✓?																	
<i>Linaria purpurea</i>	Purple Toadflax	✓																				
<i>Lolium perenne</i>	Perennial Ryegrass	✓	✓			✓	✓						✓							✓		
<i>Lonicera periclymenum</i>	Honeysuckle				✓?																	
<i>Lotus corniculatus</i>	Birdsfoot Trefoil				✓								✓									
<i>Lycopus europeus</i>	Gipsywort				✓											✓	✓			✓		
<i>Lysimachia nemorum</i>	Yellow Pimpernel													✓?								
<i>Matricaria discoidea</i>	Pineappleweed	✓					✓						✓							✓		
<i>Medicago lupulina</i>	Black Medick	✓	✓					✓				✓										
<i>Mentha aquatica</i>	Water Mint				✓																	
<i>Moehringia trinervia</i>	Three-nerved Sandwort				✓																	
<i>Myosotis scorpioides</i>	Water Forget-me-not				✓															✓		
<i>Myosotis sylvatica</i>	Wood Forget-me-not				✓																	
<i>Myosoton aquaticum</i>	Water Chickweed				✓	✓								✓								
<i>Narcissus</i>	Daffodil												✓									
<i>Odontites vernus</i>	Red Bartsia		✓										✓									
<i>Parietaria judaica</i>	Pellitory of the Wall	✓																				
<i>Pentaglottis sempervirens</i>	Green Alkanet	✓	✓																			
<i>Persicaria amphibia</i>	Amphibious Bistort	✓		✓		✓				✓						✓	✓		✓	✓		
<i>Persicaria bistorta</i>	Common Bistort		✓																			
<i>Phleum pratense</i>	Timothy				✓		✓					✓		✓								
<i>Plantago lanceolata</i>	Ribwort Plantain	✓	✓				✓	✓				✓		✓								
<i>Plantago major</i>	Greater Plantain	✓		✓		✓		✓				✓	✓	✓						✓		
<i>Plantago media</i>	Hoary Plantain		✓																			
<i>Phalaris arundinacea</i>	Reed Canary-grass																			✓		
<i>Poa annua</i>	Annual Meadow-grass	✓	✓										✓	✓						✓		
<i>Poa compressa</i>	Flattened Meadow-grass	✓	✓	✓									✓									

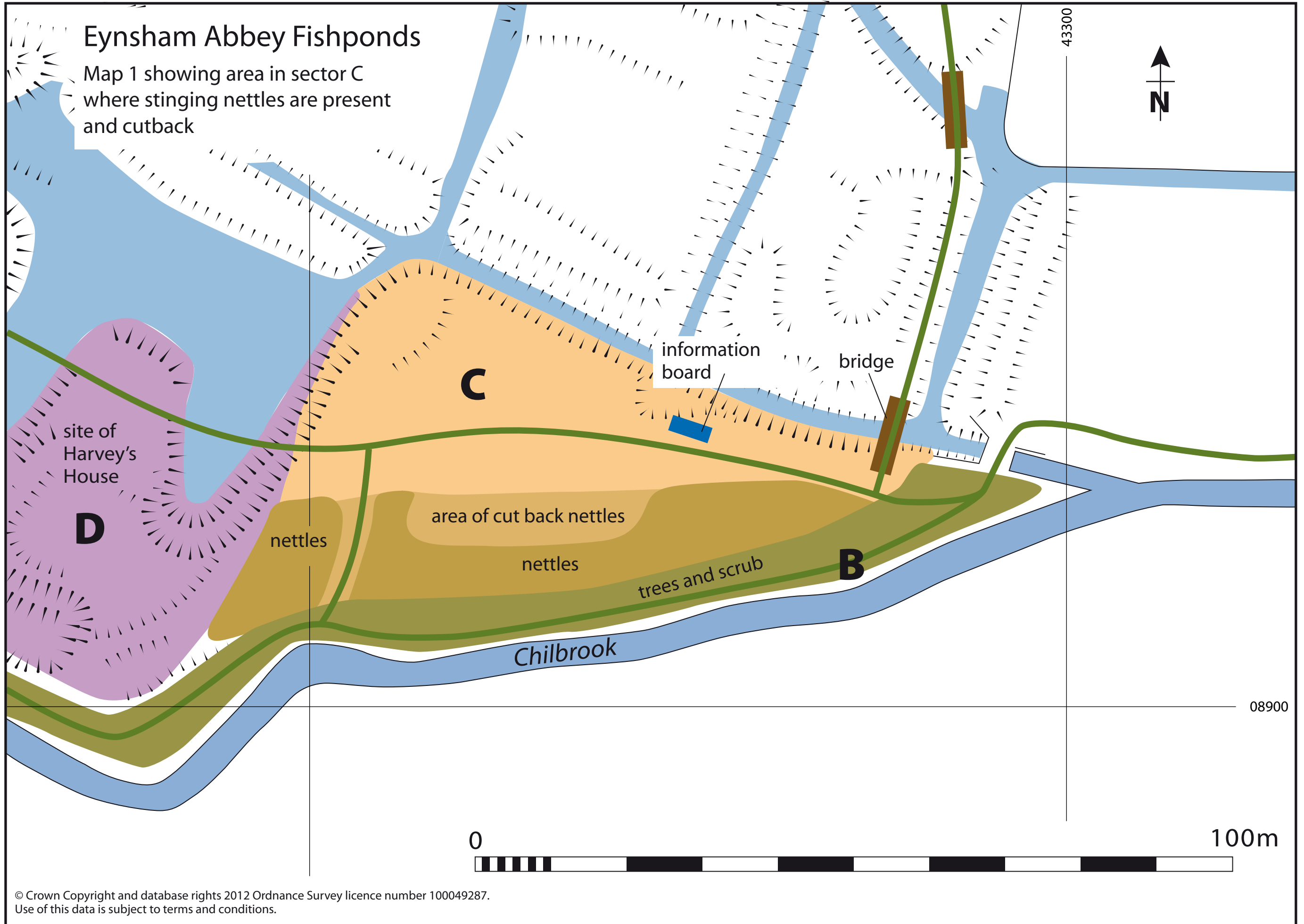
Latin name	English name	Zones																				
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		A (A + A1)	A	2014	2004	2014	2004	2014	2004	D	D1	D + D1	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004
		2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	
<i>Poa nemoralis</i>	Wood Meadow-grass	✓												✓								
<i>Poa pratensis</i>	Smooth Meadow-grass	✓			✓	✓					✓	✓										
<i>Poa trivialis</i>	Rough Meadow-grass	✓		✓		✓				✓		✓		✓		✓					✓	
<i>Polygonum aviculare</i>	Knotgrass	✓	✓			✓								✓						✓		
<i>Potentilla reptans</i>	Creeping Cinquefoil							✓	✓				✓					✓				
<i>Primula veris</i>	Cowslip				✓							✓						✓				
<i>Primula vulgaris</i>	Primrose				✓																	
<i>Prunus spinosa</i>	Blackthorn				✓								✓				✓					
<i>Ranunculus acris</i>	Meadow Buttercup													✓								
<i>Ranunculus bulbosus</i>	Bulbous Buttercup	✓																				
<i>Ranunculus ficaria</i>	Lesser Celandine	✓		✓	✓		✓	✓	✓			✓	✓	✓				✓				
<i>Ranunculus repens</i>	Creeping Buttercup	✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓			✓			✓	
<i>Ranunculus scleratus</i>	Celery-leaves buttercup													✓							✓	
<i>Ribes sp.</i>	Currant				✓																	
<i>Ribes uva-crispa</i>	Gooseberry									✓												
<i>Rorippa nasturtium-aquaticum</i>	Watercress																				✓	
<i>Rorippa sp.</i>	Yellow-cress				✓																	
<i>Rosa canina</i>	Dog Rose		✓											✓	✓							
<i>Rubus fruticosus</i>	Bramble	✓	✓	✓	✓		✓		✓	✓		✓	✓	✓	✓	✓						
<i>Rumex acetosa</i>	Common Sorrel						✓	✓		✓		✓										
<i>Rumex conglomeratus</i>	Clustered Dock						✓	✓					✓									
<i>Rumex crispus</i>	Curled Dock	✓	✓	✓																		
<i>Rumex obtusifolius</i>	Broad-leaved Dock	✓			✓	✓	✓				✓	✓	✓	✓	✓			✓			✓	
<i>Rumex sanguineus</i>	Wood Dock	✓		✓		✓		✓	✓					✓				✓				
<i>Sambucus nigra</i>	Elder	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓						
<i>Scrophularia auriculata</i>	Water Figwort									✓											✓	
<i>Scrophularia nodosa</i>	Common Figwort				✓																	
<i>Senecio jacobaea</i>	Common Ragwort	✓	✓		✓																	
<i>Senecio vulgaris</i>	Groundsel				✓																	
<i>Silene dioica</i>	Red Campion																					
<i>Silene latifolia</i>	White Campion	✓																				
<i>Silene vulgaris</i>	Bladder Campion	✓																				
<i>Solanum dulcamara</i>	Bittersweet				✓					✓				✓						✓		
<i>Sonchus arvensis</i>	Corn Sow-thistle																				✓	
<i>Sonchus asper</i>	Rough Sow-thistle	✓								✓				✓	✓						✓	
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	✓								✓				✓								
<i>Stachys palustris</i>	Marsh Woundwort				✓	✓	✓					✓	✓					✓			✓	





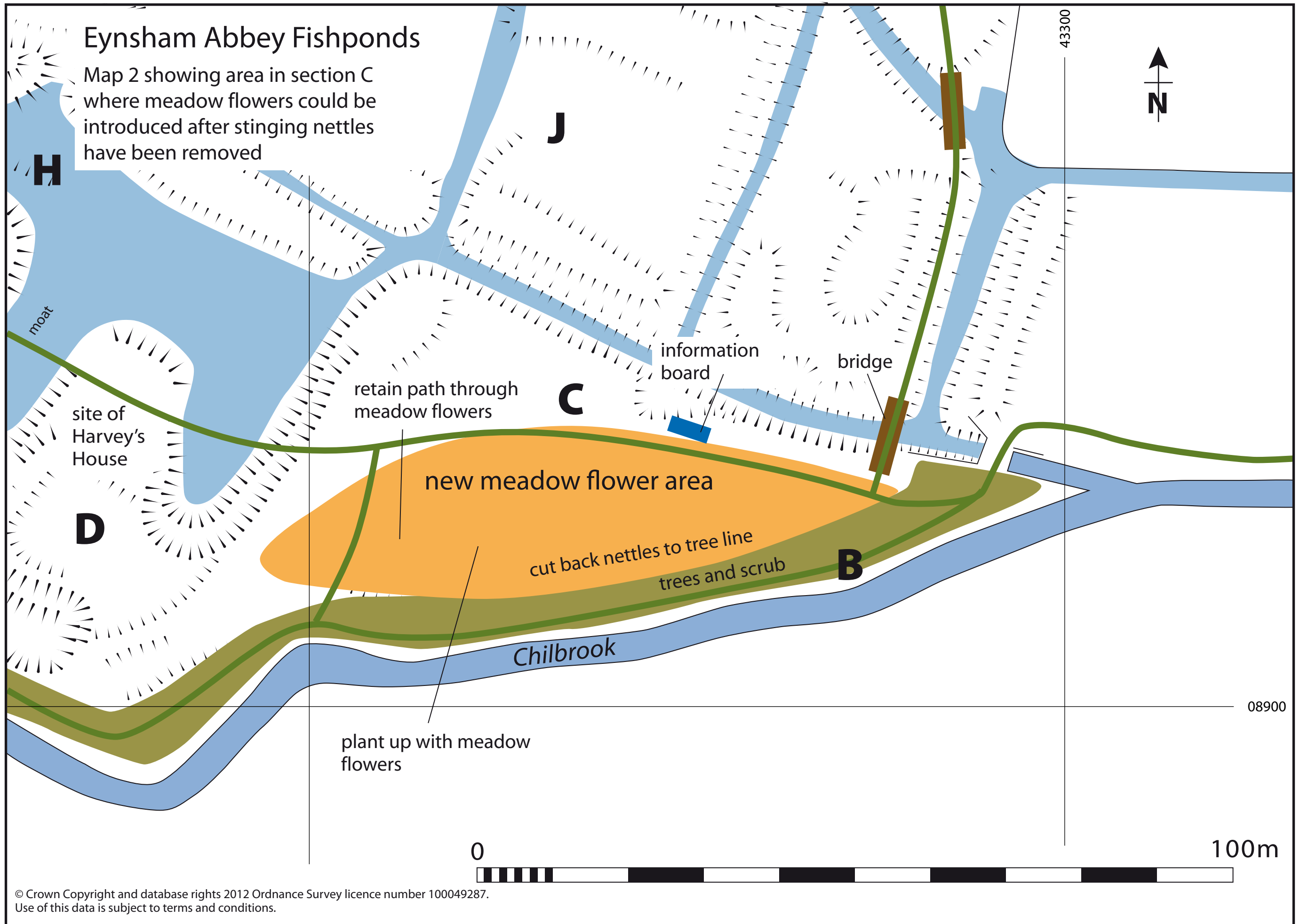
# Eynsham Abbey Fishponds

Map 1 showing area in sector C where stinging nettles are present and cutback



# Eynsham Abbey Fishponds

Map 2 showing area in section C where meadow flowers could be introduced after stinging nettles have been removed



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# Eynsham Abbey Fishponds

Map 3 Overview of new meadow flower area in section C

