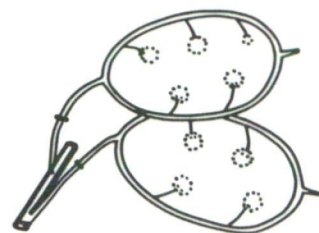


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# Coleshill River Restoration Project

## Botanical Survey



A report for Pond Action by

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B.Sc., Ph.D., MIEEM

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## CONTENTS

1.0	Introduction	3
2.0	Method	3
3.0	Species lists	5
4.0	NVC communities	34
5.0	Discussion	39
6.0	References	40

Figure 1. Inner and outer study areas.

Figure 2. Areas recorded.

Figure 3. NVC map of inner study area.

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## 1.0 INTRODUCTION

The River Cole Restoration Project aims to restore the water meadows at Coleshill on the Wiltshire/Oxfordshire border. The site is shown in Figure 1, with an inner area where the restoration will be carried out, and an outer area to act as a control.

As part of the work, a botanical survey was required to provide baseline information to monitor changes in the vegetation following implementation of the restoration proposals. In this report two surveys are reported:

- a) species lists with estimated frequencies for areas in the inner study area.
- b) a habitat map of the study area with NVC types.

The proposed method is a simple look-see approach to assess changes in species number/rarity in different habitats and changes in landscape/community complexity. A simple survey listing species and mapping vegetation was therefore carried out.

## 2.0 METHODS

### 2.1 Survey method

Each major compartment or habitat type was surveyed on the 8 and 9 July 1994 by T. C. G. Rich. Species lists were compiled by walking along recording all vascular plant species seen. Frequencies of species were recorded using the DAFOR scale. This is a crude scale giving a subjective estimate of frequency as follows:

D = dominant  
A = abundant  
F = frequent  
O = occasional  
R = rare

qualified with L = locally and V = very as appropriate.

The length of time taken to record each site was noted to give an estimate of effort. It is very difficult when doing many lists with the same species and habitats to ensure that every species was recorded each time.

Many meadows had been cut before the survey and it was impossible to produce as representative species list. For these sites, the species present were simply listed without DAFOR frequencies.

Plant nomenclature follows Stace (1991).

To test the recording method, Site 14 was recorded twice. The first survey on 8 July found 20 species. The survey was repeated on the 9

July when one species noted the day before was not found, but two extra were found. The frequencies noted were largely agreeable on both days, the main differences being between frequent and occasional. The method should thus give crude changes in species as a result of the restoration proposal as it is largely repeatable.

## 2.2 NVC mapping

The survey method and classification was carried out according to the National Vegetation Classification (NVC). Each distinct vegetation type was identified and mapped in the field, but no quadrat samples were taken. The survey concentrated on the inner study area, with only areas of interest outside noted in detail.

The River Cole was not recorded as this was to be mapped separately using the River Corridor Survey.

## 2.3 Botanical notes

### *Calystegia sepium* s.s.

Not all material present was flowering, but those that were were *C. sepium sensu stricto*, and no *C. sylvatica* was seen.

### *Prunus*

Most of the material seen was *Prunus spinosa*, but some may either be *P. domestica* or *P. X fruticans* (*P. spinosa* X *domestica*). Ripe fruit are required to determine the plants.

### *Symphytum*

The plants on site were quite variable with predominantly pinky-purple flowers, though some with white flowers were seen. No material which was categorically referable to *S. officinale* was noted, so the populations were treated as a variable population of *S. X uplandicum*.

### *Populus nigra*/*P. X canadensis*

Although most of the poplars were *P. X canadensis* aggregate,

### *Veronica catenata*

Some plants of *V. catenata* may be referable to *V. x lackschewitzii* (*V. catenata* X *V. anagallis-aquatica*).

### 3.0 SPECIES LISTS

The species lists for each of the sites recorded are given below. The areas recorded are shown on Figure 1, ordered from south to north on the west side of the river, and then from south to north on the east side of the river. Brief notes are given about some sites not recorded in detail.

#### Site 1. Meadow

Description: An old flood meadow, grazed by cattle, with some poached areas. The sward is variable in height 5-30 cm, the thistles have been topped and the nettles sprayed. Has had N+P fertiliser this year. The meadow is somewhat improved and is generally species-poor.

Area recorded: A general meandering transect across the meadow including wet areas but excluding the river bank (Site 2) and the hedges on the north side (Sites 3 and 4).

Time spent recording: 20 minutes

*Agrostis capillaris* F  
*Agrostis stolonifera* O  
*Alopecurus pratensis* F  
*Bromus hordeaceus* O  
*Carex acutiformis* R  
*Cerastium fontanum* O  
*Cirsium arvense* O  
*Cirsium vulgare* R  
*Cynosurus cristatus* O  
*Dactylis glomerata* F  
*Deschampsia cespitosa* O  
*Holcus lanatus* LD  
*Hordeum secalinum* O  
*Lolium perenne* F  
*Persicaria amphibia* R  
*Phleum pratense* O  
*Plantago major* O  
*Poa trivialis* F  
*Ranunculus acris* O  
*Ranunculus repens* R  
*Rumex acetosa* O  
*Rumex obtusifolius* R  
*Taraxacum officinale* R

Site 2. River Cole by site 1.

Description: A river bank open to cattle with some poaching, with patches of swamp vegetation locally.

Area recorded: River bank from the swamp edge to the top of the bank.

The list is a bit of a mixture of meadow and swamp species.

Time spent recording: 20 minutes

*Agrostis stolonifera* A  
*Angelica sylvestris* R  
*Apium nodiflorum* R  
*Atriplex prostrata* R  
*Barbarea vulgaris* R  
*Bromus sterilis* R  
*Capsella bursa-pastoris* R  
*Cardamine flexuosa* R  
*Carduus crispus* R  
*Carex riparia* LD  
*Cirsium arvense* F  
*Cirsium vulgare* R  
*Conium maculatum* R  
*Dactylis glomerata* F  
*Dipsacus fullonum* R  
*Elytrigia repens* R  
*Epilobium hirsutum* R  
*Filipendula ulmaria* R  
*Geranium dissectum* R  
*Glyceria maxima* LD  
*Holcus lanatus* O  
*Hordeum secalinum* R  
*Juncus effusus* R  
*Juncus inflexus* R  
*Lamium album* R  
*Lathyrus pratensis* R  
*Lolium perenne* F  
*Lycopus europaeus* R  
*Mentha aquatica* R  
*Myosotis scorpioides* O  
*Persicaria amphibia* R  
*Persicaria hydropiper* R  
*Phalaris arundinacea* O  
*Plantago major* R  
*Poa trivialis* F  
*Pulicaria dysenterica* R  
*Ranunculus repens* R  
*Ranunculus sceleratus* R  
*Rorippa palustris* R  
*Rumex obtusifolius* O  
*Rumex sanguineus* O  
*Salix cinerea* R  
*Scrophularia auriculata* O  
*Solanum dulcamara* R  
*Urtica dioica* F  
*Veronica beccabunga* F

### Site 3. Hedge between meadow 1 and 5.

Description: This hedge line occurs along a stream on the north side of Meadow 1. It is dominated by nettles. The stream is about 2 m wide with 2-3 m deep banks, and is 4-6 m wide overall, and the stream is slow flowing. There are trees covering much of the ditch. There is a fence on both sides.

Area recorded: Area inside the fences on both sides of the river from the Cole west to Site 4. It was recorded from the south side only.

Time spent recording: 8 minutes

*Acer campestre* R  
*Alliaria petiolata* R  
*Arrhenatherum elatius* O  
*Calystegia sepium* O  
*Carex riparia* R  
*Conium maculatum* R  
*Cornus sanguinea* R  
*Crataegus monogyna* LD  
*Dactylis glomerata* R  
*Dipsacus fullonum* O  
*Elytrigia repens* O  
*Epilobium hirsutum* R  
*Fraxinus excelsior* O  
*Galium aparine* F  
*Glechoma hederacea* R  
*Glyceria maxima* R  
*Heracleum sphondylium* R  
*Lapsana communis* R  
*Phalaris arundinacea* R  
*Poa trivialis* R  
*Prunus spinosa* O  
*Rosa arvensis* R  
*Rosa canina* O  
*Rumex obtusifolius* R  
*Salix cinerea* R  
*Salix fragilis* R  
*Sambucus nigra* O  
*Stellaria media* R  
*Symphytum uplandicum* O  
*Urtica dioica* D

### Site 4. Ditch and hedge between Meadow 1 and Meadow 8

Description: This ditch was dominated by nettles with some willows. There was a hedge on the west side of the gate.

Area recorded: Areas inside fences.

Time spent recording: 7 minutes

*Anthriscus sylvestris* O  
*Arrhenatherum elatius* O  
*Ballota nigra* (epiphytic on pollarded willow!) R  
*Calystegia sepium* F

*Cirsium arvense* R  
*Conium maculatum* O  
*Elytrigia repens* R  
*Equisetum arvense* R  
*Galium aparine* O  
*Heracleum sphondylium* R  
*Phalaris arundinacea* O  
*Rumex obtusifolius* R  
*Salix fragilis* LD  
*Sambucus nigra* R  
*Symphytum uplandicum* O  
*Urtica dioica* D

Hedge part:

*Anthriscus sylvestris* O  
*Ballota nigra* R  
*Bromus sterilis* R  
*Crataegus monogyna* D  
*Fraxinus excelsior* R (one tree)  
*Galium aparine* F  
*Rosa canina* O  
*Urtica dioica* D

**Site 5. Meadow**

Description: This was a small meadow cut for hay. There were few herbs and the field has been improved. Due to the cut, the meadow was not recorded in detail.

Recorded mainly around the edges were:

*Agrostis capillaris*  
*Alopecurus pratensis*  
*Arrhenatherum elatius*  
*Cirsium arvense*  
*Heracleum sphondylium*  
*Holcus lanatus*  
*Hordeum secalinum*  
*Lolium perenne*  
*Ranunculus repens*  
*Urtica dioica*

**Site 6. Ditch between meadows 5 and 10**

Description: This ditch had slow flowing water and was partly covered by trees and shrubs.

Area recorded: Areas inside fences.

Time spent recording: 5 minutes, searched from south side.

*Alopecurus pratensis* O  
*Anthriscus sylvestris* O  
*Apium nodiflorum* R  
*Arrhenatherum elatius* F



*Calystegia sepium* O  
*Carduus crispus* R  
*Cirsium arvense* O  
*Conium maculatum* O  
*Crataegus monogyna* D  
*Deschampsia cespitosa* O  
*Dipsacus fullonum* R  
*Epilobium hirsutum* O  
*Equisetum arvense* R  
*Holcus lanatus* F  
*Lapsana communis* R  
*Lolium perenne* R  
*Nasturtium microphyllum* R  
*Rosa canina* R  
*Rubus caesius* O  
*Rumex obtusifolius* R  
*Salix fragilis* O  
*Sambucus nigra* R  
*Scrophularia auriculata* O  
*Solanum dulcamara* O  
*Stachys palustris* R  
*Symphytum uplandicum* R  
*Torilis japonica* R  
*Ulmus procera* O  
*Urtica dioica* D

**Site 7. River Cole banks by meadows 5 and 10**

**Description:** This section of the river bank is fenced and has tall grass and nettles above the water outside the fence.

**Area recorded:** Section along River Cole by two meadows outside fence.

**Time spent recording:** 10 minutes

*Angelica sylvestris* R  
*Anthriscus sylvestris* O  
*Arrhenatherum elatius* F  
*Cirsium arvense* F  
*Conium maculatum* O  
*Crataegus monogyna* F  
*Dactylis glomerata* O  
*Dipsacus fullonum* R  
*Elytrigia repens* R  
*Epilobium hirsutum* R  
*Filipendula ulmaria* R  
*Galium aparine* R  
*Glyceria maxima* O  
*Lapsana communis* R  
*Lolium perenne* O  
*Lycopus europaeus* R  
*Lycopus europaeus* R  
*Persicaria amphibia* R  
*Plantago major* R  
*Poa trivialis* O

*Prunus spinosa* O  
*Rosa arvensis* R  
*Rosa canina* R  
*Rubus ulmifolius* R  
*Rumex sanguineus* O  
*Sambucus nigra* R  
*Symphytum uplandicum* R  
*Torilis japonica* O  
*Trifolium pratense* R  
*Tussilago farfara* R  
*Urtica dioica* LD

#### Site 8. Meadow by football pitch

**Description:** This meadow is probably improved and has been cut to 10 cm. Very few herbs are present. It is regularly flooded in winter.

**Species recorded in cut grassland:**

*Agrostis capillaris*  
*Arrhenatherum elatius*  
*Cirsium arvense*  
*Dactylis glomerata*  
*Heracleum sphondylium*  
*Holcus lanatus*  
*Hordeum secalinum*  
*Urtica dioica*

There is a small old river course in the meadow south of the football pitch. It is silted up but at lower level than surrounding field. It has escaped being cut due to its lower level.

**Area recorded:** old river course only

**Time spent recording:** 4 minutes

*Agrostis stolonifera* F  
*Alopecurus pratensis* O  
*Anthriscus sylvestris* R  
*Arrhenatherum elatius* O  
*Cirsium arvense* R  
*Cirsium vulgare* R  
*Dactylis glomerata* F  
*Elytrigia repens* F  
*Galium aparine* O  
*Heracleum sphondylium* R  
*Holcus lanatus* O  
*Hordeum secalinum* LD  
*Lolium perenne* O  
*Poa annua* R  
*Poa trivialis* LD  
*Stachys sylvatica* R  
*Urtica dioica* LD

### Site 9. Football pitch

Description: The football pitch is regularly mown, and apparently flood in winter.

Area recorded: Penalty area at south end.

Time spent recording: 5 minutes whilst pitch was being cut

Achillea millefolium O  
 Agrostis capillaris O  
 Centaurea nigra O  
 Cynosurus cristatus O  
 Dactylis glomerata O  
 Hordeum secalinum O  
 Leontodon autumnalis O  
 Lolium perenne D  
 Phleum pratense O  
 Plantago major F  
 Poa annua O  
 Potentilla reptans O  
 Prunella vulgaris R  
 Ranunculus repens O  
 Taraxacum officinale O  
 Trifolium pratense O  
 Trifolium repens A

### Site 10. Meadow

This meadow had been cut and was not recorded in detail.

Alopecurus pratensis  
 Arrhenatherum elatius  
 Cirsium arvense  
 Heracleum sphondylium  
 Holcus lanatus  
 Hordeum secalinum  
 Lolium perenne  
 Ranunculus repens  
 Urtica dioica

### Site 11. Hedge/Old Channel

Description: This hedge was variable with areas at the north end dominated by trees (especially crack willows and poplars), patches of hawthorn and patches of nettles.

Area recorded: Recorded from west side, areas associated with hedge/old Channel only.

Time spent recording: 5 minutes

Canopy:

Crataegus monogyna D  
 Fraxinus excelsior R  
 Populus X canescens R

Rhamnus catharticus O  
 Rosa canina O  
 Salix alba R  
 Salix fragilis O  
 Sambucus nigra R  
 Ulmus procera LD

Herbs:

Agrostis stolonifera O  
 Anthriscus sylvestris O  
 Arrhenatherum elatius O  
 Bromus sterilis R  
 Bryonia dioica R  
 Calystegia sepium R  
 Carduus crispus R  
 Cirsium arvense O  
 Cirsium vulgare R  
 Conium maculatum O  
 Galium aparine F  
 Glechoma hederacea R  
 Heracleum sphondylium O  
 Hordeum secalinum R  
 Lapsana communis R  
 Phleum pratense R  
 Poa trivialis O  
 Ranunculus repens R  
 Rumex obtusifolius R  
 Stachys sylvatica O  
 Urtica dioica D

Site 12. Hedge by road by football pitch

Description: hedge dominated by hawthorn by road. The base of the hedge has been sprayed, with some spray on the hedge too. One new ash standard tree has been planted.

Area recorded: Hedge and one open patch of grassland by the bridge (recorded from south side, road verge excluded).

Time spent recording: 6 minutes

Canopy:

Acer campestre R  
 Calystegia sepium R  
 Crataegus monogyna D  
 Fraxinus excelsior R  
 Prunus spinosa R  
 Rhamnus catharticus R  
 Rosa canina R  
 Sambucus nigra R  
 Ulmus procera LF

Herbs:

Anthriscus sylvestris O  
 Arrhenatherum elatius F

*Dactylis glomerata* O  
*Galium aparine* F  
*Heracleum sphondylium* O  
*Holcus lanatus* O  
*Lamium album* R  
*Urtica dioica* O

#### Site 13. Hedge on north side of road

Description: an A-shaped hedge 1 m tall on a bank which drops away another metre from the road to the arable field. A few new oak standards have been planted.

Area recorded: Hedge and base only (recorded from north side, road verge excluded)

Time spent recording: 6 minutes

##### Canopy:

*Acer campestre* R  
*Crataegus monogyna* D  
*Fraxinus excelsior* F  
*Humulus lupulus* LD  
*Rhamnus catharticus* R  
*Rosa canina* R  
*Rubus caesius* R  
*Rubus ulmifolius* O  
*Sambucus nigra* R  
*Ulmus procera* LD

##### Herbs:

*Anthriscus sylvestris* O  
*Arrhenatherum elatius* O  
*Elytrigia repens* R  
*Galium aparine* F  
*Heracleum sphondylium* R  
*Stachys sylvatica* O  
*Urtica dioica* A

#### Site 14. Ley around margin of rape field

Description: The rape field had a 5 m wide strip of ley around an inner arable headland (Site 15). It was mown to 20 cm tall, and grades into headland and river bank.

Area recorded: Some grasses difficult to record frequency due to mowing.

Time spent recording: 15 minutes

*Achillea millefolium* R  
*Alopecurus pratensis* O  
*Anthriscus sylvestris* R  
*Arctium lappa* R  
*Arrhenatherum elatius* R  
*Cirsium arvense* R

*Dactylis glomerata* O  
*Dipsacus fullonum* R  
*Equisetum arvense* R  
*Heracleum sphondylium* O  
*Lolium perenne* D  
*Matricaria discoidea* R  
*Phleum pratense* F  
*Plantago major* LF  
*Poa annua* O  
*Poa trivialis* R  
*Ranunculus repens* O  
*Rumex crispus* O  
*Rumex obtusifolius* O  
*Taraxacum officinale* R  
*Tragopogon pratensis* R  
*Trifolium repens* A

#### Site 15. Headland

Description: Rape field itself is almost exclusively rape, with very few weeds.

Area recorded: 10 m wide strip around headland all way round field

Time spent recording: 30 minutes

*Aethusa cynapium* R  
*Alopecurus myosuroides* O  
*Alopecurus pratensis* R  
*Atriplex patula* F  
*Atriplex prostrata* R  
*Avena fatua* R  
*Capsella bursa-pastoris* O  
*Chenopodium album* A  
*Chenopodium polyspermum* D  
*Cirsium arvense* R  
*Cirsium vulgare* R  
*Conium maculatum* R  
*Coronopus squamatus* F  
*Equisetum arvense* R  
*Fallopia convolvulus* R  
*Galium aparine* R  
*Geranium dissectum* R  
*Lamium purpureum* R  
*Lolium perenne* D  
*Myosotis arvensis* R  
*Papaver lecoqii* R  
*Persicaria lapathifolia* F  
*Persicaria maculosa* O  
*Plantago major* O  
*Poa annua* O  
*Polygonum aviculare* R  
*Ranunculus repens* O  
*Senecio vulgaris* O  
*Sinapis arvensis* R

*Sonchus asper* F  
*Stellaria media* F  
*Thlaspi arvense* R  
*Tripleurospermum inodorum* F  
*Urtica dioica* R  
*Veronica persica* O

#### Site 16. River bank adjacent to rape field

Description: The river bank is dominated by nettles. The banks are steep and steep (3 m drop)

Area recorded: River banks only to change of slope at top.

Time spent recording: 10 minutes

*Achillea millefolium* R  
*Agrostis capillaris* O  
*Anthriscus sylvestris* F  
*Arrhenatherum elatius* F  
*Calystegia sepium* F  
*Cirsium arvense* O  
*Cirsium vulgare* R  
*Conium maculatum* O  
*Crataegus monogyna* O  
*Dactylis glomerata* O  
*Dipsacus fullonum* R  
*Elytrigia repens* R  
*Epilobium hirsutum* O  
*Equisetum arvense* R  
*Heracleum sphondylium* O  
*Poa trivialis* O  
*Rosa canina* O  
*Rumex crispus* R  
*Rumex obtusifolius* O  
*Rumex sanguineus* R  
*Salix caprea* R  
*Salix cinerea* O  
*Salix fragilis* R  
*Solanum dulcamara* R  
*Symphytum uplandicum* O  
*Torilis japonica* R  
*Urtica dioica* D

#### Site 17. Hedge

Description: This hedge between two rape fields to 1 m tall, 50 cm wide, not laid, species-poor. There is a ditch on the north side (Site 18). The base has been sprayed.

Area recorded: Hedge only recorded, excluding field margin (Site 16), and recorded from south side.

Time spent recording: 10 minutes

## Canopy:

*Bryonia dioica* O  
*Calystegia sepium* R  
*Crataegus monogyna* D  
*Hedera helix* O  
*Quercus robur* R (+ one standard)  
*Rosa canina* O  
*Rubus ulmifolius* O  
*Sambucus nigra* O  
*Tamus communis* R

## Herbs:

*Anthriscus sylvestris* O  
*Arctium lappa* R  
*Arctium minus* subsp. *minus* R  
*Arrhenatherum elatius* O  
*Bromus sterilis* F  
*Chaerophyllum temulentum* R  
*Cirsium arvense* O  
*Elytrigia repens* O  
*Equisetum arvense* R  
*Galium aparine* A  
*Geranium dissectum* LA  
*Heracleum sphondylium* O  
*Hordeum secalinum* R  
*Lapsana communis* F  
*Lolium perenne* O  
*Poa trivialis* F  
*Triticum aestivum* R  
*Urtica dioica* A  
*Vicia cracca* R

## Site 18. Ditch

Description: This ditch was 2m deep, lined with nettles on north side, and had a hedge (Site 17) on the south side. Ditch had 10 cm water, which was not flowing.

Area recorded: Ditch and banks (not hedge), recorded from north side.

Time spent recording: 7 minutes

*Arrhenatherum elatius* F  
*Calystegia sepium* F  
*Epilobium hirsutum* R  
*Equisetum arvense* R  
*Filipendula ulmaria* F  
*Geranium dissectum* R  
*Heracleum sphondylium* R  
*Lapsana communis* R  
*Phalaris arundinacea* D  
*Rumex sanguineus* R  
*Solanum dulcamara* R  
*Sonchus asper* R  
*Symphytum uplandicum* O  
*Urtica dioica* D



### Site 19. Ley around margins of rape field

Description: An improved rye grass ley 4-5 m wide around a rape field outside the headland (Site 20).

Area recorded: Ley only.

Time spent recording: 15 minutes

*Capsella bursa-pastoris* O  
*Cirsium arvense* R  
*Coronopus squamatus* R  
*Dactylis glomerata*  
*Equisetum arvense* R  
*Geranium dissectum* R  
*Lolium perenne* D  
*Phleum pratense* O  
*Plantago major* R  
*Poa annua* R  
*Polygonum aviculare* R  
*Ranunculus repens* R  
*Rumex crispus* R  
*Rumex obtusifolius* F  
*Sonchus asper* R  
*Taraxacum officinale* R  
*Trifolium pratense* R  
*Trifolium repens* A  
*Tripleurospermum inodorum* R

### Site 20. Headland around rape field

Description: A weedy headland around a rape crop. Often quite grassy, open variable in composition. No weeds in rape crop.

Area recorded: Headland only.

Time spent recording: 20 minutes

*Alopecurus myosuroides* O  
*Arctium seedling* R  
*Atriplex patula* O  
*Atriplex prostrata* R  
*Capsella bursa-pastoris* O  
*Carduus crispus* O  
*Chenopodium album* F  
*Chenopodium polyspermum* LA  
*Coronopus squamatus* F  
*Fallopia convolvulus* R  
*Fumaria officinalis* R  
*Geranium dissectum* O  
*Lamium purpureum* R  
*Lolium perenne* D  
*Myosotis arvensis* R  
*Papaver lecoqii* R  
*Persicaria lapathifolia* O  
*Persicaria maculosa* O  
*Polygonum aviculare* O

*Rumex crispus* R  
*Senecio vulgaris* O  
*Silene alba* R  
*Sinapis arvensis* O  
*Sisymbrium officinale* R  
*Sonchus asper* F  
*Stellaria media* F  
*Thlaspi arvense* O  
*Trifolium repens* R  
*Tripleurospermum inodorum* O  
*Triticum aestivum* R

**Site 21. River bank by rape field**

**Description:** Steep sinuous banks of river dominated by nettles with a 4-5 m drop to river.

**Area recorded:** River banks to change of slope at top.

**Time spent recording:** 20 minutes

*Agrostis capillaris* R  
*Anthriscus sylvestris* O  
*Arctium lappa* O  
*Arctium minus subsp minus* R  
*Arrhenatherum elatius* A  
*Bryonia dioica* O  
*Calystegia sepium* F  
*Carduus crispus* R  
*Carex riparia* O  
*Cirsium arvense* O  
*Conium maculatum* O  
*Crataegus monogyna* O  
*Dactylis glomerata* O  
*Dactylis glomerata* O  
*Dipsacus fullonum* R  
*Elytrigia repens* o  
*Equisetum arvense* O  
*Filipendula ulmaria* O  
*Galium aparine* F  
*Heracleum sphondylium* O  
*Lapsana communis* R  
*Lapsana communis* R  
*Phalaris arundinacea* F  
*Phleum pratense* O  
*Phleum pratense* R  
*Poa trivialis* O  
*Rosa canina* R  
*Rubus ulmifolius* R  
*Rumex crispus* F  
*Salix fragilis* O  
*Scrophularia auriculata* O  
*Solanum dulcamara* O  
*Sonchus asper* R  
*Symphytum uplandicum* O  
*Urtica dioica* D

**Site 22. Ditch**

Description: This ditch was by arable land and was not grazed. It was dominated by tall nettles with occasional hawthorn trees.

Area recorded: Ditch and banks only.

Time spent recording: 7 minutes

*Anthriscus sylvestris* R  
*Arrhenatherum elatius* A  
*Ballota nigra* R  
*Calystegia sepium* A  
*Carduus crispus* R  
*Cirsium arvense* O  
*Elytrigia repens* O  
*Epilobium hirsutum* R  
*Equisetum arvense* R  
*Filipendula ulmaria* F  
*Galium aparine* F  
*Heracleum sphondylium* R  
*Lapsana communis* R  
*Lathyrus pratensis* R  
*Persicaria amphibia* R  
*Phalaris arundinacea* R  
*Poa trivialis* R  
*Prunus spinosa* R  
*Rosa canina* R  
*Rumex sanguineus* R  
*Sparganium erectum* O  
*Stachys sylvatica* R  
*Symphytum uplandicum* R  
*Urtica dioica* D  
*Vicia cracca* R

**Site 23. Three improved fields**

Description: Improved pastures outside inner study areas, cut and now grazed. Fields separated by hawthorn hedges to 1 m, cut, with a ditch on the north west side.

Main species in grassland:

*Dactylis glomerata*  
*Lolium perenne*  
*Holcus lanatus*  
*Ranunculus acris*  
*Taraxacum officinale*

**Site 24. Species-rich Meadow**

Description: A grazed grassland with variable sward height grazed by horses. Quite species-rich and not improved. Some large thistle patches present.

Area recorded: Grassland only recorded, not river banks.

Time spent recording: 15 minutes

Achillea millefolium R  
Agrostis capillaris F  
Bellis perennis O  
Bromus commutatus O  
Centaurea nigra R  
Cirsium arvense LD  
Cirsium vulgare R  
Cynosurus cristatus O  
Dactylis glomerata F  
Deschampsia cespitosa O  
Galium verum R  
Holcus lanatus O  
Hordeum secalinum F  
Leontodon autumnalis R  
Leucanthemum vulgare R  
Lolium perenne O  
Lotus corniculatus O  
Phleum pratense O  
Plantago lanceolata R  
Plantago major O  
Poa annua O  
Poa trivialis O  
Poa trivialis O  
Potentilla reptans R  
Prunella vulgaris O  
Ranunculus acris O  
Ranunculus bulbosus O  
Ranunculus repens O  
Rumex acetosa R  
Rumex acetosa R  
Taraxacum officinale R  
Trifolium fragiferum R  
Trifolium pratense O  
Trifolium repens O  
Trisetum flavescens R

**Site 25. Watchfield Common Wood**

This woodland is outside the inner study area so was only briefly noted. It was chestnut and poplar plantation over nettles with a little ash. On the river floodplain the canopy was mainly ash over nettles.

**Site 26. Grove Copse**

This woodland is outside the inner study area so was only briefly noted. It was dense spruce plantation over nettles.

### Site 27. Tellhard's Copse

This woodland is outside the inner study area so was only briefly noted. The wood was variable with a poplar plantation on floodplain to 25 m tall:

*Populus x canadensis* D  
*Urtica dioica* D  
*Sambucus nigra* D  
*Galium aparine* A  
*Alliaria petiolata* A  
*Heracleum sphondylium* O  
*Equisetum telmateia* R  
*Phragmites communis* R

On the slope to the west over old ridge and furrow, indicating that the woodland is unlikely to be ancient, and the same may apply to the other woods. It was an ash wood over nettles under planted with spruce and chestnut. In ground layer were patches with *Allium ursinum*, *Ribes rubrum*, *Filipendula ulmaria* and *Poa trivialis*.

### Site 28. Ditch on north side of Tellhard's Copse

Description: Dense nettles on ditch on north side of poplar plantation, with more open patches nearer river with reeds.

Area recorded: Ditch outside fence only. Recorded from north side.

Time spent recording: 3 minutes

*Alopecurus pratensis* R  
*Arrhenatherum elatius* R  
*Calystegia sepium* A  
*Carduus crispus* R  
*Cirsium arvense* R  
*Festuca gigantea* R  
*Filipendula ulmaria* O  
*Galium aparine* F  
*Heracleum sphondylium* R  
*Lycopus europaeus* R  
*Phragmites communis* D  
*Salix fragilis* R  
*Solanum dulcamara* R  
*Stachys sylvatica* R  
*Urtica dioica* D

### Site 29. Meadow

Description: An improved cut meadow, now cattle grazed, 10 cm tall, very few herbs present.

*Cirsium arvense*  
*Dactylis glomerata*  
*Deschampsia cespitosa*

*Festuca rubra*  
*Filipendula vulgaris* (1 plant seen)  
*Heracleum sphondylium*  
*Holcus lanatus*  
*Lolium perenne*  
*Plantago lanceolata*  
*Ranunculus acris*  
*Ranunculus repens*  
*Rumex acetosa*  
*Taraxacum officinale*

**Site 30. River Cole banks**

**Description:** Banks of the river with reed sweet grass, fenced from the cattle in the adjacent meadow.

**Area recorded:** River banks to fence.

**Time spent recording:** 10 minutes

**Trees:**

*Crataegus monogyna*  
*Fraxinus excelsior*  
*Salix fragilis*

**Herbs:**

*Alliaria petiolata* R  
*Alopecurus pratensis* F  
*Anthriscus sylvestris* F  
*Arctium lappa* R  
*Arrhenatherum elatius* F  
*Calystegia sepium* F  
*Carduus crispus* O  
*Cirsium arvense* F  
*Cirsium vulgare* R  
*Conium maculatum* F  
*Dactylis glomerata* O  
*Dipsacus fullonum* R  
*Epilobium hirsutum* F  
*Filipendula ulmaria* O  
*Galium aparine* F  
*Glyceria maxima* LA  
*Heracleum sphondylium* R  
*Hordeum secalinum* R  
*Humulus lupulus* R  
*Lapsana communis* R  
*Myosotis scorpioides* R  
*Persicaria amphibia* R  
*Phalaris arundinacea* F  
*Poa trivialis* F  
*Ranunculus repens* R  
*Rumex obtusifolius* F  
*Stachys palustris* R  
*Symphytum uplandicum* F  
*Urtica dioica* A  
*Vicia cracca* R

**Site 31. Wet hollow in meadow under crack willow**

Description: A wet hollow lined with pollarded crack willow along an old river backwater. Trampled and poached under the trees, with open vegetation, shaded.

Also present was a cow stuck in a tree, which we later rescued with the fire brigade.

Area recorded: Wet hollow under willow pollards.

Time spent recording: 10 minutes

*Agrostis stolonifera* F  
*Apium nodiflorum* R  
*Atriplex prostrata* R  
*Callitriche stagnalis* A  
*Cardamine flexuosa* R  
*Cardamine pratensis* R  
*Dipsacus fullonum* R  
*Glyceria maxima* R  
*Myosotis scorpioides* O  
*Persicaria maculosa* R  
*Plantago major* R  
*Poa trivialis* F  
*Ranunculus sceleratus* F  
*Rorippa nasturtium-aquaticum* aggregate O  
*Rorippa palustris* F  
*Rumex obtusifolius* R  
*Stellaria media* R  
*Veronica beccabunga* O  
*Veronica catenata* A

**Site 32. Ditch between meadows 29 and 33**

Description: A ditch 2 m wide and 0.5 m deep, patchy swamp vegetation along its length, fenced.

Area recorded: Areas of ditch inside fences, viewed from north side

Time spent recording: 15 minutes

*Angelica sylvestris* O  
*Arrhenatherum elatius* F  
*Calystegia sepium* F  
*Carex acutiformis* R  
*Carex riparia* LD  
*Cirsium arvense* F  
*Cirsium vulgare* R  
*Conium maculatum* R  
*Crataegus monogyna* F  
*Dactylis glomerata* O  
*Dipsacus fullonum* R  
*Elytrigia repens* R  
*Eupatorium cannabinum* R  
*Filipendula ulmaria* A  
*Galium aparine*  
*Geranium dissectum* R

*Glyceria maxima* VLD  
*Heracleum sphondylium* R  
*Lapsana communis* R  
*Lycopus europaeus* R  
*Myosotis scorpioides* R  
*Phalaris arundinacea* O  
*Potentilla reptans* R  
*Rosa canina* O  
*Rumex hydrolapathum* O  
*Rumex sanguineus* R  
*Senecio erucifolius* R  
*Solanum dulcamara* O  
*Sparganium erectum* O  
*Stachys palustris* R  
*Symphytum uplandicum* O  
*Urtica dioica* LD  
*Vicia cracca* R

#### Site 33. Meadow

A meadow mown to 10 cm tall so not recorded in detail, very dull.

*Cirsium arvense*  
*Dactylis glomerata*  
*Deschampsia cespitosa*  
*Festuca rubra*  
*Heracleum sphondylium*  
*Holcus lanatus*  
*Lolium perenne*  
*Phleum pratense*  
*Plantago major*  
*Quercus* seedling  
*Taraxacum officinale*  
*Trifolium repens*

#### Site 34. River Cole bank

Description: Bank of the River Cole fenced from meadow, to 1 m tall.

Area recorded: Banks to fence edge.

Time spent recording: 7 minutes

*Achillea millefolium* R  
*Alopecurus pratensis* R  
*Angelica sylvestris* R  
*Anthriscus sylvestris* R  
*Arrhenatherum elatius* F  
*Atriplex patula* R  
*Bromus sterilis* O  
*Calystegia sepium* O  
*Carex riparia* R  
*Cirsium arvense* F  
*Conium maculatum* R



*Dactylis glomerata* LF  
*Dipsacus fullonum* R  
*Elytrigia repens* R  
*Epilobium hirsutum* O  
*Eupatorium cannabinum* R  
*Filipendula ulmaria* F  
*Galium aparine* F  
*Geranium dissectum* R  
*Glyceria maxima* LD  
*Heracleum sphondylium* O  
*Holcus lanatus* LF  
*Juncus effusus* R  
*Juncus inflexus* R  
*Lapsana communis* R  
*Lathyrus pratensis* R  
*Lolium perenne* F  
*Lycopus europaeus* R  
*Mentha aquatica* R  
*Persicaria maculosa* R  
*Poa trivialis* F  
*Ranunculus sceleratus* R  
*Rumex obtusifolius* R  
*Rumex sanguineus* O  
*Salix fragilis* O  
*Scrophularia auriculata* R  
*Sonchus asper* O  
*Tripleurospermum inodorum* R  
*Urtica dioica* A  
*Vicia cracca* R

**Site 35. Ditch between meadows 33 and 36**

**Description:** A ditch with vegetation 2 m tall from water. The water was 1 m wide, and slow flowing. Fenced on both sides.

**Area recorded:** Areas inside fence, recorded from north side.

**Time spent recording:** 20 minutes

**Shrubs:**

*Crataegus monogyna* O  
*Prunus spinosa* R  
*Salix caprea* R

**Herbs:**

*Achillea millefolium* R  
*Angelica sylvestris* R  
*Anthriscus sylvestris* O  
*Apium nodiflorum* R  
*Arrhenatherum elatius* F  
*Calystegia sepium* R  
*Carex acutiformis* LD  
*Carex riparia* R  
*Cirsium arvense* O  
*Cirsium vulgare* R

*Conium maculatum* O  
*Dactylis glomerata* R  
*Deschampsia cespitosa* R  
*Dipsacus fullonum* R  
*Elytrigia repens* R  
*Epilobium hirsutum* D  
*Equisetum palustre* F  
*Eupatorium cannabinum* O  
*Filipendula ulmaria* F  
*Galium aparine* F  
*Glyceria fluitans* R  
*Heracleum sphondylium* R  
*Iris pseudacorus* R  
*Juncus inflexus* O  
*Lapsana communis* R  
*Lathyrus pratensis* O  
*Lysimachia nummularium* R  
*Myosotis scorpioides* R  
*Persicaria amphibia* O  
*Plantago lanceolata* R  
*Rorippa microphylla* R  
*Rubus idaeus* O  
*Rubus ulmifolius* R  
*Scrophularia auriculata* R  
*Solanum dulcamara* R  
*Sparganium erectum* R  
*Symphytum uplandicum* F  
*Torilis japonica* R  
*Urtica dioica* LD  
*Veronica anagallis-aquatica* R

#### Site 36. Meadow

Description: Improved pasture, mown, species-poor, uniform, on slope above river. There is some ridge and furrow near the Lodge.

#### General grassland:

*Agrostis capillaris*  
*Agrostis stolonifera*  
*Conium maculatum*  
*Dactylis glomerata*  
*Lolium perenne*  
*Phleum pratense*  
*Poa trivialis*  
*Ranunculus repens*  
*Rumex obtusifolius*  
*Taraxacum officinale*  
*Trifolium repens*

#### Edges:

*Anthriscus sylvestris*  
*Deschampsia cespitosa*  
*Heracleum sphondylium*  
*Rumex sanguineus*

Bank in field near river:

*Bellis perennis*  
*Cynosurus cristatus*  
*Hordeum secalinum*  
*Lotus corniculatus*  
*Ranunculus acris*  
*Trifolium pratense*

Scattered trees:

*Crataegus monogyna*  
*Fagus sylvatica*  
*Fraxinus excelsior*  
*Populus nigra* agg.  
*Quercus cerris*  
*Quercus robur*

#### Site 37. River Cole bank by field

Description: A patchy bank-side vegetation with scrub and grassland with nettles. Bank steep.

Area recorded: Areas outside fence to river.

Time spent recording: 12 minutes

*Acer pseudoplatanus* R  
*Anthriscus sylvestris* O  
*Arrhenatherum elatius* O  
*Cirsium arvense* R  
*Conium maculatum* O  
*Crataegus monogyna* F  
*Dactylis glomerata* O  
*Epilobium hirsutum* O  
*Equisetum arvense* R  
*Euonymus europaeus* R  
*Filipendula ulmaria* O  
*Glyceria maxima* O  
*Hedera helix* R  
*Heracleum sphondylium* R  
*Lolium perenne* O  
*Myosotis scorpioides* R  
*Poa trivialis* O  
*Populus tremula* F  
*Prunus spinosa* R  
*Quercus robur* R  
*Rosa canina* F  
*Rosa canina* O  
*Rubus ulmifolius* O  
*Rumex sanguineus* O  
*Salix fragilis* R  
*Solanum dulcamara* R  
*Symphytum uplandicum* O  
*Ulmus procera* F  
*Urtica dioica* F

### Site 38. Meadow

Description: An improved meadow, cut, with planted hybrid limes trees by road.

*Agrostis capillaris*  
*Capsella bursa-pastoris*  
*Elytrigia repens*  
*Hordeum secalinum*  
*Lolium perenne*  
*Plantago major*  
*Rumex obtusifolius*  
*Taraxacum officinale*

### Site 39. River Cole Bank

Description: Crack willow woodland along River Bank to 20 m tall.

Area recorded: Area outside fence to water edge.

Time spent recording: 3 minutes

#### Canopy:

*Hedera helix*  
*Prunus spinosa*  
*Rhamnus catharticus*  
*Salix alba*  
*Salix fragilis*  
*Sambucus nigra*  
*Ulmus procera*

#### Herbs:

*Agrostis stolonifera*  
*Anthriscus sylvestris*  
*Carduus crispus*  
*Cirsium arvense*  
*Cirsium vulgare*  
*Dactylis glomerata*  
*Elytrigia repens*  
*Galium aparine*  
*Rumex obtusifolius*  
*Urtica dioica*

### Site 40. Ditch edge of arable field

Description: A narrow ditch along the edge of a rape field.

Area recorded: Ditch only (c. 1 m wide)

Time spent recording: 3 minutes

*Angelica sylvestris* R  
*Bromus commutatus* R  
*Bromus sterilis* D  
*Carduus crispus* R  
*Cirsium vulgare* R

*Conium maculatum* R  
*Epilobium hirsutum* O  
*Filipendula ulmaria* R  
*Heracleum sphondylium* R  
*Ranunculus repens* R  
*Rumex obtusifolius* O  
*Sonchus arvensis* R  
*Stachys sylvatica* R  
*Urtica dioica* D

#### Site 41. Weeds in Rape field

Description: A rape field planted up to the river bank edge with a very narrow path. Edges of field had sprayed grass.

Area recorded: Edge of rape field along by river, with occasional excursions into meadow and around east side.

Time spent recording: 10 minutes

*Arctium lappa* R  
*Atriplex patula* R  
*Bromus hordeaceus* O  
*Bromus racemosus* R  
*Bromus sterilis* F  
*Capsella bursa-pastoris* R  
*Carduus crispus* R  
*Chenopodium album* R  
*Chenopodium polyspermum* F  
*Cirsium arvense* R  
*Conium maculatum* R  
*Coronopus squamatus* R  
*Dipsacus fullonum* R  
*Elytrigia repens* R  
*Equisetum arvense* R  
*Fallopia convolvulus* R  
*Galium aparine* O  
*Geranium dissectum* R  
*Lapsana communis* R  
*Lapsana communis* R  
*Matricaria discoidea* R  
*Persicaria lapathifolia* O  
*Plantago major* R  
*Poa trivialis* O  
*Rumex obtusifolius* R  
*Senecio vulgaris* R  
*Sinapis arvensis* R  
*Sonchus asper* O  
*Stellaria media* R  
*Tripleurospermum inodorum* R  
*Urtica dioica* F

**Site 42. River bank by field 41**

Description: A patchy river bank with scrub and nettles.

Area recorded: Difficult to see bank and recorded from top of bank.

The middle section was done very briefly due to bee swarm!

Time spent recording: 10 minutes

**Shrubs:**

*Acer campestre* R  
*Crataegus monogyna* F  
*Fraxinus excelsior* R  
*Juglans regia* R  
*Prunus spinosa* LD  
*Rhamnus catharticus* R  
*Rosa canina* R  
*Salix fragilis* F  
*Sambucus nigra* O

**Herbs:**

*Alopecurus pratensis* R  
*Arctium lappa* R  
*Arrhenatherum elatius* F  
*Bromus racemosus* R  
*Calystegia sepium* O  
*Conium maculatum* O  
*Elytrigia repens* O  
*Galium aparine* F  
*Geranium dissectum* R  
*Heracleum sphondylium* O  
*Phalaris arundinacea* R  
*Rubus ulmifolius* R  
*Symphytum uplandicum* O  
*Urtica dioica* D

**Site 43. Field boundary between fields 41 and 44 (east side of Fritillary meadow)**

Description: Vegetation along a fence line dominated by nettles.

Area recorded: Fence line. Difficult to define limits of area, the fields and their weeds not included.

Time spent recording: 5 minutes

*Anthriscus sylvestris* O  
*Arrhenatherum elatius* F  
*Avena fatua* R  
*Bromus hordeaceus* R  
*Bromus sterilis* R  
*Cirsium arvense* R  
*Elytrigia repens* O  
*Festuca pratensis* R  
*Filipendula ulmaria* R  
*Galium aparine* D  
*Galium verum* R

*Heracleum sphondylium* F  
*Holcus lanatus* R  
*Persicaria lapathifolia* R  
*Rumex obtusifolius* R  
*Sambucus nigra* R  
*Urtica dioica* D  
*Vicia cracca* R

**Site 44. Fritillary meadow**

**Description:** A relatively species-rich meadow reported to have fritillaries (none seen). Meadow uncut and ungrazed, to 1 m tall but much grass lodged. More rank on north side.

**Area recorded:** Meadow only

**Time spent recording:** 25 minutes

**Grasses:**

*Agrostis gigantea* F  
*Agrostis stolonifera* O  
*Alopecurus pratensis* F  
*Anthoxanthum odoratum* O  
*Arrhenatherum elatius* A  
*Bromus hordeaceus* R  
*Bromus sterilis* R  
*Cynosurus cristatus* O  
*Dactylis glomerata* F  
*Deschampsia cespitosa* R  
*Elytrigia repens* R  
*Holcus lanatus* F  
*Hordeum secalinum* F  
*Phleum pratense* O  
*Trisetum flavescens* F

**Herbs:**

*Achillea millefolium* R  
*Anthriscus sylvestris* F  
*Centaurea nigra* F  
*Cerastium fontanum* O  
*Cirsium arvense* O  
*Filipendula ulmaria* F  
*Filipendula vulgaris* R  
*Galium verum* F  
*Heracleum sphondylium* O  
*Hypochaeris radicata* R  
*Lathyrus pratensis* O  
*Leucanthemum vulgare* R  
*Lotus corniculatus* R  
*Plantago lanceolata* O  
*Ranunculus acris* O  
*Rumex acetosa* O  
*Taraxacum officinale* R  
*Tragopogon pratensis* R  
*Trifolium pratense* O  
*Vicia cracca* R

Site 45. Hedge behind Fritillary field

Description: A hedge behind fritillary meadow with a ditch on the edge of the field with a broad band of nettles

Area recorded: Hedge and nettle band.

Time spent recording: 8 minutes

Crataegus monogyna D  
 Glyceria maxima O  
 Urtica dioica D  
 Rumex obtusifolius R  
 Sambucus nigra O  
 Arctium minus R  
 Arrhenatherum elatius O  
 Salix cinerea R  
 Salix fragilis R  
 Heracleum sphondylium R  
 Rubus ulmifolius R  
 Prunus ?domestica R  
 Prunus spinosa O  
 Cornus sanguinea R  
 Arctium lappa R  
 Carduus crispus R  
 Cirsium arvense R  
 Phalaris arundinacea R  
 Calystegia sepium R  
 Rosa canina R

Site 46. River Cole by Fritillary meadow

Description: The river bank had a broad band of nettles and some hawthorn.

Area recorded: River bank to change of slope, difficult to see bank properly.

Time spent recording: 6 minutes

Canopy:

Crataegus monogyna LD  
 Humulus lupulus O  
 Salix fragilis O  
 Sambucus nigra O

Herbs:

Anthriscus sylvestris O  
 Arctium lappa R  
 Arrhenatherum elatius O  
 Calystegia sepium R  
 Carduus crispus R  
 Conium maculatum R  
 Dipsacus fullonum R  
 Epilobium hirsutum R  
 Galium aparine O  
 Glyceria maxima O



*Heracleum sphondylium* O  
*Lapsana communis* R  
*Rubus fruticosus* R  
*Rubus ulmifolius* R  
*Rumex sanguineus* R  
*Scrophularia auriculata* R  
*Symphytum uplandicum* R  
*Urtica dioica* D

**Site 47. River Cole bank of Rape field**

**Description:** The River Cole bank on the edge of a rape field.

**Area recorded:** Access not possible, so recorded from west side across river.

*Achillea millefolium*  
*Alnus glutinosa*  
*Anthriscus sylvestris*  
*Arctium lappa*  
*Arrhenatherum elatius*  
*Ballota nigra*  
*Calystegia sepium*  
*Carduus crispus*  
*Conium maculatum*  
*Crataegus monogyna*  
*Crataegus monogyna*  
*Dipsacus fullonum*  
*Elytrigia repens*  
*Epilobium hirsutum*  
*Filipendula ulmaria*  
*Galium aparine*  
*Heracleum sphondylium*  
*Lapsana communis*  
*Phalaris arundinacea*  
*Rhamnus catharticus*  
*Rubus fruticosus*  
*Salix cinerea*  
*Salix viminalis*  
*Sambucus nigra*  
*Symphytum uplandicum*  
*Urtica dioica*

#### 4.0 NVC COMMUNITIES

##### 4.1 Woodlands, scrub and hedges

###### 4.1.1 W6 alder - common nettle woodland

This woodland type is characterised by a canopy of alder or crack willow (*Salix fragilis*), sometimes with a little downy birch (*Betula pubescens*), and a fairly species-poor ground flora of common nettle (*Urtica dioica*), cleavers (*Galium aparine*) and other nutrient-loving herbs. The shrub layer is usually patchy and open with grey willow (*Salix cinerea*) and elder (*Sambucus nigra*). It occurs widely on moist, nutrient-rich alluvial soils in lowland Britain, on riverbanks, by ponds and in valley bottoms.

Five sub-communities are recognised in Britain, which form an ill-defined sequence running from wetter to drier ground. At Coleshill, the W6b crack willow sub-community was present. In this sub-community, alder is replaced by crack willow (or exceptionally white willow, *Salix alba*), often where it has been deliberately planted and managed on riverbanks, etc. The other species are very similar to the typical sub-community. It occurs not infrequently in suitable locations throughout lowland Britain.

###### 4.1.2 W21 hawthorn - ivy scrub

This scrub type is characterised by constant hawthorn, ivy and bramble. It is a diverse community, the variation being related to soils and origin of the scrub. They occur on moderately acid to strongly alkali soils. It may be deliberately planted, or colonise naturally. It is the commonest scrub type in lowland Britain. It occurs on neglected land, and very commonly as hedges.

Four sub-communities are recognised in Britain, of which the W21a ivy - common nettle sub-community occurred at Coleshill. This is characterised by common nettles and cleavers, often with grassland species. The stands are generally species-poor. It is often of recent origin. The soils are often nutrient-rich. It is the commonest sub-community, and is very common in Britain.

All the hedges were of this type, the ground floras usually being dominated by nettles due to the rich alluvial soils and possibly fertiliser drift.

###### 4.1.3 W22 blackthorn - bramble scrub

One patch of blackthorn scrub occurred north west of Coleshill Bridge. This scrub type is characterised by blackthorn (*Prunus spinosa*), which usually forms dense stands by spreading suckers. It is often the only woody species present. The field layer is usually species-poor due to dense shade. The soils are often deep, moist and nutrient-rich. It occurs as hedges, invading neglected land, on sea cliffs, banks and woodland margins. It is widespread through the British lowlands.

## 4.2 Grasslands

### 4.2.1 MG1 false oat-grass grasslands

False oat-grass (*Arrhenatherum elatius*) grasslands are characterised by dominant false oat-grass, cock's-foot, Yorkshire fog and hogweed (*Heracleum sphondylium*). They occur on freely draining to seasonally moist soils which are weakly acidic to calcareous, and which are often moderately or strongly nutrient-rich. They are usually ungrazed, but may be mown. They are widespread in lowland Britain on roadsides, banks, neglected pastures, etc. Five sub-communities are recognised in Britain, of which two occurred at Coleshill.

The MG1b common nettle sub-community which has abundant common nettles in addition to the community constants was widespread at Coleshill. It typically occurs on nutrient-rich soils. It is typical of roadsides, neglected and disturbed pastures, and waste ground. The River Cole bank vegetation was also ascribed to this community, although some stands had purer stands of nettles.

The MG1c meadowsweet sub-community occurred in some of the wetter areas, usually associated with the MG1b common nettle sub-community. In this sub-community, in addition to false oat-grass, common nettle and hogweed, meadowsweet becomes a prominent component of the vegetation. It occurs on brown earths of neutral pH where soils are moist but freely draining. It is characteristic of ungrazed roadside ditches and choked streams throughout lowland Britain.

### 4.2.2 MG5 crested dog's-tail - common knapweed meadow and pasture

This community is characterised by red fescue, crested dog's tail, bird's-foot trefoil (*Lotus corniculatus*), ribwort plantain (*Plantago lanceolata*), Yorkshire fog, cock's-foot, white clover, common knapweed, creeping bent, sweet vernal grass (*Anthoxanthum odoratum*), and red clover. Locally there may be rye grass, or ladies bedstraw (*Galium verum*), yellow oat-grass (*Trisetum flavescens*) and yarrow (*Achillea millefolium*), or self-heal (*Prunella vulgaris*), autumn hawkbit (*Leontodon autumnalis*), field woodrush (*Luzula campestris*), heath-grass (*Danthonia decumbens*), tormentil (*Potentilla erecta*), devil's-bit scabious (*Succisa pratensis*) and meadow buttercup (*Ranunculus bulbosus*). They are typically species-rich pastures. They can be quite variable in composition. They occur on soils which are not high in nutrients, neither acid or alkali, and freely-drained. The pastures have usually not been sprayed with herbicide, and they either receive little or no fertiliser. They are usually cut for hay, and are ungrazed in summer but may be grazed in winter.

Three sub-communities are recognised in Britain, of which the MG5a meadow vetchling sub-community occurred at Coleshill. This sub-community has rye grass, daisy, meadow vetchling and ox-eye daisy in addition to the community constants. It is the most variable of the sub-communities. It has often received some fertiliser or manure. It is common and widespread in Britain.

This grassland type was the most species-rich at Coleshill. The fritillary meadow (Site 44) had the best examples, but appears to have been somewhat improved. Although Lady's bedstraw was locally frequent, there were too few associates to make it the MG5b Lady's bedstraw sub-community. A horse meadow (Site 24) could also be this community type if grazing was taken off.

#### 4.2.3 MG6 rye grass - crested dog's-tail pasture

This community is characterised by rye grass, crested dog's tail, white clover, Yorkshire fog, mouse-ear, and red fescue. It is often a relatively species-poor community. It is often very variable in composition, depending on the precise type of grazing and soil. It occurs on fairly nutrient-rich soils of medium pH which are well-drained, but these range from weakly acid to weakly basic. The pastures are typically heavily grazed for most of the year, and have often received fertiliser or slurry. They are the commonest partly improved grazing pastures in Britain.

Three sub-communities are recognised in Britain, of which the MG6a typical sub-community occurred at Coleshill (Site 1). This sub-community is the typical rye grass - crested dog's-tail pasture characterised by the species which define the community as a whole. It is often fairly improved through fertiliser application, and occurs on the richer soils. It is common in Britain.

#### 4.2.4 MG7 rye grass leys

Rye grass leys are characterised by dominant rye grass associated variably with timothy, rough meadow grass (*Poa trivialis*), white clover, cock's-foot, meadow foxtail (*Alopecurus pratensis*), plantains (*Plantago* species), dandelions (*Taraxacum* species) and other nitrophilous herbaceous plants. They are typically very species-poor communities. They are characteristic of the more nutrient-rich and heavily improved soils of medium pH, which are usually well-drained. They are either heavily grazed, or are cut for hay or silage. They are the predominant, modern agricultural pasture in lowland Britain.

At Coleshill, this pasture type was the commonest grassland type. The meadows have been recorded as Improved pasture.

### 4.3 Swamps

#### 4.3.1 S5 reed sweet-grass swamp

This is usually a fairly species-poor, tall (to 1-2 m), swamp community over-whelmingly dominated by reed sweet-grass (*Glyceria maxima*), with occasional water dock (*Rumex hydrolapathum*) and common duckweed, or water plantain (*Alisma plantago-aquatica*), branched bur-reed and watercress (*Rorippa nasturtium-aquaticum*). The reed sweet-grass forms dense spreading patches and excludes other species. It occurs on flood-plain fens, river banks, ditches, lake margins and rarely wet meadows.

It is widespread in the lowlands north to northern England, but is very uncommon in Wales and Scotland. It usually occurs in shallow water and may develop as a floating raft, but is rarely found deep water, and is uncommon in fast-flowing water. It often occurs in nutrient-rich water (especially with high phosphate levels), and is often on substrates with a high mineral content (e.g. river alluvium). There are two sub-communities.

This community, represented by both the S5a reed sweet-grass sub-community and the S5b water plantain - branched bur-reed sub-community which intergrade was frequent along the River Cole.

#### 4.3.2 S6 Greater pond-sedge swamp/S7 Lesser pond-sedge swamp

These communities has dominated by greater pond-sedge (*Carex riparia*) or lesser pond-sedge (*C. acutiformis*) which form dense stands by spreading rhizomes. Typically, the stands are fairly species-poor, and may have other herbs such as great willowherb (*Epilobium hirsutum*), reed canary grass, marsh horsetail (*Equisetum palustre*), and water mint (*Mentha aquatica*). They often occurs as small stands, rarely as extensive areas, and occur in shallow water or sometimes on drier land, often in nutrient-rich conditions, and tolerate fluctuating water levels. They are a common vegetation type of ditches, pond and lake margins, riverbanks and sometimes wet fields.

Patches of both sedges occurred in the ditches at Coleshill south of the Bridge.

#### 4.3.3 S26 common reed - common nettle fen

This community is associated with nutrient-rich, neutral to slightly basic water margins with seasonal water inundation. It is a variable community, characterised by common reed, common nettle, cleavers, marsh bedstraw, hemlock water-dropwort (*Oenanthe crocata*), hedge bindweed (*Calystegia sepium*) and great willowherb (*Epilobium hirsutum*). It is common in lowland ditches, riverbanks and fens, and also occurs in coastal reedbeds and flood-plains which have been disturbed. It occurs on moist organic or mineral substrates, on ground water gleys and on sites sometimes flooded in winter. One stand was found at Coleshill in a ditch on the north side of Tellhard's Copse, but was not typical.

#### 4.3.4 S28 reed canary-grass swamp

This is a tall swamp community dominated by stands of reed canary-grass which spread to form patches 1-2 m tall. It is a variable community and is often quite species-poor. It is frequent in ungrazed situations on river banks and pond margins in lowland Britain. There are three sub-communities which show a transition related to water table.

There were scattered patches of this vegetation type in ditches around the area, often with prominent *Epilobium hirsutum*.

#### 4.4 Other vegetation types

Nettle beds occurred on some ditch and river bank sides.

One stand of *Reynoutria sachalinensis* was found opposite Tellhard's Copse.

Arable headlands with many weeds species were present in the two fields north west of Coleshill Bridge.

## 5.0 DISCUSSION

### 5.1 Species of particular note

*Fritillaria meleagris* is of particular interest in Site 44, but was not seen during this survey despite careful searching. It flowers in April/May and is very inconspicuous afterwards unless fruiting. An account of the fritillary in Wiltshire is given in Gillham (1993).

*Filipendula vulgaris* is usually thought of as a plant of chalk and limestone, but does occur on water meadows. It was seen in the Fritillary meadows (Site 44) and also surprisingly in an improved pasture (Site 29) indicating the interest of the pastures may not all be completely destroyed.

*Bromus commutatus* and *B. racemosus* are both old meadow grasses, both found scattered widely in the area, sometimes as arable weeds.

### 5.2 Vegetation of note

The most interesting site is the Fritillary field (Site 44), but is clearly not managed properly for fritillaries at the moment. The water table is quite low due to the low level of the River Cole, and it appears to have been somewhat improved. Restoration should aim to improve the quality of the habitat in this field, both by changes in water level and appropriate management.

The horse meadow at the north west end of the outer study area (Site 24) has considerable potential for improvement in management as a hay meadow, and it supports many old meadow species. Site 1 south of the Bridge also has potential, but will require more restoration than simple management changes.

The ditches south of Coleshill Park (e.g. Site 32 and 35) and most of the river banks south of the weir are quite rich in wetland species and could act as a source of colonisation for suitable habitats created elsewhere on the site.

The backwater (Site 31) has potential for improvement if re-flooded and some of the willows are pollarded again.

### 5.3 Recommendations

#### 5.3.1 Survey

The monitoring was initially suggested to be carried out twice yearly. With the type of changes proposed it is probably better carried out once a year, and earlier than the current survey so that meadows can be recorded before they are cut.

### 5.3.2 Restoration

It was not an aim of this work to provide detailed restoration proposals, but a few ideas are given below. Much practical advice on restoration of wet grasslands is available from the RSPB (e.g. Andrews & Rebane 1994).

Site 1 would make an ideal site for restoration to an irrigated water meadow (cf Rackham 1986), where water is fed off from the river in an elaborate series of channels to fertilise and irrigate the meadow during the winter, and left to dry out in the spring. This results in a network of microhabitats with regular inputs of seed and silt, potentially enriching the sward.

To enrich existing meadows, hay crops could be taken off the richer meadows and spread over the poorer ones to give a source of seeds. Species could be transplanted into the swards to enrich small areas.

Native black poplars could be planted beside the rivers. Many more have been found in Wiltshire since the recent flora (Gillham 1993).

## 6.0 REFERENCES

- Andrews, J. & Rebane, M. (1994). *Farming and Wildlife*. RSPB, Sandy.
- Gillham, B. (1993). *The Wiltshire flora*. Pisces Publications, Newbury.
- Rackham, O. (1986). *The history of the countryside*. J. M. Dent & Sons, London.
- Stace, C.A. (1991). *New flora of the British Isles*. Cambridge University Press, Cambridge.



Fritillary Meadow (Site 44)



River Cole bank from Site 1



Meadow 10







inner study area

outer study area



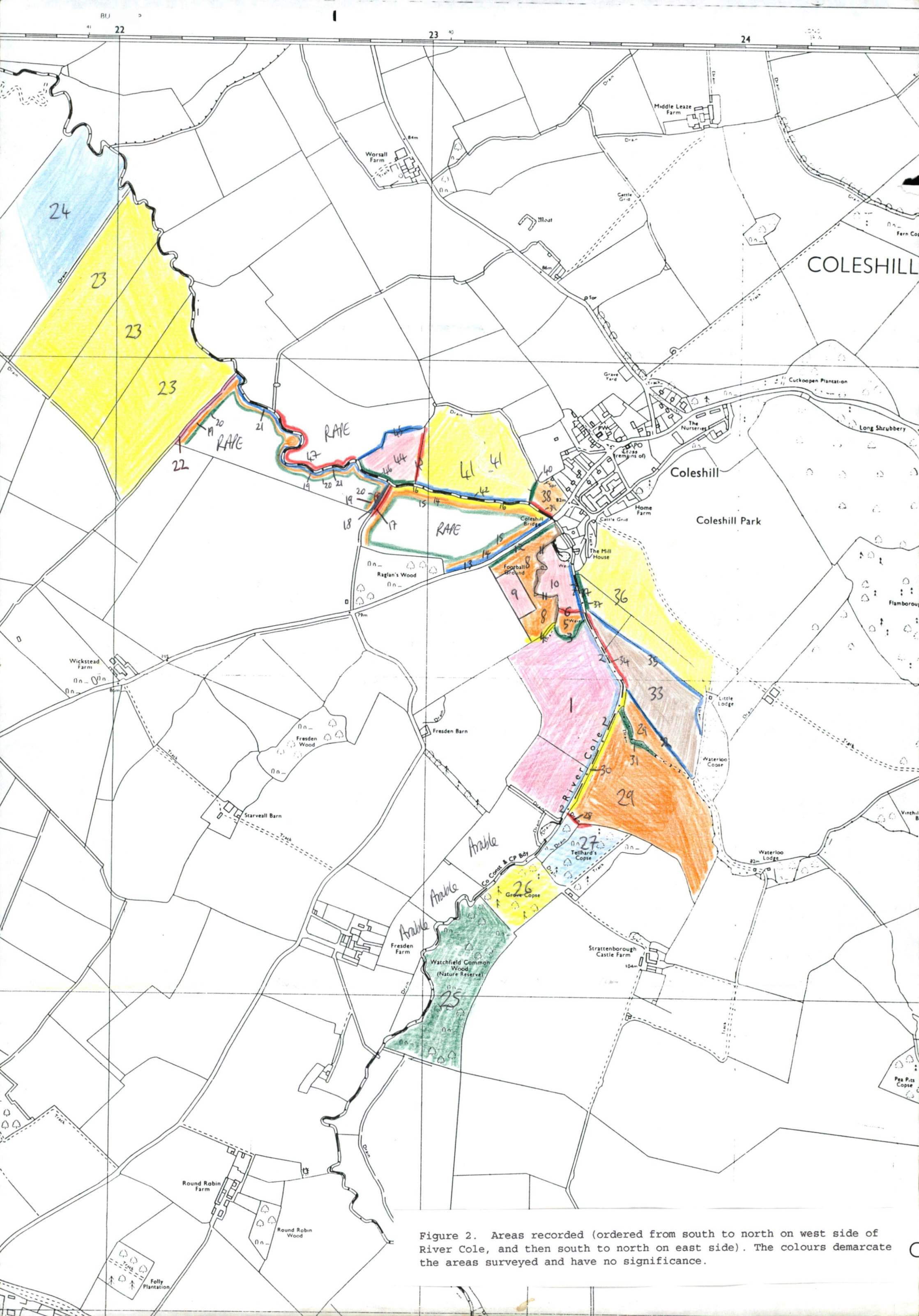


Figure 2. Areas recorded (ordered from south to north on west side of River Cole, and then south to north on east side). The colours demarcate the areas surveyed and have no significance.



- A Arable
- I Improved pasture (MG7 rye grass ley)
- MG1b false oat-grass grassland, common nettle sub-community
- MG1c false oat-grass grassland, meadowsweet sub-community
- MG5 crested dog's-tail - common knapweed meadow and pasture
- MG5a crested dog's-tail - common knapweed meadow and pasture, meadow vetchling sub-community
- MG6a rye grass - crested dog's-tail pasture, typical sub-community
- MG7 rye grass leys
- Rs Reynoutria sachalinensis
- S5 reed sweet-grass swamp
- S6 greater pond-sedge swamp
- S7 lesser pond-sedge swamp
- S26 common reed - common nettle fen
- S28 reed canary-grass swamp
- W6b alder - common nettle woodland, crack willow sub-community
- W21a hawthorn - ivy scrub, ivy - common nettle sub-community
- W22 blackthorn - bramble scrub

-  Woodland
-  Hedge
-  Grassland
-  Swamp
-  Isolated trees
-  Scattered scrub
-  Tall herb

