

# Vegetation Survey of Cudwell Meadow

**August 2020**

**Site name and location:** Cudwell Meadow, off Cemetery Road, Church Stretton

**Grid Ref:** S0449932

**Date:** 7th July 2020 (also 4 May and 8 June)

## The purpose of the survey

The purpose of the vegetation survey was to set a baseline, to assess the current situation, to inform management decisions and to measure subsequent changes.

## Description

Cudwell Meadow is a 0.92ha (approx) field adjacent to the Town or Quinny Brook that drains to the west and south eventually into the Onny. It is currently meadow in name only. It is called 'meadow' on the 1840 tithe map but in recent decades has been managed as part semi-improved, mostly unimproved, flood plain grazing land. The Meadow is the most westerly field of the Worlds End Wetlands, Stretton, an area of 11 ha which receive waters shed from, to the west, part of the Long Mynd including Town Brook valley, and to the east, much of the west facing slopes of Ragleth.



Figure 1: World's End Wetlands; Cudwell Meadow circled.

On the 1840 map the brook on the north boundary of the field follows its present course with bends, suggesting the brook was probably canalised prior to that date. An old photo from 1910 shows the brook canalised and indicates that the field was semi-intensive grassland. We are told by local residents that the field has sometime been under cereals, perhaps during or soon after the Second World War.

In recent years to reduce flood risk to local properties, the Environment Agency (EA) has annually excavated the brook, desilting, deepening and significantly widening (from c.1m -2m) its profile. This work has been done from the field side with the result that a vegetated bund has developed from the spoil. The brook water level, particularly when in spate, can be at or above the level of the field. At one point near the west end of the field overhanging branches of willow trees on the north bank have restricted access for the EA excavator with the result that no bund has formed and the brook regularly overflows at this point into The Meadow. In addition during periods of high rainfall the wetlands to the east of Cemetery Road drain below and above the surface into The Meadow. As a result much of the field is regularly inundated, parts for more than 6 months a year, other parts for 3 months. Land level contours vary across the field by only about 3 meters; nevertheless these contours are highly significant when it comes to inundation and plant community types.

For the past decade at least the field has been let for sheep grazing most or all months of the year. Prior to that, we are told by local residents, the field was sometimes used for grazing and stabling ponies.

## **Method**

Preliminary visits were made on 4 May and 8 June 2020 to look for spring ephemerals and to roughly map the vegetation. Most of the surveying was carried out on 7th July. The woodland, the woodland margin and the brook side inaccessible beyond the fence were not surveyed.

Plant community stands clearly relate strongly to contour; transitions between communities are gradual, not clear-cut. Species were recorded using the Shropshire Botanical Society Recording Card. In addition, forty nine 1m<sup>2</sup> quadrats were recorded, positioned more or less systematically to reflect the vegetation stands. For each quadrat, species present were recorded and their % cover estimated.

Quadrat data were analysed using MAVIS (Modular Analysis of Vegetation Information System), a software programme commonly used in ecology for determined community types within the National Vegetation Classification (NVC) system.

## **Findings**

### **a) Diversity**

145 vascular plant species were recorded in Cudwell Meadow; see Appendix 1. Species recorded included 6 Shropshire axiophytes; these are not necessarily rare but they are useful indicators of particular environmental conditions:

- i) *Carex muricata* var *pairae* - Prickly sedge; rare
- ii) *Hyacinthoides non-scripta* - Bluebell; occasional
- iii) *Lamium galeobdolon* - Yellow Archangel; occasional
- iv) *Myosotis discolor* - Changing Forget-me-not; rare
- v) *Myosotis secunda* - Creeping Forget-me-not; frequent
- vi) *Veronica scutellata* - Marsh Speedwell; occasional

## **b) Plant Communities**

Analysing the plant communities present is useful for two main reasons. Firstly, some communities are common, others are rare and/or endangered, nationally or in Shropshire. Plant communities will have associated animal species further up the food chain. If those animals do well only within a particular plant community (e.g. for food or habitat) and that community is endangered then those animals may also be under threat. Secondly, analysis of the plant communities present can help inform management decisions and then monitor their success.

A forewarning: vegetation analysis is not an exact science. Judgements still have to be made; the more experience surveyors have, the better the analysis is likely to be. I am not highly experienced in NVC analysis, particularly in using MAVIS.

The Vegetation Map is given in Figure 2. From driest to wettest the communities included:

### **A. Mesotrophic Grassland MG; neutral, not calcareous, nor acid montane**

**MG5 Red Fescue - Crested Dogtail Grass (*Festuca rubra* - *Cynosurus cristatus*)** This is found in a small dry area in the NE corner of the field. Other species present include Common Bent (*Agrostis capillaris*), Eyebright (*Euphrasia officinalis*) and White Clover (*Trifolium repens*).

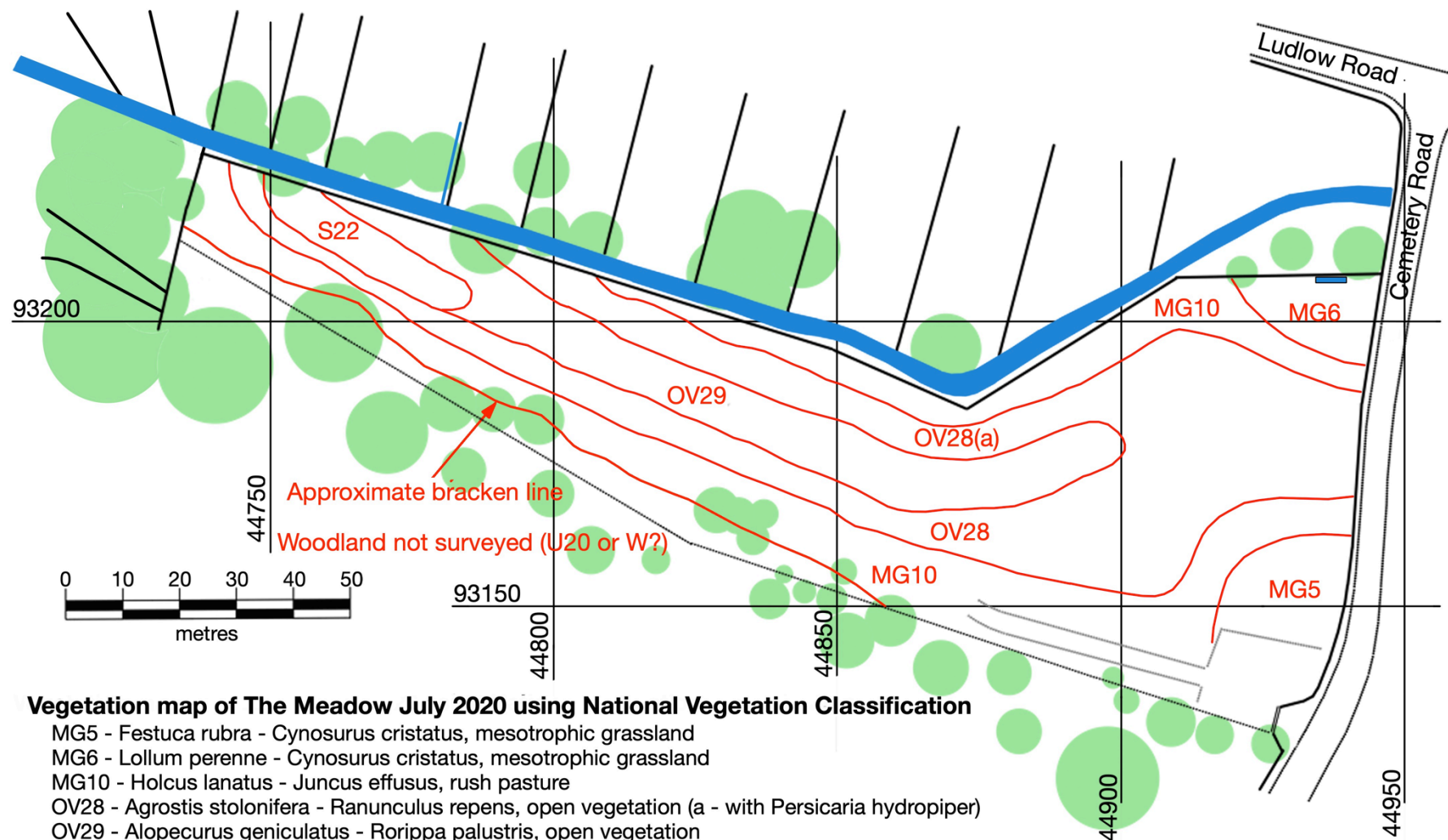
**MG6 Perennial Ryegrass - Crested Dogtail (*Lolium perenne* - *Cynosurus cristatus*)** This small area near the gate in the SE corner of the field may be a remnant of resowing long ago. If it was resown with Ryegrass, it has long since died out in other areas because of flooding.

**MG10 Yorkshire Fog - Soft Rush (*Holcus lanatus* - *Juncus effusus*)** This is damp, generally species-poor pasture on slightly higher ground infrequently flooded towards the north and south margins of the field. Creeping buttercup (*Ranunculus repens*) and Meadow Foxtail (*Alopecurus pratensis*) are also frequent.

### **B. Open Vegetation Communities (OV)**

**OV28 Creeping Bent - Creeping Buttercup (*Agrostis stolonifera* - *Ranunculus repens*)** This community is found over a large area of the field, which is inundated several months of the year, particularly in late spring. Other species include Marsh Foxtail (*Alopecurus geniculatus*), Lesser Spearwort (*Ranunculus flammula*), and Marsh Bedstraw (*Galium palustre*). Several bistort species (*Persicaria*) are present, in particular Water Pepper (*Persicaria hydropiper*).

**OV29 Marsh Foxtail - Marsh Yellow-cress (*Alopecurus geniculatus* - *Rorippa palustris*)** A low-lying, central strip of the field is covered with this community. Bistort species are again common here as are Marsh Yellow-cress, Marsh



Thanks to Pete Whitlock for the mapping graphics and loan of a PC to run MAVIS

Marigold (*Caltha palustris*), Gipsywort (*Lycopus europaeus*), Common Spike-rush (*Eleocharis palustris*), Marsh Cudweed (*Gnaphalium uliginosum*) and Curled Dock (*Rumex crispus*); so unfortunately is the alien New Zealand Pigmyweed (*Crassula helmsii*).

### **C. Swamp Communities (S)**

**S22 Floating Sweet-grass (*Glyceria fluitans*)** This swamp community can be found in a small area to the western end of the field that is under water or at least wet all months of the year. Other associated species are Fools Watercress (*Apium nodiflorum*), Water Forget-me-not (*Myosotis scorpioides*), Common Hemp-nettle (*Galeopsis tetrahit*) and Water Mint (*Mentha aquatica*).

### **D. Other communities not surveyed**

The woodland and woodland margin were not surveyed since it was not clear where the field boundary fence will be positioned. In addition the hard standing by the roadside gate had some interesting species like Changing Forget-me-not (*Myosotis discolor*) and Dovesfoot Cranesbill (*Geranium molle*).

### **Discussion**

145 plant species is an encouraging number for a field of less than a hectare.

This probably reflects two main factors:

- i) management in recent decades. The field has not, so far as is known, been cultivated or resown or received artificial fertiliser for several decades.
- ii) inundation. Diversity is enhanced by the spectrum in different parts of the field of months under water, from more or less 0-12.

The different vegetation communities again reflect the amount and duration of flooding especially in the spring. Some communities, in particular OV28 and OV 29 (if they have been identified correctly) are not common in South Shropshire. These open vegetation communities can be important as grazing marshes for wintering wildfowl and waders in the spring.

The conservation value of the field is such that it would probably meet Local Wildlife Site criteria. Two adjacent fields in the Worlds End Wetlands were awarded LWS designation in 2017. At the time, the vegetation of The Meadow was not surveyed in detail.

### **Questions**

This survey will help inform the Management Plan for Cudwell Meadow. I have limited experience in wetland habitat management so hesitate to make firm recommendations. Expertise should be sought. I therefore phrase what follows as questions and suggestions to the Management Team.

1) Increase or decrease inundation?

I suggest there is a case for managing the field as a floodplain by increasing the amount and duration of inundation from Quinny Brook. This would increase offline flood storage and help reduce peak flow, so would reduce flood risk to

nearby houses. Any overspill at the moment is uncontrolled. Some form of sluice could be installed. Since the brook is classified as a 'main river', dialogue with the Environment Agency will be needed on how best to achieve this.

## 2) Excavate scrapes or ponds?

There are substantial sewage and storm drain pipes under the field so it is unlikely that excavation of scrapes or ponds is possible.

## 3) Meadow or pasture?

Is it best managed as meadow (i.e. excluding livestock in spring and early summer to make hay) or as pasture? In recent decades the field has been managed as pasture grazed by sheep. It is this management that has led to the current diversity, so there is a case for continuing with the same. On the other hand some areas are relatively species-poor, in particular MG10 and the woodland margin mostly covered in bracken. Haymaking is a major shift in management and will change, and perhaps improve, vegetation diversity and communities.

## 4) Grazing which livestock, at what stocking density and when?

A combination of haymaking followed by grazing of the aftermath generally increases species diversity. Sheep graze selectively, particularly the tops of plants. Cattle tend to tear plants producing a sward of mixed height. Horses graze closer to the ground than sheep and cattle. Offering the field to a local farmer for young cattle may be the preferred option but it is important that stock are removed as soon as the ground becomes inundated before poaching happens. Flooding can happen suddenly even in the summer and getting a stock owner to remove animals quickly may be a problem.

## 5) Aliens and 'weeds'?

What, if anything, to do about 'weeds'? e.g. nettles, bracken, docks and ragwort. This is an on-going debate in conservation. Most important is the alien New Zealand Pigmyweed (*Crassula helmsii*). This is present in an area of about 300 sq.m. in total. Eradication is probably impossible. It certainly needs monitoring and perhaps suppressing in some way - grazing, physical raking in winter months. Specialist advice is needed in this.

Mike Carter  
August 2020

## Appendix 1: The Meadow flora list July 2020

**Bold** - Shropshire axiophytes - good habitat indicator species

1.	<i>Acer pseudoplatanus</i>	Sycamore
2.	<i>Achillea millefolium</i>	Yarrow
3.	<i>Agrostis capillaris</i>	Common bent
4.	<i>Agrostis stolonifera</i>	Creeping bent
5.	<i>Alchemilla mollis</i>	Lady's mantle
6.	<i>Alopecurus geniculatus</i>	Marsh foxtail
7.	<i>Alopecurus pratensis</i>	Meadow foxtail
8.	<i>Angelica sylvestris</i>	Wild angelica
9.	<i>Anisantha sterilis</i>	Barren brome
10.	<i>Anthoxanthum odoratum</i>	Sweet vernal grass
11.	<i>Anthriscus sylvestris</i>	Cow parsley
12.	<i>Apium nodiflorum</i>	Fool's watercress
13.	<i>Arrhenatherum elatius</i>	False oat grass
14.	<i>Arum maculatum</i>	Lords and Ladies
15.	<i>Atriplex prostrata</i>	Spear-leaved orache
16.	<i>Bellis perennis</i>	Daisy
17.	<i>Bromus hordeaceus</i>	Soft brome
18.	<i>Callitriche stagnalis</i>	Common water-starwort
19.	<i>Caltha palustris</i>	Marsh marigold
20.	<i>Calystegia sepium</i>	Hedge bindweed
21.	<i>Capsella bursa-pastoris</i>	Shepherd's purse
22.	<i>Cardamine flexuosa</i>	Wavy bittercress
23.	<i>Cardamine hirsuta</i>	Hairy bittercress
24.	<i>Cardamine pratensis</i>	Lady's smock
25.	<i>Carduus nutans</i>	Musk thistle
26.	<i>Carex hirta</i>	Hairy sedge
27.	<i>Carex leporina</i>	Oval sedge
28.	<b><i>Carex muricata var pairae</i></b>	<b>Prickly sedge</b>
29.	<i>Carex remota</i>	Remote sedge
30.	<i>Cerastium fontanum</i>	Common mouse-ear
31.	<i>Chamaerion angustifolium</i>	Rosebay
32.	<i>Chenopodium album</i>	Fat hen
33.	<i>Circaea lutetiana</i>	Enchanters nightshade
34.	<i>Cirsium arvense</i>	Creeping thistle
35.	<i>Cirsium palustre</i>	Marsh thistle
36.	<i>Cirsium vulgare</i>	Spear thistle
37.	<i>Convolvulus arvensis</i>	Field bindweed
38.	<i>Corylus avellana</i>	Hazel
39.	<i>Crassula helmsii</i>	New Zealand pigmyweed
40.	<i>Crataegus monogyna</i>	Hawthorn
41.	<i>Cynosurus cristatus</i>	Crested dog's tail
42.	<i>Dactylis glomerata</i>	Cock's foot
43.	<i>Daucus carota</i>	Wild carrot

44.	<i>Deschampsia cespitosa</i>	Tufted hair grass
45.	<i>Digitalis purpurea</i>	Foxglove
46.	<i>Dryopteris dilatata</i>	Broad buckler fern
47.	<i>Dryopteris filix-mas</i>	Male fern
48.	<i>Eleocharis palustris</i>	Common spike-rush
49.	<i>Epilobium ciliatum</i>	American willowherb
50.	<i>Epilobium montanum</i>	Broad-leaved willowherb
51.	<i>Epilobium parviflorum</i>	Hoary willowherb
52.	<i>Euphrasia officinalis</i>	Eyebright
53.	<i>Festuca rubra</i>	Red fescue
54.	<i>Ficaria verna</i>	Lesser celandine
55.	<i>Filipendula ulmaria</i>	Meadow-sweet
56.	<i>Fragaria vesca</i>	Wild strawberry
57.	<i>Galeopsis tetrahit</i>	Common hemp-nettle
58.	<i>Galium aparine</i>	Cleavers
59.	<i>Galium palustre</i>	Marsh bedstraw
60.	<i>Geranium dissectum</i>	Cut-leaved cranesbill
61.	<i>Geranium mollis</i>	Dovesfoot cranesbill
62.	<i>Geranium robertianum</i>	Herb robert
63.	<i>Geranium rotundifolium</i>	Round-leaved cranesbill
64.	<i>Geum urbanum</i>	Wood avens
65.	<i>Glechoma hederacea</i>	Ground ivy
66.	<i>Glyceria fluitans</i>	Floating sweet-grass
67.	<i>Gnaphalium uliginosum</i>	Marsh cudweed
68.	<i>Heracleum sphondylium</i>	Hogweed
69.	<i>Holcus lanatus</i>	Yorkshire fog
70.	<i>Holcus mollis</i>	Creeping soft-grass
71.	<b><i>Hyacinthoides non-scripta</i></b>	<b>Bluebell</b>
72.	<i>Hypochaeris radicata</i>	Common cat's-ear
73.	<i>Iris pseudocorus</i>	Yellow flag
74.	<i>Juncus articulatus</i>	Jointed rush
75.	<i>Juncus effusus</i>	Soft rush
76.	<b><i>Lamium galeobdolon</i></b>	<b>Yellow archangel</b>
77.	<i>Larix decidua</i>	Larch
78.	<i>Leucanthemum vulgare</i>	Ox-eye daisy
79.	<i>Lolium perenne</i>	Rye grass
80.	<i>Lotus corniculatus</i>	Birds foot trefoil
81.	<i>Luzula campestris</i>	Field wood-rush
82.	<i>Lycopus europaeus</i>	Gipsywort
83.	<i>Medicago lupulina</i>	Black medick
84.	<i>Mentha aquatica</i>	Water mint
85.	<i>Mimulus guttatus</i>	Monkeyflower

86.	<i>Myosotis arvensis</i>	Field forget-me-not
87.	<b><i>Myosotis discolor</i></b>	<b>Changing forget-me-not</b>
88.	<i>Myosotis scorpioides</i>	Water forget-me-not
89.	<b><i>Myosotis secunda</i></b>	<b>Creeping forget-me-not</b>
90.	<i>Myosotis sylvatica</i>	Wood forget-me-not
91.	<i>Oenanthe crocata</i>	Hemlock water dropwort
92.	<i>Pentaglottis sempervirens</i>	Green alkanet
93.	<i>Persicaria amphibia</i>	Amphibious bistort
94.	<i>Persicaria hydropiper</i>	Water pepper
95.	<i>Persicaria lapathifolia</i>	Pale persicaria
96.	<i>Persicaria maculosa</i>	Redleg
97.	<i>Phalaris arundinacea</i>	Reed canary-grass
98.	<i>Phleum pratense</i>	Timothy grass
99.	<i>Pilosella aurantiaca</i>	Fox and cubs
100.	<i>Plantago lanceolata</i>	Ribwort plantain
101.	<i>Plantago major</i>	Greater plantain
102.	<i>Poa annua</i>	Annual meadow grass
103.	<i>Poa trivialis</i>	Rough stalked meadow grass
104.	<i>Polygonum aviculare</i>	Knotgrass
105.	<i>Potentilla sterilis</i>	Barren strawberry
106.	<i>Primula veris</i>	Cowslip
107.	<i>Prunella vulgaris</i>	Self-heal
108.	<i>Pteridium aquilinum</i>	Bracken
109.	<i>Ranunculus acris</i>	Meadow buttercup
110.	<i>Ranunculus bulbosus</i>	Bulbous buttercup
111.	<i>Ranunculus flammula</i>	Lesser spearwort
112.	<i>Ranunculus repens</i>	Creeping buttercup
113.	<i>Rorippa palustris</i>	Marsh yellow-cress
114.	<i>Rosa canina</i>	Dogrose

115.	<i>Rubus fruticosus</i>	Bramble
116.	<i>Rumex acetosa</i>	Common sorrel
117.	<i>Rumex conglomeratus</i>	Clustered dock
118.	<i>Rumex crispus</i>	Curled dock
119.	<i>Rumex obtusifolius</i>	Broad leaved dock
120.	<i>Sagina procumbens</i>	Procumbent pearlwort
121.	<i>Salix caprea</i>	Goat willow
122.	<i>Salix fragilis</i>	Crack willow
123.	<i>Salix x sepulcralis</i>	Weeping willow
124.	<i>Senecio jacobaea</i>	Ragwort
125.	<i>Senecio vulgaris</i>	Groundsel
126.	<i>Silene dioica</i>	Red campion
127.	<i>Sonchus asper</i>	Rough sowthistle
128.	<i>Sonchus oleraceus</i>	Smooth sowthistle
129.	<i>Stachys sylvatica</i>	Hedge woundwort
130.	<i>Stellaria graminea</i>	Lesser stitchwort
131.	<i>Stellaria holostea</i>	Greater stitchwort
132.	<i>Stellaria media</i>	Common chickweed
133.	<i>Taraxacum officinale</i>	Dandelion
134.	<i>Teucrium scorodonia</i>	Wood sage
135.	<i>Trifolium dubium</i>	Lesser trefoil
136.	<i>Trifolium repens</i>	White clover
137.	<i>Urtica dioica</i>	Stinging nettle
138.	<i>Veronica arvensis</i>	Wall speedwell
139.	<i>Veronica beccabunga</i>	Brooklime
140.	<i>Veronica chamaedrys</i>	Germander speedwell
141.	<i>Veronica hederifolia</i>	Ivy-leaved speedwell
142.	<b><i>Veronica scutellata</i></b>	<b>Marsh speedwell</b>
143.	<i>Veronica serpyllifolium</i>	Thyme leaved speedwell
144.	<i>Vicia hirsuta</i>	Hairy tare
145.	<i>Vulpia bromoides</i>	Squirrel-tail fescue