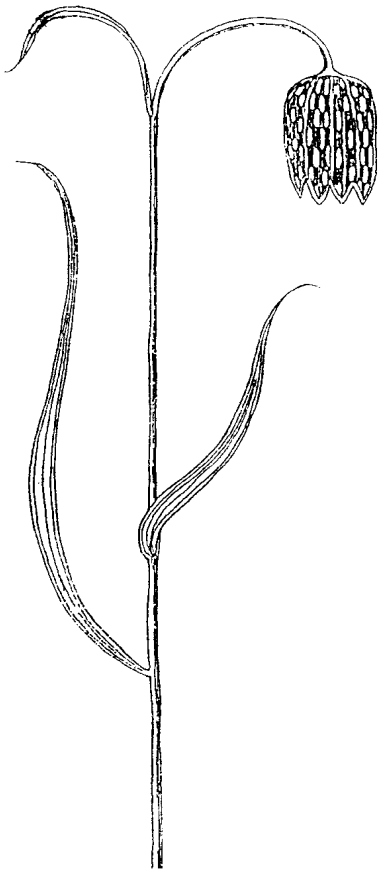
WILTSHIRE BOTANY



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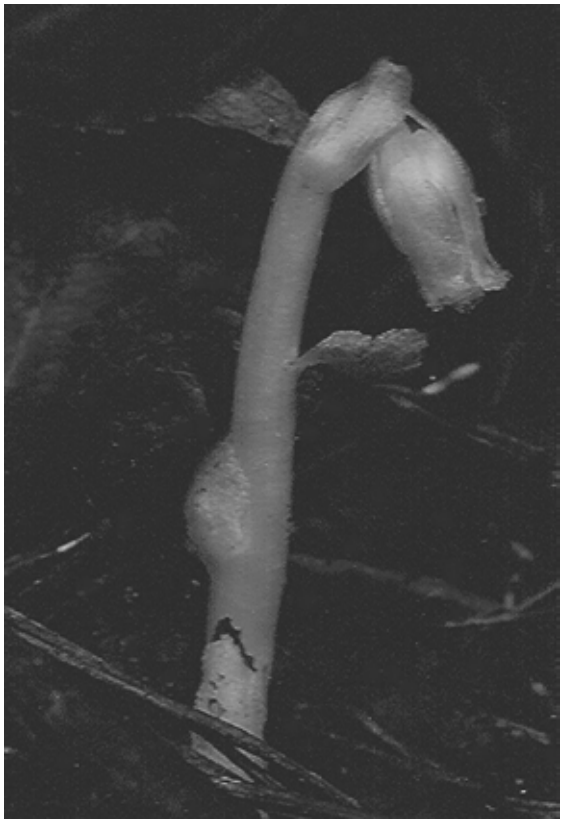

The current issue - biodiversity

This issue focuses on biodiversity, so prominent in nature conservation circles at the moment. It is an attempt to look at nature conservation in a new way. Instead of just maintaining the existence of rare species and keeping natural plant communities from deterioration, we have a broader concept.

Much of the old remains within the new thinking. It is still seen as important to promote the survival of a large number of species and varieties of living things (eg Pyramidal Orchid, the Marbled White butterfly), and also of the different communities of which they form a part (eg species-rich limestone grassland), and of the environments which these species and communities require (eg limestone grassland which has not been agriculturally improved by fertilisers, herbicides, etc). However, there is now an increased emphasis on enhancing the biodiversity of sites and creating new ones. There is an overall aim to build up a network of sites which is sufficiently robust and connected to allow species and habitats to resist the many threats to their survival. As the Lawton Review, which has just published a report advising the Government on what to do in this area, says, wildlife sites should be "more, bigger, better and joined".

This issue looks at biodiversity in a number of different contexts. A major first step is to make an audit of what we already have. Richard Aisbitt's article on Calstone and Cherhill Downs and the contribution by Pat Woodruffe, Ann Appleyard and Sue Fitzpatrick on Wylye and Church Downs describe surveys into the condition and constitution of two areas of chalk grassland which are Sites of Special Scientific Interest (SSSIs). Neil Punchard deals with an aquatic environment - the Hampshire Avon winterbournes in Wiltshire. George Else, in the Wiltshire Botany Elsewhere section, looks at a single species – Sainfoin *(Onobrychis viciifolia).*

Jack Oliver takes a different line, cataloguing the great variety of trees, both native and introduced, in a variety of woodlands round Marlborough. It is clear that biodiversity isn't just about natives - we need to think globally, particularly with climate change threatening.

Plainly, the two downland studies above are part of a strategy to at least maintain the value of the sites concerned, and were carried out as part of English Nature's national approach to the issue. But what can be done locally? The *Rural Communities Act* (*The NERC Act*) 2006 states that all public authorities must have regard to conserving biodiversity in all of their activities. The duty means that they must have a plan for doing so. John Presland considers how a Parish Council could react

to this demand in his article focussing on Winsley as an example.

Finally, there is a selection from the 2009 records and help with identifying vice-county boundaries.

The next issue

Contributions on any topic are invited for the next issue. Articles should be submitted to John Presland, 175c Ashley Lane, Winsley, Bradford-on-Avon, Wiltshire BA15 2HR. He will also be pleased to discuss proposed articles informally (Tel: 01225 865125). A leaflet is available offering guidance to authors on article design.

Niger - a birdseed alien

Do you recognise the plant in the photographs? The editor has acquired a forest of its seedlings from the Niger seed he bought to feed goldfinches. Some were allowed to grow and one plant reached a height of about 2 feet. The only examples of the yellow flowers were not photogenic. Paul Darby was more successful with a plant in a Braydon garden. The plant is in the same family (Asteraceae) as the 'thistle' seed sold for the same purpose. Its botanical name is *Guizotia abyssinica*, and it is indigenous to Ethiopia, where it is grown commercially for bird seed and for oil for foods, paints, soaps, and lighting. It's an annual, and is cultivated on waterlogged soils where most crops fail to grow. It can achieve a height of 6 feet.

Guizotia abyssinica **(Niger)**

New names for Wiltshire plants

Clive Staces's 3rd edition of *New Flora of the British Isles* was published in 2010. It contains a large number of name changes, many as a result of increased knowledge of the make-up of chromosomes. Many of the changes affect Wiltshire plants. Listed below are a number which may be of interest. A full list is available in *BSBI News* 115, 2010 or on www.bsbi.org.uk.

Old name	**Popular name**	**New name**
Aceras anthropophorum	Pyramidal Orchid	*Orchis anthropophora*
Arabis glabra	Tower Mustard	*Turritis glabra*
Ceterach officinarum	Rustyback	*Asplenium ceterach*
Chrysanthemum segetum	Corn Marigold	*Glebionis segetum*
Coronopus didymus	Lesser Swine-cress	*Lepidium didymum*
Coronopus squamatus	Swine-cress	*Lepidium coronopus*
Festuca pratensis	Meadow Fescue	*Schedonorus pratensis*
Galium mollugo	Hedge Bedstraw	*Galium album*
Helictotrichon pratense	Meadow Oat-grass	*Avenula pratensis*
Helictotrichum pubescens	Downy Oat-grass	*Avenula pubescens*
Leontodon autumnalis	Autumn Hawkbit	*Scorzoneroides autumnalis*
Listera ovata	Common Twayblade	*Neottia ovata*
Lotus glaber	Narrow-leaved bird's-foot-trefoil	*Lotus tenuis*
Lychnis flos-cuculi	Ragged Robin	*Silene flos-cuculi*
Matricaria recutita	Scentless Mayweed	*Matricaria chamomilla*
Monotropa hypopitys	Yellow Bird's-nest	*Hypopitys monotropa*
Orchis morio	Green-winged Orchid	*Anacamptis morio*
Orchis ustulata	Burnt Orchid	*Neotinea ustulata*
Ornithogalum angustifolium	Star-of-Bethlehem	*Ornithogalum umbellatum ssp. campestre*
Phyllitis scolopendrium	Hart's-tongue	*Asplenium scolopendrium*
Picris echioides	Bristly Oxtongue	*Helminthotheca echioides*
Ranunculus ficaria	Lesser Celandine	*Ficaria verna*
Rorippa microphylla	Narrow-fruited Water-ceress	*Nasturtium microphyllum*
Rorippa nasturtium-aquaticum	Water-cress	*Nasturtium officinale*
Sanguisorba minor	Salad Burnet	*Poterium sanguisorba*
Senecio fluviatilis	Broad-leaved Ragwort	*Senecio sarracenicus*
Stachys officinalis	Betony	*Betonica officinalis*
Stellaria uliginosa	Bog Stitchwort	*Stellaria alsine*

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A VEGETATION SURVEY OF CALSTONE AND CHERHILL DOWNS SSSI, 2009-2010

Richard Aisbitt

The survey site

Calstone and Cherhill Downs, shown on the map opposite (extracted from the Natural England website), were notified as an SSSI in 1971 and 1989 (Natural England 1989). They form a stunning chalk downland landscape in North Wiltshire within the North Wessex Downs Area of Outstanding Natural Beauty. Their combined area of 128 hectares contains large areas of herb-rich chalk grassland. Units 1 and 2 are owned by the National Trust and cover Cherhill Down and parts of Calstone Down respectively. Unit 3 is a small outlying downland bank under private ownership.

Targets for the survey

Natural England requested us to target key species and map and count them. Where numbers were small, individual locations and counts were to be given. The species were:

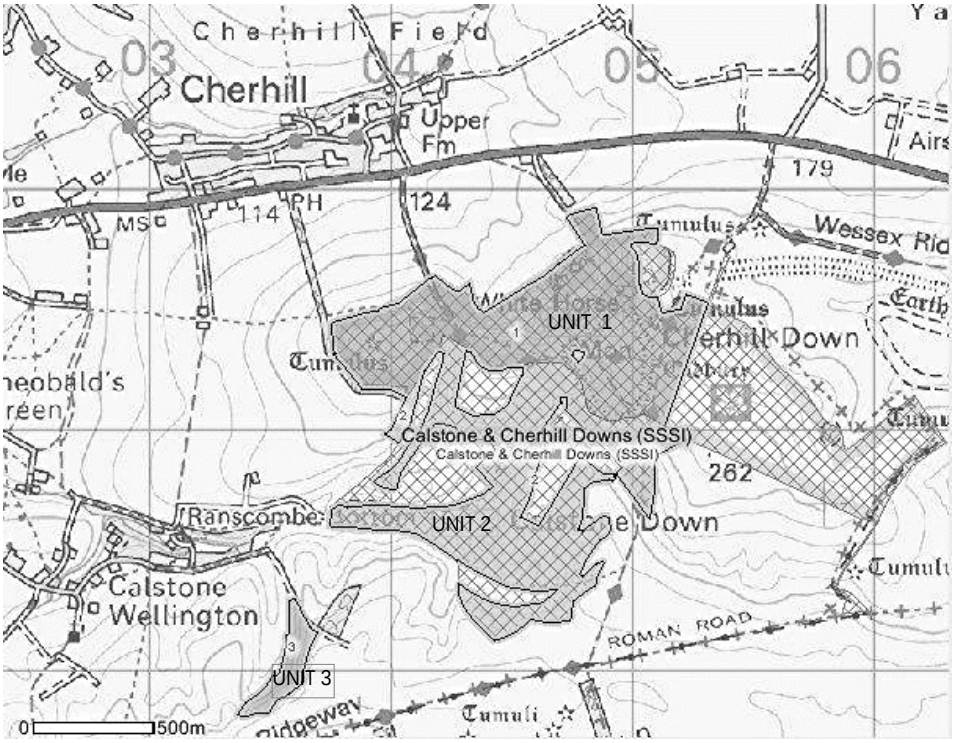
Common Juniper	*Juniperus communis* subsp. *communis*
Round-headed Rampion	*Phyteuma orbiculare*
Burnt Orchid	*Orchis ustulata*
Bastard-toadflax	*Thesium humifusum*
Field Fleawort	*Tephroseris integrifolia* subsp. *integrifolia*

With juniper, the age range of the juniper bushes was to be given together with an indication of the area of juniper scrub. In addition, we were asked to include any other notable species. We identified these as:

Tuberous Thistle x Dwarf Thistle	*Cirsium* x *medium*
Meadow Saxifrage	*Saxifraga granulata*
Greater Butterfly-orchid	*Platanthera chlorantha*
Flea Sedge	*Carex pulicaris*

Cherhill Down

Map of Calstone and Cherhill Downs



Existing Knowledge

A small number of detailed records were found for the SSSI and these indicated promising locations to start looking for the key species. They also gave some data for comparison so that gains and losses might be assessed.

Wiltshire Botanical Society. The WBS database holds records from the Wiltshire Flora Mapping Project, published as *The Wiltshire Flora* (Gillam, Green and Hutchison 1993). These records covered the whole of Wiltshire with the rarer species given 6-figure National Grid References, but more common species recorded within 1 kilometre squares or tetrads (2km squares). There were 10 records of our key species within the SSSI boundary. Visits by WBS members between 2003 and 2008 contributed another 16 records, around half of which were for key species.

National Trust. Keith Steggall supplied extracts from previous National Trust surveys (National Trust, 1991; National Trust, 1996). These gave detailed maps of vegetation types and included nine point records for *Juniperus communis* and *Thesium humifusum*. These were marked with sufficient clarity to allocate 8-figure grid references.

Natural England. The SSSI citation (Natural England 1989) lists key species ("… Field Fleawort *Senecio integrifolius,* Bastard-toadflax *Thesium humifusum,* Round-headed Rampion *Phyteuma orbicula*re, and Burnt Orchid *Orchis ustulata.* Other orchids are generally well represented, with Fragrant Orchid *Gymnadenia conopsea,* Bee Orchid *Ophrys apifera,* and Frog Orchid *Coeloglossum viride* all frequent. Also of interest is the unusual hybrid Tuberous Thistle *Cirsium tuberosum x acaule.")*, but it does not give locations. However, P McSweeney recorded Juniper and Round-headed Rampion in unit 3 in 1990 (Natural England 2009a).

Survey Method

We aimed to map the presence and numbers of key species with as much accuracy as possible. Rather than mapping on a regular grid, we identified promising sward types for the different species and explored these, recording numbers and locations at frequent intervals (20-30 metres where cover was continuous). Locations were recorded as grid references with 10 figures, though reliable only to 8 figures.

Promising areas for key species were often narrow strips following the contours of the site. When a team of recorders was available, they covered these strips by walking in line-abreast. When only one recorder was working, he or she made an extended zigzag walk so as to locate the edges of the plant population. Numbers of plants were recorded by counting the

number of flowers within sight at each location. This method is rough and subjective, but indicates whether a plant is numerous or sporadic.

Data were stored and plotted using MapMate software. Single-species distributions were plotted against a background map with added SSSI unit boundaries, as shown later for Round-headed Rampion. Using Memory-Map software made it possible to review the area walked so that all areas of the SSSI were covered.

The survey team

The recorders were Richard Aisbitt, Jane Brown, Rosemary Duckett, Tim Kaye, Joy Newton, Sharon Pilkington, Lesley Wallington and Simon Young. Recording sessions were spread out from 7 May to 9 August.

The Site

Cherhill Down, Unit 1, 62.10ha. This is the highest ground of the SSSI and includes the Cherhill White Horse, the Cherhill Monument and the earth ramparts of Oldbury Castle. Flower-rich chalk grassland is present on the castle ramparts and the slopes around the higher parts of the hill, but the steep slopes to the north, the plateau to the west and the inner part of Oldbury Castle have a taller, coarser sward.
SSSI Condition Assessment, 17 March 2005: Unfavourable recovering. (Natural England 2009b): "A cattle handling pen has been erected to facilitate cattle grazing and address the undergrazing issue on this unit. Contribution to the pen was provided by a Wildlife Enhancement Scheme agreement with English Nature."

Calstone Down, Unit 2, 61.35ha. Much of Calstone Down consists of finger-like ridges which end in the long narrow valley of Ranscombe Bottom. The ridges mostly run from northeast to southwest. The sides of the steep gullies between these fingers are often covered with short, flower rich turf, while the flat tops of the ridges usually have a taller, less diverse sward. A bowl-shaped dewpond about 25m across at SU04916880 had no standing water when we visited on 16 June 2009. Common Spike-rush *Eleocharis palustris* and Branched Bur-reed *Sparganium erectum* were growing in the damp area in the middle.
SSSI Condition Assessment, 18 July 2002: Favourable. (Natural England 2009b): "Passed criteria for favourable condition for NVC communities CG3, 4 and 5 using 30 quadrat stops. Principal communities CG3 and CG5, with *Brachypodium pinnatum* not surprisingly more abundant in the quadrats taken in the CG5 areas. Nationally scarce Round-headed Rampion observed frequently in the sward over large areas of this unit, and the small Bastard Toadflax growing well in and around one quadrat Grid ref.SU044689."

Unit 3, 4.77ha. This outlying unit has a west to northwest facing hillside. It is southwest of the other units and although it is open-access land, it is not accessible by any right-of-way. We visited once, on 16 June 2009, when it had been heavily grazed by cattle, probably within the previous two weeks. The grazing probably caused us to miss many plant species. Repeat visits in 2010 were more encouraging. I found lighter grazing and more chalk grassland indicators, including good populations of Round-headed Rampion and Clustered Bellflower. There were three active badger sets on the site (OS grid references SU03486787, SU03436787 and SU03616803).
SSSI Condition Assessment, 16 July 2002: Unfavourable declining (Natural England 2009b): "Although localised areas of the slope are still very good in terms of sward structure and diversity, grass species (mainly *Bromopsis*, though some large patches of *Brachypodium*) dominate across much of the site. Large stands of nettles and creeping thistle largely restricted to the bottom of the slope. Scrub management programme in progress through CSS. Sheep have just been removed - they've eaten all the flower heads and hardly touched the coarser grasses - and cattle arrived today which should benefit the sward structure if not diversity. Site needs to be grazed harder in winter and spring with sheep which must be reduced in number/ removed altogether by the end of May at the latest. Summer/autumn grazing with low numbers of cattle is to be encouraged. 2002 SMS Statement says all this but needs reinforcing."

Presentation of Records

Plant records of most target species are presented as distribution maps. In the example on the next page for Round-headed Rampion, records from this survey (from 2009 and 2010) are plotted as black dots and earlier records (before 2009) as open circles.

Species lists for Units 1, 2 and 3 are given at the end of the article. They do not include species recorded before the year 2000, as these may have been lost from the site. The lists are not comprehensive and would be improved with more survey time, particularly for Unit 3.

Common Juniper *Juniperus communis* subsp. *communis*

In Wiltshire this taxon has sometimes been recorded as *Juniperus communis* and at other times as *Juniperus communis* subsp. *communis.* As the only other British subspecies are very restricted in distribution and do not occur in Wiltshire, the two

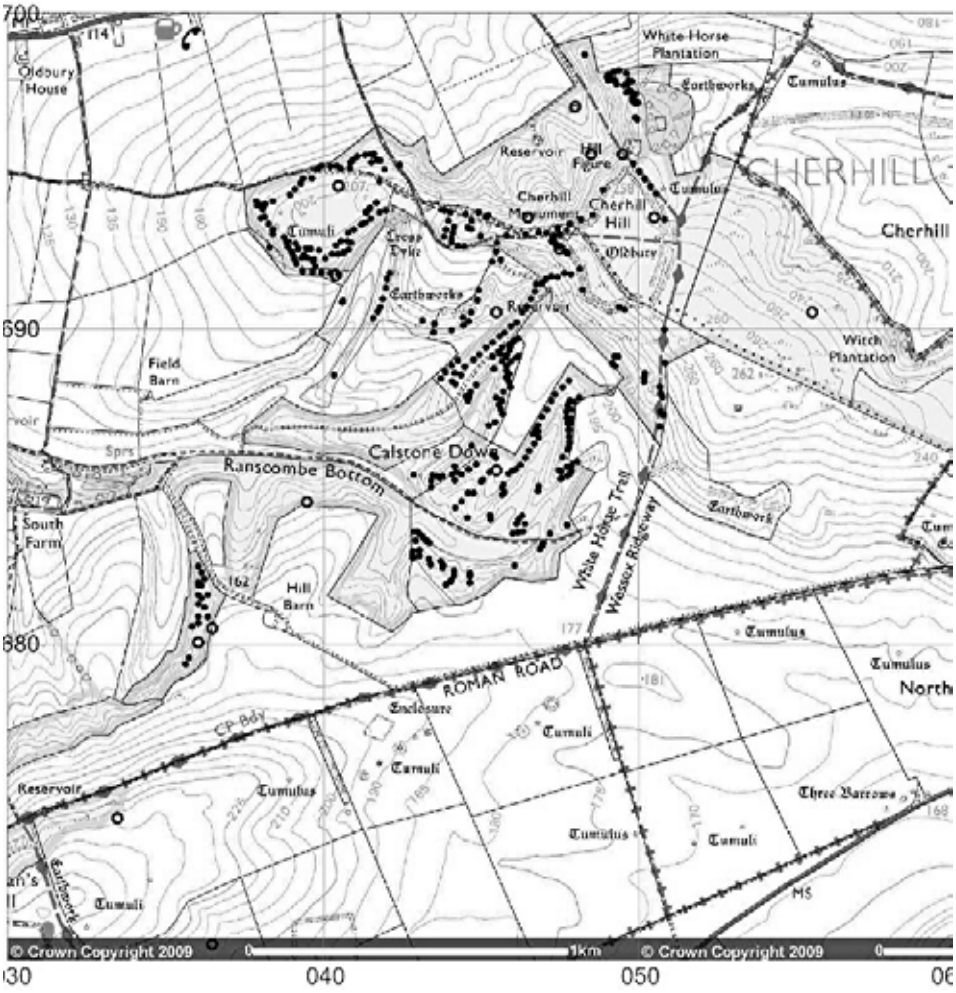
can be regarded as the same in this survey. Three populations of *Juniperus* were found:

1. Unit 1, SU03886948. A stretch about 250m along the south-western edge of Cherhill Down in a hedge line at the bottom of a slope and extending into a level strip of meadow. 62 mature bushes were found with a height of around 2 metres. There was also one apparently young bush with height 10cm.
2. Unit 2, SU04416870. A fenced exclosure about 170m long on a southeast-facing slope contained 200 plus bushes, both male and female, height to 2.5m, sometimes growing densely together. Presumably the fence was to exclude grazers, but openings at both ends allowed access to cattle that were on site during summer 2009. There were no young bushes. A further 60 bushes were growing just above the north-western fence of the exclosure.
3. Unit 2, SU04346883. A line of 58 mostly semi-degenerate bushes at foot of a northwest-facing slope. No young bushes.

Unit 3. P McSweeney recorded *Juniperus* at SU036680 in 1990. We found a single 2m high female bush at SU03606799, on a steep west-facing slope among scattered Hawthorn *Crataegus monogyna*.

Previous records gave the locations of several single *Juniperus* bushes, all in open grassland. These locations were searched, but no bushes were found; presumably they have died.

Distribution map of *Phyteuma orbiculare*



Round-headed Rampion *Phyteuma orbiculare*

Phyteuma orbiculare was widespread and abundant in Units 1, 2 and the northern part of Unit 3. It was typically found in short sward on the steeper slopes, sometimes in narrow bands following the contours, and beside tracks. It was sporadic or absent in stands of Tor-grass *Brachypodium pinnatum*.

Burnt Orchid *Orchis ustulata*

Despite thorough searching of Units 1 and 2 at the time *Orchis ustulata* was flowering on other downland sites, we found one flower spike only; this was in Unit 1. A thorough repeat survey in 2010 found none at all.

Bastard Toadflax *Thesium humifusum*

Thesium humifusum was found in similar situations to *Phyteuma orbiculare*, but had a much more restricted distribution. It grew in very short swards (typically CG2 and CG3) which did not have bare patches. Six distinct populations were found, one in Unit 1 and five in Unit 2.
Three of the populations in Unit 2 had been previously found in the Calstone Down Biological Survey (National Trust 1996). Joy Newton found two populations in Unit 1, one in 2006 and one in 2004. The first led us to the western end of an extensive band of *Thesium*, but we did not refind it at her second location. Stephanie Payne recorded a location (SU044689) in her 2002 site assessment for Unit 2 (Natural England 2009b). We did not locate plants at this grid reference, but did find them 100 metres away.

The inconspicuous nature of *Thesium* means that it may be growing in other places which we have not yet found.

Field Fleawort *Tephroseris integrifolia* subsp. *integrifolia*

Tephroseris integrifolia subsp. *integrifolia* is the only British downland subspecies of *T. integrifolia*, so the two taxa are synonymous for Wiltshire records. It was found only in Unit 1, mainly on the gently sloping ridge leading to the Cherhill monument from the west. We counted a total of 124 flower spikes. There was a limited coincidence with the distribution of *Phyteuma orbiculare* and *Thesium humifusum*.

Tuberous Thistle *Cirsium tuberosum* and its hybrid with Dwarf Thistle *Cirsium x medium (Cirsium tuberosum x Cirsium acaule)*

The long-stemmed *Cirsium tuberosum* is favoured by a tall sward, whilst Dwarf Thistle *Cirsium acaule* is favoured by close-grazing.
P W Hewett recorded *Cirsium tuberosum* in Unit 2 at SU044687 in 1974 (from Wiltshire Flora Mapping Project computerised records. However, Dave Green's index cards from his time as VC7 plant recorder ascribe this record to P [Philip] Horton).
Sue Everett reviewed *Cirsium tuberosum* in The Wiltshire Flora (Everett 1993) and quotes (p. 86), for Calstone Down:
"Horton (1985) [no reference given] wrote, 'Before the 1970s hybrid thistles were known here. In the early 1970s the site changed hands and no grazing occurred for a season. As a result, the plant flowered over a wide area and also appeared to be largely pure. The flowering was so prolific that a dark patch on the side of the down could be seen from Morgan's Hill some two miles away. The new owner introduced heavy sheep-grazing, with aerial fertilizer applications and by the next year only a handful of short-stemmed flowers were present'. The precise location of the 'pure' site was never mapped. During the 1986 survey, parts of Calstone Down and Oldbury Castle were surveyed and revealed only low numbers of hybrid plants. However, there are substantial downlands in this area, most of them heavily grazed. The possibility of *C. tuberosum* persisting should not be discounted."
The location of this stand of *C. tuberosum* is probably not the same as for the PH Hewett record above, which is on a southeast-facing slope and would be invisible from Morgan's Hill to the southwest.

C. tuberosum had not been recorded on the SSSI again since 1974. Dave Green found 4 to 5 colonies of hybrid thistle *Cirsium* x *medium* in 1986 in Unit 1 at SU046694 (again from a VC7 record card, which states that the distribution stretches to SU045688. However, this grid reference is not consistent with his sketch map or the written description on the card).

We did not find any convincing specimens of *C. tuberosum* in the 2009 survey, but found 45 plants of *C.* x *medium* at 14 different locations scattered through the higher parts of Units 1 and 2. However, in 2010, guided by National Trust staff, we found two small patches of *C. tuberosum* on a steep bank in longer grass on Calstone Down, so the plant is still surviving on the site.

C. acaule has simple jointed hairs on the stem, C. tuberosum has them arachnoid (white and woolly), while C. x medium has a mixture of the two. C. x medium has a receptacle which is intermediate in shape between that of C. acaule (width:length ratio about 0.5:1) and C. tuberosum (width:length ratio ratio about 1:1). We saw a range of width:length ratios from 0.5:1 to 1:1 (one plant only at 1:1) among plants with arachnoid hairs on the stems. The majority were at the lower end of this range. Flowers are female-only and can be pollinated by either parent, so introgression can occur with whichever parent is present, in this case, almost always with *C. acaule*, which was widespread. It seems likely that seedlings from hybrid thistles will be increasingly like *C. acaule*.

Drawings to help identify *C. tuberosum* - by Valerie Headland, reproduced from Everett (1993)

C. acaule *C. tuberosum x C. acaulis* *C. tuberosum*

Meadow Saxifrage *Saxifraga granulata*

Hundreds of plants in groups round the ramparts that encircle Oldbury Castle, Unit 1.

Butterfly-orchids *Platanthera* spp.

Lesser Butterfly-orchid *Platanthera bifolia* was widespread throughout the reserve and we did not record its detailed distribution. Greater Butterfly-orchid *Platanthera chlorantha* is less usual for chalk downland and was found in the southeast corner of Unit 2 on steep slopes. We mapped its locations and counted 63 flower spikes.

Flea Sedge *Carex pulicaris*

A small number of plants was found in a very restricted area. This was at SU04786850 in the southeast corner of Unit 2, along a 4m line where a steep northwest-facing bank met the level valley floor. No other plants were found in similar locations nearby or elsewhere. Beatrice Gillam gave a similar description of the site of *Carex pulicaris* at a nearby location (SU047683) in 1989.

The future

It is hoped that this survey will give a detailed baseline for assessing the survival of key chalk-downland indicator species on Calstone and Cherhill Downs SSSI.

Dense patches of *Brachypodium pinnatum* were growing on slopes where other key species, particularly *Phyteuma orbiculare* were growing. The Tor-grass appeared to exclude herb species where it was particularly dense and to reduce them where it was less dense. Previous National Trust surveys (1991, 1996) mapped the sward types and the Natural England condition survey of Unit 2 (2002) found *B. pinnatum* to be "not surprisingly more abundant in the quadrats taken in the CG5 areas". The current survey made no attempt to assess sward types or the extent of competitive grasses. Continued monitoring of the coverage of the downs by *B. pinnatum* would be valuable in guiding future management.

Acknowledgements

Thanks go to the members of the survey team, whose enthusiasm, knowledge and sharp eyes made a detailed survey of the whole area possible, and especially to Sharon Pilkington, who proof-read the report to Natural England and made invaluable corrections and suggestions.

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Calstone and Cherhill Downs: Species in Units 1,2,3 (From records made in or after the year 2000)

Taxon	Vernacular	Unit 1	Unit 2	Unit 3
Achillea millefolium	Yarrow		X	X
Aethusa cynapium	Fool's Parsley		X	
Agrimonia eupatoria	Agrimony	X	X	X
Agrostis stolonifera	Creeping Bent		X	
Anacamptis pyramidalis	Pyramidal Orchid	X	X	
Anagallis arvensis	Scarlet Pimpernel		X	
Anthoxanthum odoratum	Sweet Vernal-grass	X	X	X
Anthriscus sylvestris	Cow Parsley	X		
Anthyllis vulneraria	Kidney Vetch	X	X	
Arrhenatherum elatius	False Oat-Grass	X		

Taxon	Vernacular	Unit 1	Unit 2	Unit 3
Asperula cynanchica	Squinancywort	X	X	X
Bellis perennis	Daisy	X	X	X
Blackstonia perfoliata	Yellow-wort	X	X	X
Brachypodium pinnatum agg.	Tor-grass	X	X	X
Briza media	Quaking-grass	X	X	X
Bromopsis erecta	Upright Brome	X	X	X
Bromus hordeaceus	Soft-brome	X	X	
Campanula glomerata	Clustered Bellflower	X	X	X
Campanula rotundifolia	Harebell	X	X	X
Carduus nutans	Musk Thistle	X	X	
Carex caryophyllea	Spring-sedge	X	X	X
Carex flacca	Glaucous Sedge	X	X	X
Carex pulicaris	Flea Sedge		X	
Carlina vulgaris	Carline Thistle	X	X	X
Centaurea nigra	Common Knapweed	X	X	X
Centaurea scabiosa	Greater Knapweed	X	X	
Centaurium erythraea	Common Centaury		X	X
Cerastium fontanum	Common Mouse-ear	X	X	X
Cirsium acaule	Dwarf Thistle	X	X	X
Cirsium arvense	Creeping Thistle	X	X	X
Cirsium eriophorum	Woolly Thistle	X	X	X
Cirsium vulgare	Spear Thistle	X	X	X
Cirsium x medium	C. acaule x tuberosum	X	X	
Clinopodium vulgare	Wild Basil	X		
Conopodium majus	Pignut	X	X	X
Crataegus monogyna	Hawthorn	X	X	X
Crepis biennis	Rough Hawk's-beard		X	
Crepis capillaris	Smooth Hawk's-beard		X	X
Cynoglossum officinale	Hound's-tongue	X		
Cynosurus cristatus	Crested Dog's-tail	X	X	X
Dactylis glomerata	Cock's-foot	X	X	X
Dactylorhiza fuchsii	Common Spotted-orchid	X	X	X
Daucus carota subsp. carota	Wild Carrot	X	X	X
Deschampsia cespitosa	Tufted Hair-grass	X	X	
Eleocharis palustris	Common Spike-rush		X	
Equisetum arvense	Field Horsetail			X
Euphrasia officinalis agg.	Eyebright	X	X	
Festuca arundinacea	Giant Fescue		X	
Festuca ovina	Sheep's-fescue	X	X	X
Festuca ovina agg.	Sheep's-fescue		X	
Filipendula vulgaris	Dropwort	X	X	
Galium aparine	Cleavers			X
Galium mollugo	Hedge Bedstraw	X	X	
Galium verum	Lady's Bedstraw	X	X	X
Gentianella amarella	Autumn Gentian	X	X	
Glyceria notata	Plicate Sweet-grass		X	
Gymnadenia conopsea	Fragrant Orchid	X	X	
Helianthemum nummularium	Common Rock-rose	X	X	X
Helictotrichon pratense	Meadow Oat-grass		X	
Hippocrepis comosa	Horseshoe Vetch	X	X	X
Holcus lanatus	Yorkshire-fog		X	X
Hyoscyamus niger	Henbane	X		
Juniperus communis	Juniper		X	
Juniperus communis subsp. communis	Common Juniper	X	X	X
Knautia arvensis	Field Scabious	X	X	
Koeleria macrantha	Crested Hair-grass		X	
Lamium purpureum	Red Dead-nettle		X	
Lathyrus pratensis	Meadow Vetchling	X	X	X
Leontodon autumnalis	Autumn Hawkbit			X
Leontodon hispidus	Rough Hawkbit	X	X	X
Leucanthemum vulgare	Oxeye Daisy	X	X	X
Linum catharticum	Fairy Flax	X	X	X
Listera ovata	Common Twayblade	X	X	

Taxon	Vernacular	Unit 1	Unit 2	Unit 3
Lolium perenne	Perennial Rye-grass		X	X
Lotus corniculatus	Common Bird's-foot-trefoil	X	X	X
Luzula campestris	Field Wood-rush	X		X
Medicago lupulina	Black Medick	X	X	X
Myosotis arvensis	Field Forget-me-not			X
Odontites vernus	Red Bartsia		X	
Onobrychis viciifolia	Sainfoin	X		
Ononis repens	Common Restharrow		X	
Ononis spinosa	Spiny Restharrow	X	X	
Ophrys apifera	Bee Orchid	X	X	
Ophrys apifera var. chlorantha	Bee Orchid	X		
Orchis mascula	Early-purple Orchid		X	X
Orchis ustulata	Burnt Orchid	X		
Papaver dubium subsp. dubium	Long-headed Poppy		X	
Phyteuma orbiculare	Round-headed Rampion	X	X	X
Pilosella officinarum	Mouse-ear-hawkweed	X	X	X
Pimpinella saxifraga	Burnet-saxifrage	X	X	
Plantago lanceolata	Ribwort Plantain	X	X	X
Plantago major	Greater Plantain	X	X	
Plantago media	Hoary Plantain	X	X	X
Platanthera bifolia	Lesser Butterfly-orchid	X	X	
Platanthera chlorantha	Greater Butterfly-orchid		X	
Poa annua	Annual Meadow-grass	X	X	
Poa trivialis	Rough Meadow-grass			X
Polygala calcarea	Chalk Milkwort	X	X	X
Polygala vulgaris	Common Milkwort		X	X
Potentilla anserina	Silverweed	X	X	
Primula veris	Cowslip	X	X	X
Prunella vulgaris	Selfheal	X	X	X
Ranunculus acris	Meadow Buttercup			X
Ranunculus bulbosus	Bulbous Buttercup	X	X	X
Ranunculus repens	Creeping Buttercup		X	X
Reseda lutea	Wild Mignonette	X		
Rhinanthus minor	Yellow-rattle		X	
Rumex acetosa	Common Sorrel	X		
Rumex obtusifolius	Broad-leaved Dock			X
Sanguisorba minor	Salad Burnet	X	X	X
Saxifraga granulata	Meadow Saxifrage	X		
Scabiosa columbaria	Small Scabious	X	X	X
Senecio jacobaea	Common Ragwort	X	X	X
Serratula tinctoria	Saw-wort	X	X	
Sparganium erectum	Branched Bur-reed		X	
Succisa pratensis	Devil's-bit Scabious	X	X	X
Taraxacum agg.	Dandelion	X	X	X
Tephroseris integrifolia subsp. integrifolia	Field Fleawort	X		
Thesium humifusum	Bastard-toadflax	X	X	
Thymus polytrichus	Wild Thyme	X	X	X
Tragopogon pratensis	Goat's-beard	X	X	
Trifolium campestre	Hop Trefoil		X	
Trifolium dubium	Lesser Trefoil	X	X	
Trifolium pratense	Red Clover	X	X	X
Trifolium repens	White Clover		X	X
Urtica dioica	Common Nettle	X	X	X
Veronica chamaedrys	Germander Speedwell	X	X	X
Veronica serpyllifolia	Thyme-leaved Speedwell	X		
Vicia cracca	Tufted Vetch	X		
Vicia sepium	Bush Vetch			X
Viola arvensis	Field Pansy		X	
Viola hirta	Hairy Violet	X	X	X

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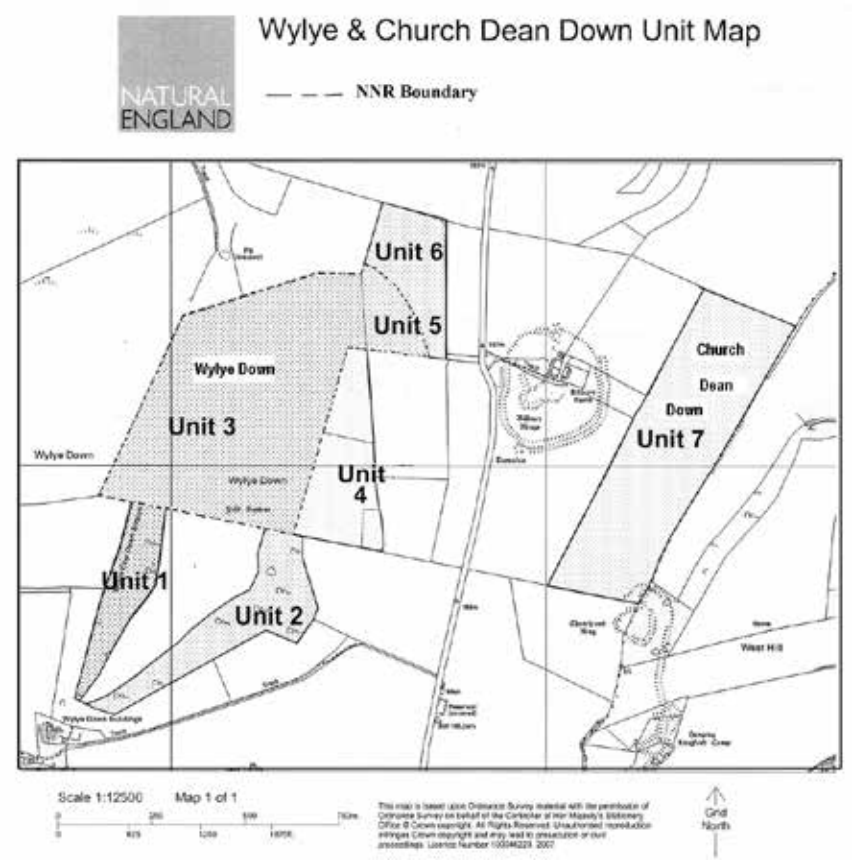
RECORDING AT WYLYE AND CHURCH DEAN DOWNS SSSI

Pat Woodruffe, Anne Appleyard and Sue Fitzpatrick

The SSSI and the project

In 2008 recording work at Wylye and Church Dean Downs SSSI (Site of Special Scientific Interest) was undertaken by the authors to provide Natural England with information to help with the completion of a Site Condition Assessment.

The SSSI covers approx. 81 hectares divided between two owners / land managers. Some 34 hectares of this are designated a National Nature Reserve (NNR) and the whole lies within the Cranborne and West Wilts Downs AONB. The main part of the site – and that within the NNR – is unusual in that it occupies the relatively flat, dry, shallow valley with evidence of an extensive Celtic field system. Unlike many steeper sided valleys, the bottom has not suffered from soil enrichment and has both a diverse flora as well as numerous anthills. This core area comprises units 3-6 of the SSSI, with units 3 and 5 making up the NNR. Units 1 and 2 lie to the south whilst unit 7 (Church Dean Down) is about a kilometre to the east.



Units 1 and 2 are managed quite differently to the rest of the site. They are not stock grazed and have a sward of tall grasses with considerable scrub and even a small area of developing woodland. In marked contrast both sheep and cattle graze the remaining units quite rigorously and the sward is short.

In carrying out this work there were three main objectives:

- To search for species identified in the SSSI citation and, in particular, several key species highlighted by Natural England
- To make detailed records of any *Cirsium tuberosum* plants found
- To record the flora on a unit basis

To achieve these objectives seven visits were made from early May until late August. Each unit was surveyed separately and as extensively as possible, with the team of recorders walking in parallel, especially over the steep slopes. In this way a full species list was compiled for each unit. A subjective assessment of population size was agreed. Grid references of some key species were obtained using a hand-held GPS and, in the case of *Cirsium tuberosum* and its hybrids, these data were used to create distribution maps.

Species recorded

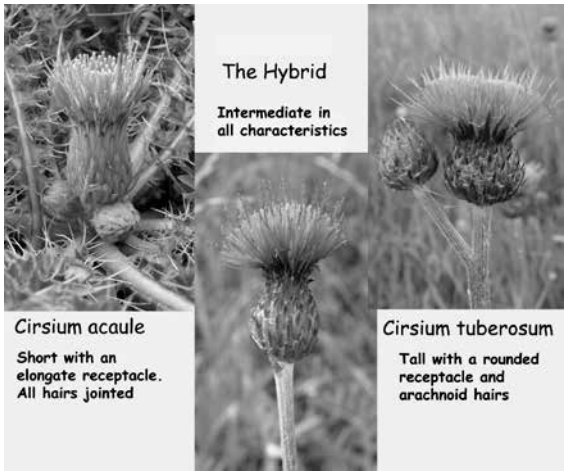
Tables 1 and 2 show species which were recorded. Table 1 shows the species on the SSSI citation (1975), while Table 2 shows noteworthy species not included there. Nomenclature follows that of Stace, Edition 3, 2010. Only two plants on the SSSI citation list could not be found and it is perfectly possible that this was because of the grazing regime. Sheep were grazing unit 3 during our visit early in May and, one month later, it was clear that they had only recently been removed. By July the sward had grown and was flowering well, but too late for these particular species. Although it is tempting to suggest that many of the plants on the list have increased their range within the SSSI, this is not necessarily the case, as the information in the citation does not provide a full and comprehensive overview of the site. It was felt that more specific information concerning the distribution of characteristic species would assist in future management of the site and enable better monitoring of populations in the future.

Attention has already been drawn to the management of Units 1 and 2 and therefore to the difference in sward. Despite this a high proportion of the notable species could be found in these units, exceptions being *Thesium humifusum*, *Hippocrepis comosa*, *Erophila verna* and orchids such as *Coeloglossum viride* and *Anacamptis morio*. All of these plants demand a short turf and it is clear that current conditions are unsuitable for their needs. This is exemplified by *Carex humilis*, which occurred only near the fence adjacent to unit 3. In the other units, except 6, it was much more abundant and widespread.

Unit 6 also stands out because of the absence of many species. The unit was grazed by cattle on all three occasions when recording was attempted, twice in May and again in July. No anthills were noted in the unit and there was poaching by the stock. Even when plants of some interest were found, they were localised and not very abundant.

The occurrence of *Cirsium tuberosum*

The search for *Cirsium tuberosum* began in August and concentrated on Units 1 and 2. Previous records indicated that pure *C. tuberosum* occurred in Unit 2 and that hybrids with *Cirsium acaule* might be present in both units. *C. acaule* is widespread throughout the reserve but is not found in Unit 1 because the taller sward does not allow a short / dwarf plant to survive. The occurrence of *C. tuberosum* and its hybrids has been described in detail by Sue Everett in the Wiltshire Flora (Gillam et al 1993). We were delighted that Barbara Last accompanied us on one visit and was able to confirm the location of plants she had recorded during the Flora Mapping Project 1983- 92.



In Unit 2 groups totalling thousands of flowering heads were present as well as many non-flowering plants. The plants were all tall and many were thought to be pure *C. tuberosum* whilst others were hybrids which had possibly back-crossed with *C. tuberosum* to produce plants with a high percentage of genes from this parent. Extensive patches of scrub had been cleared from this unit during the previous winter and some flailing had also taken place during the spring. It was in these areas of re-growth that many of the plants were found, especially young non-flowering specimens that appeared to be colonising the newly opened ground.

Table 1. Species on the SSSI citation (1975) and their occurrence in this survey (Note that occurrence in Units 3-6 does not imply that the species was present in all four, only that it was found in this block of units)

		1975 citation	**Records in 2008**
Anacamptis morio	Green-winged Orchid	Units 3 – 6	Units 3 and 5
Asperula cynanchica	Field Madder	Unit 7	All units except 6
Avenula pratensis	Meadow Oat-grass	Units 3 – 6	All units
Briza media	Quaking-grass	Units 3 – 6	All units
Carex flacca	Glaucous Sedge	Units 3 - 6	All units
Carex humilis	Dwarf Sedge	Units 3 – 6	All units except 6
Cirsium acaule	Dwarf Thistle	Units 3 – 6	All units except 1
Cirsium tuberosum	Tuberous Thistle	Units 1 & 2	Unit 2
Coeloglossum viride	Frog Orchid	Units 3 – 6	Units 3,4,5,7
Erophila verna	Common Whitlow-grass	Unit 7	Units 3,4 and 7
Festuca ovina	Sheep's Fescue	Units 3 – 6	All units
Filipendula vulgaris	Meadowsweet	Units 3 – 6	All units except 6
Genista tinctoria	Dyer's Greenweed	Units 1 & 2	Units 1,2,3
Hippocrepis comosa	Horseshoe Vetch	Units 3 - 6	All units except 1 & 2
Neotinea ustulata	Burnt Orchid	Units 3 – 6	Not found
Polygala calcarea	Chalk Milkwort	Units 3 – 6	Units 1,3,5,6,7
Poterium sanguisorba	Salad Burnet	Units 3 – 6	All units
Saxifraga granulata	Meadow Saxifrage	Units 3 – 6	Unit 3
Senecio integrifolius	Field Fleawort	Units 3 – 6	Not found
Serratula tinctoria	Sawwort	Units 3 – 6	Units 1,2,3,4
Succisa pratensis	Devil's-bit Scabious	Units 3 – 6	All units except 6
Thesium humifusum	Bastard Toadflax	Units 3 – 6	Units 3,5,7
Thymus polytrichus	Wild Thyme	Unit 7	All units except 6

Table 2. Species recorded which were not included in the citation but worthy of note

Anthyllis vulneraria	Kidney Vetch	3,4,5,7	*Helianthemum nummularium*	Rockrose	1,2,3,4,7
Campanula glomerata	Clustered Bellflower	All but 6	*Neottia ovata*		2,5
Carlina vulgaris	Carline Thistle	1,3,5,6,7	*Onobrychis viciifolia*	Sainfoin	7
Cirsium tuberosum x C. acaule		1,2,3,4	*Orchis mascula*	Early Purple Orchid	1
Danthonia decumbens	Heath-grass	1,2,3,7	*Orobanche minor*	Common Broomrape	4,5
Gentianella amarella	Early Gentian	3,5,7	*Pimpinella saxifraga*	Burnet Saxifrage	3,4,5,6,7
Gymnadenia conopsea sl	Fragrant Orchid	All units			

Investigation of Unit 1 revealed two smaller patches of the hybrids, each of around 30 flowering heads. Again, these plants were tall and seemed to have characteristics close to those of *C. tuberosum*. Sue Everett stated in her article (Gillam et al 1993) that the hybrids tend to be tall in ungrazed grasslands but shorter in grazed ones. Returning to Unit 3, after recording in Unit 1, it was both surprising and pleasing to spot some of these shorter hybrids in the turf. They all appeared to be closer to the parent *C. acaule*, which was abundant in the same area. Further searching revealed some 160 or more plants all growing in the extreme south of Unit 3 and therefore very close to the boundary with either Unit 1 or 2.

Whilst it is usually exciting and rewarding to record a new species, or even a hybrid, a word of caution may be necessary in this instance. It is quite possible that hybridisation might pose a significant threat to the survival of the parent *C. tuberosum* on a given site. In this instance it was clear that the hybrids found on Unit 3 were all growing in close proximity to the boundary fence and the sharp demarcation between grazed and ungrazed swards. Even where such an artificial boundary does not allow two plants with differing habitat requirements to grow close together, there is also the possibility of *C. acaule* existing in longer turf in the form f. *caulescens* which has longer stems than those of the usual dwarf plants. At Wylye,

the option of controlling hybridisation by limiting the size of the population of *C. acaule* is not at all practical, even if it is considered to be desirable.

A comparison of the flora of each unit

The following analysis (see Table 3) will provide some indication of richness of individual units. A total of 176 species was recorded for the entire site. A full list is not provided here but all records have been housed in the databases of Wiltshire Botanical Society and the Wiltshire and Swindon Biological Records Centre.

Units 1 and 2. It can be seen that the high number of woody species on these two units has distorted the totals, making them higher than would be the case if only herbs were recorded. It should also be noted that several species, for example *Brachypodium sylvaticum, B. pinnatum* and *Arrhenatherum elatius*, were found almost exclusively on these two units and it is the low totals of indicator species that truly reflects the nature of the sward. Most of these specialists are found in short turf and cannot compete with the coarse grasses which dominate large areas. Further scrub clearance coupled with light follow-up grazing would do much to maintain the populations of *Cirsium tuberosum* and its hybrids as well as adding to the diversity of the units in general. A plant of note that seemed to thrive best in these conditions was *Genista tinctoria.* It was found mainly to the north of the units and close to Unit 3, where a limited amount was seen towards its southerly boundary. Thus the species was not frequent throughout the reserve and its distribution mirrored that of *Cirsium tuberosum* and the hybrids.

Units 3 and 5 make up the National Nature Reserve and it is therefore not surprising that some of the highest numbers of indicator species were found in these units. Unit 3 was the only one in which *Saxifraga granulata* was seen. Typically, it was found on an earthwork and its appearance was short-lived. 35 flowering plants were located early in May but within two weeks had disappeared, presumably consumed by sheep. Species such as *Campanula glomerata, Coeloglossum viride, Carex humilis, Thesium humifusum, Polygala calcarea* and *Serratula tinctoria* were all widespread, particularly in Unit 3, and a delight to see in profusion. *Dactylorhiza fuchsii* was conspicuous by its absence in Unit 3, although it was present in Unit 5. Similarly, *Anacamptis morio* was very limited in Unit 3 but much more abundant in Unit 5. It was also of interest to note the seemingly long flowering period of *Coeloglossum viride*, which was found in flower in Unit 5 early in June, building up in number until August, when it was widespread and abundant.

Unit 4 provided a contrast. It seemed that part might have been reseeded in the past although the remains of an old field system were evident in one section. As the season progressed and the sward recovered after grazing, it became quite floriferous. It lacked the numerous anthills which were characteristic of Unit 3, although some were developing, especially in the southerly section.

Unit 6 was the least diverse, as has been discussed above. There appears to be some colonisation from Unit 3 and, with appropriate management, there is the potential for the diversity to increase. *Carlina vulgaris, Dactylorhiza fuchsii, Gymnadenia conopsea* and *Hippocrepis comosa* were all noted.

Unit 7 was diverse and comparable in most ways with units 3 and 5 i.e. the NNR. Plants such as *Thesium humifusum, Coeloglossum viride* and *Carlina*

Table 3. Number of species in each unit

Unit	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Number of species	103	93	96	80	83	62	85
Number of grasses	19	15	23	20	21	19	22
Number of herbs	57	52	68	56	59	42	61
Number of woody species	27	26	5	4	3	0	2
Number of indicator species *	27	23	37	31	36	27	38
Number of species on SSSI citation (max. 23)	12	14	20	15	16	8	16

** These are species characteristic of unimproved chalk grasslands and / or species which have a strong affinity to calcareous soils and are known as indicator species for that habitat. The majority of these are community constants of the National Vegetation Classification (NVC) calcareous grassland types. 45 species have been identified in Hampshire and are used in biodiversity assessments - they are listed at the end of the article. 40 of these were found on the Wylye and Church Dean Downs SSSI. The list includes plants that are common but by no means confined to chalk grasslands - Plantago lanceolata, Lotus corniculatus and Thymus praecox, for example. They are however identified as constants in the NVC system and use of the list does appear to have highlighted quite accurately those units of high quality.*

vulgaris, all of which favour short turf, were found in quantity. The distribution of *Thesium humifusum* was of interest: it was found not only associated with ant hills and in short turf on a steep slope but also in quite long and coarse grass at the bottom of the slope in a valley. *Hippocrepis comosa* was locally abundant and it was surprisingly difficult to assess the population size later in the season when not in flower. *Filipendula vulgaris*, although present in most units, was very local in this one.

Non-botanical records

A condition assessment takes in to account many other aspects of the site and we did note any other species of interest. Clearly the season and the weather conditions will determine which insects can be found, so our list is far from comprehensive and does not necessarily allow comparisons of units.

Units 1 and 2 were visited early in May and again in mid July. There were abundant cowslips and Duke of Burgundy has previously been recorded (last known record 1987). Unfortunately, our visit in May was a few days prior to the first sightings of this species in the county in 2008. In July we found only Marbled White in Unit 1 whilst in Unit 2 a total of 8 species was noted, mainly in the northern part of the unit adjacent to the NNR. All were common and associated mainly with longer grasslands and hedgerows.

Few species were recorded during visits to the NNR because of the wet and very cool summer. On Unit 7 three 'Blues' were found – Common, Adonis and Chalkhill together with Small Heath and Small White, as well as the larva of a Small Elephant Hawk Moth. The presence of the food plants of both Adonis and Chalkhill Blues, *Hippocrepis comosa* and *Anthyllis vulneraria*, would suggest that breeding colonies may occur. According to a document prepared by Natural England in 2007 – Conservation Objectives: Wylye and Church Dean Downs SSSI – the last record of Chalkhill Blue was in 1982. It is pleasing that the food plant was locally abundant on a south-facing slope and that current management is in sympathy with the insect's requirements.

Cornbuntings were heard in Unit 7 and also on the boundary fence to the north of units 3 and 5. Scattered bushes along the fence lines and the proximity to arable fields provide good, typical habitat for these birds.

Photographs are by Pat Woodruffe.

References

Gillam BG, Green D and Hutchison A (1993) *Wiltshire Flora* Pisces, Newbury.

Natural England (2007) *Conservation Objectives: Wylye and Church Dean Downs SSSI*. Consultation Draft (unpublished).

Stace C. (2010) *New Flora of the British Isles*, Ed 3. Cambridge U P.

Access to Wylye and Church Dean Downs. A public right of way runs through Unit 3. The whole of the site is designated Access Land; dogs are not permitted because of livestock.

The 45 species included in Hampshire's list of chalk grassland indicator species.

Anthyllis vulneraria
Asperula cynanchica
Avenula pratensis
Avenula pubescens
Blackstonia perfoliata
Brachypodium pinnatum
Briza media
Bromopsis erecta
Campanula glomerata
Campanula rotundifolia
Carex caryophyllea
Carex flacca
Carlina vulgaris
Centaurium erythraea
Cirsium acaule
Dactylorhiza fuchsii
Euphrasia officinalis agg.
Festuca ovina
Festuca rubra
Filipendula vulgaris
Galium verum
Gentianella germanica
Helianthemum nummularium
Hippocrepis comosa
Koeleria macrantha
Leontodon hispidus
Leucanthemum vulgare
Linum catharticum
Lotus corniculatus
Orobanche elatior
Phyteuma orbiculare
Pilosella officinarum
Pimpinella saxifraga
Plantago lanceolata
Polygala calcarea
Polygala vulgaris
Poterium sanguisorba
Primula veris
Prunella vulgaris
Ranunculus bulbosus
Scabiosa columbaria
Thesium humifusum
Thymus polytrichus
Thymus pulegiodes
Viola hirta

Typical anthill flora in Unit 3: *Lotus corniculatus, Thymus polytrichus, Galium verum, Prunella vulgaris, Linum catharticum, Trifolium pratense* and *Briza media*

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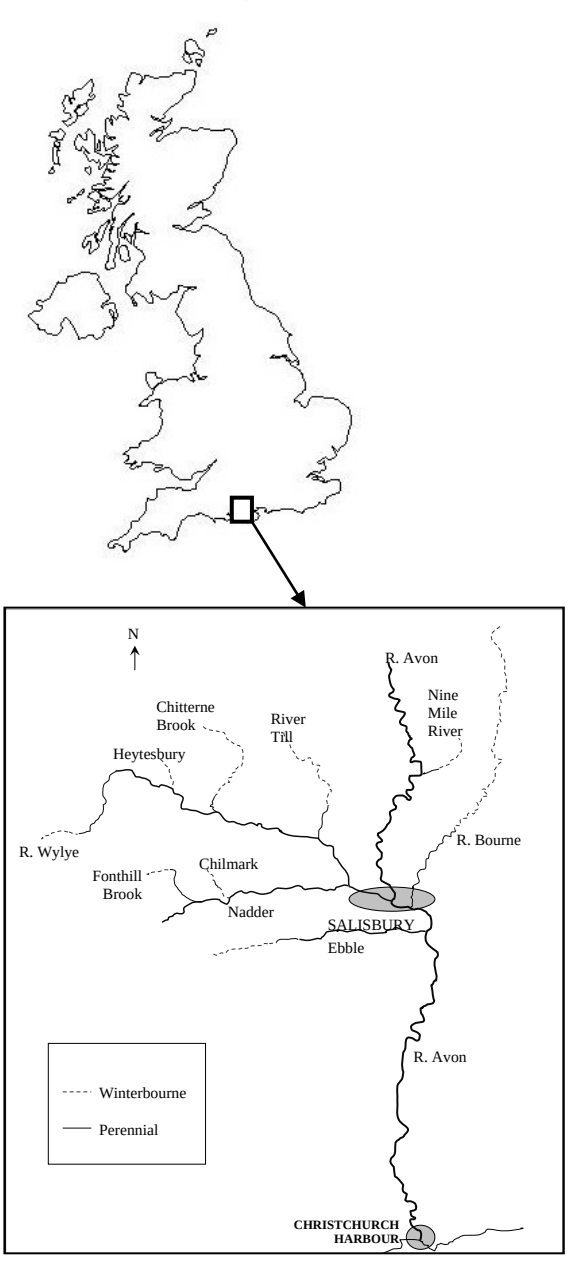
PLANTS OF THE HAMPSHIRE AVON WINTERBOURNES

Neil Punchard and Andy House



Hampshire Avon

The Hampshire Avon rises in the Pewsey Vale and flows through Salisbury to reach the sea at Christchurch. It is one of the UK's most wildlife rich chalk rivers and is designated as a Special Area of Conservation (SAC). Its Wiltshire tributaries include the Bourne, Wylye, Fonthill, Chilmark, Chitterne, Till, Ebble, Nine Mile River and Heytesbury Brook.

The tributaries occur over a chalk geology and, as such, have headwaters that dry in summer as the water table in the chalk aquifer lowers. They are referred to as winterbournes although these head-waters can be classified into three distinct zones with regards to higher plants: the intermittent zone that only flows in wet winters; the winterbourne zone that flows every winter; and the perennial zone that never dries.

Higher plant community

Pond Water Crowfoot *Ranunculus peltatus* is an emblematic species of winterbournes that grows as an annual in the winterbourne zone. The species grows quickly when flow returns. It flowers early, producing much viable seed, and it can grow on damp mud before dying back when the channel dries.

The winterbourne plant community of the Chitterne Brook in summer 2006, with flowering Pond Water Crowfoot *Ranunculus peltatus*. Neil Punchard

Flowering Pond Water Crowfoot *Ranunculus peltatus* with distinct laminar leaves.
Neil Punchard

Marginal herbs are generally present, particularly Fool's Water Cress *Apium nodiflorum* which often dominates the plant community. Water Cress *Rorippa nasturtium-aquaticum*, Water Speedwells *Veronica anagallis-aquatica*, *Veronica catenata* and hybrids, Brooklime *Veronica beccabunga*, Water Forget-Me-Not *Myosotis scorpiodes* and Water Mint *Mentha aquatica* often occur. Flote Grass *Glyceria fluitans*, Marsh Foxtail *Alopecurus geniculatus*, Reed Canary-Grass *Phalaris arundinacea*, Creeping Bent *Agrostis stolonifera* and other more terrestrial grasses are also often recorded in the channel.

Flowering Pond Water Crowfoot *Ranunculus peltatus* with distinct laminar leaves and associated herbs and grasses.
Neil Punchard

The marginal herbs become more dominant as flow recedes and by late autumn grass species may dominate the channel if it has been dry for several months.

The plant community of the intermittent zone is generally dominated by terrestrial grass species and creeping bent, along with terrestrial herbs such as Stinging Nettle *Urtica dioica*, Docks *Rumex spp* and Silverweed *Potentilla anserina*. Reed Canary-Grass and Water Mint may also be present in large stands at slightly wetter sites that receive road run off for example. The perennial headwaters have a plant community similar to the winterbourne sections although the grass species are rarely present in the channel, other than around the stream edge. Brook Water Crowfoot *Ranunculus penicillatus* var. *pseudofluitans* is more likely to replace Pond Water Crowfoot and Water Parsnip *Berula erecta* is also more likely to occur.

Nine Mile River

The Nine Mile River is a tributary that joins the Hampshire Avon at Bulford and has a small perennial zone of around 1km with a 2-3km winterbourne zone and a 2-3km intermittent zone. The channel is braided in sections and there are also a series of temporary and permanent off- and online ponds. The upper section and the majority of the ponds are within the Salisbury Plain SAC, Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI), which is classified as the largest known expanse of unimproved calcareous grassland in the north-west of Europe.

The riparian plant community appears to be unique at least within the Hampshire Avon catchment and probably world wide. This is a consequence of semi-natural land use, since it is the only winterbourne that flows over unimproved chalk grassland, whereas the other winterbournes studied flow over predominantly improved pastoral and arable land. Tufted Hair Grass *Deschampsia caespitosa*, Marsh Bedstraw *Galium palustre*, Common Meadow-Rue *Thalictrum flavum*, Pepper-Saxifrage *Silaum silaus*, Marsh Speedwell *Veronica scutellata* and various sedge species including Glaucous Sedge *Carex flacca*, Hairy Sedge *Carex hirta* and Greater Tussock Sedge *Carex paniculata* were all recorded in the intermittent zone of the Nine Nile River and rarely if at all in other Hampshire Avon tributaries. Thread-leaved Water Crowfoot *Ranunculus trichophyllus* is present although mainly in the lower ponds. The Clustered Stonewort *Tolypella glomerata* was recorded in a pond at the top of the river in spring 2007 (Sharon Pilkington *pers. comm.*) and is the first record for South Wiltshire (VC8) and the first record in 30 years for Wiltshire as a county. It appears to take advantage of early open water to spread rapidly and reproduce in early spring.

Conclusion and recent developments

Winterbournes are potentially sensitive environments but the winterbourne communities appear to be remarkably resilient and well adapted to the varying flows and drying periods which result from climatic and seasonal variation. Winter flow should be reliable for a classic winterbourne plant community including *Ranunculus peltatus* to exist. Through the development of a good relationship between communities and the previous dry period it is possible to predict the changes in community which will arise as a result of wet periods, droughts and/or ground-water abstraction. As such, droughts and or/abstraction will result in the winterbourne communities occurring further downstream than usual. The Nine Mile River, whilst following the same trend of changing plant communities with varying flows and dry period, as seen on other winterbournes, has its own characteristic flora particularly in the intermittent zone. This underlines the importance of this river, as it is likely to be one of the last remnants of a natural winterbourne.

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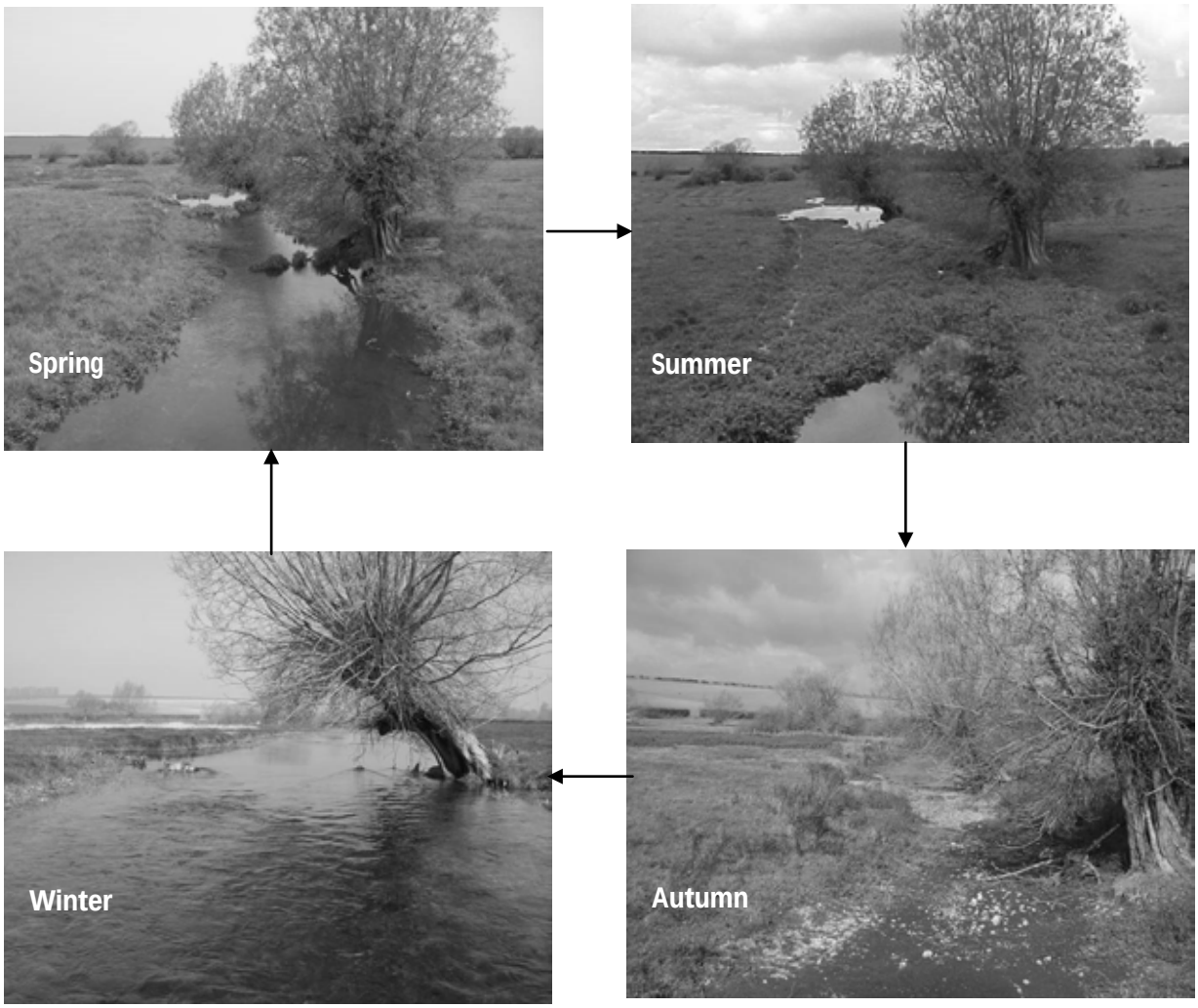
Seasonal change at Winterbourne Stoke on the River Till.
Wessex Water Archives



Wiltshire Botany 12, 2011, pages 20-25

TREES AND LARGE WOODY PLANTS WITHIN THE ANCIENT SAVERNAKE FOREST AREA.

Jack Oliver

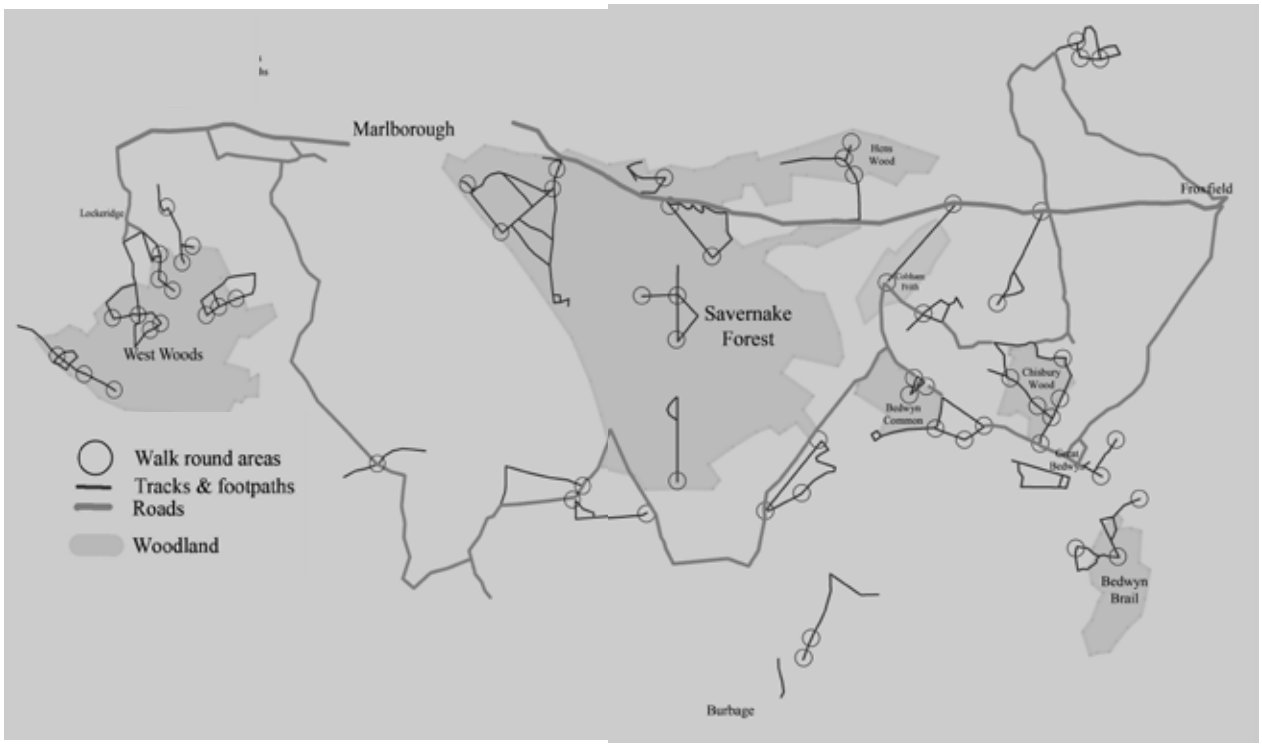
Aims

The numbers and diversity of tree taxa are very much greater than recorded in previous Wiltshire floras. More importantly, this also applies to the early stages of naturalization of a proportion of these. My intention was to carry out a quantitative survey on the relative prevalence of the different types of tree and of large shrubs which occasionally reach tree size and shape, within the late Norman Savernake core area (see map). It stretched from West Woods and Boreham to the west, to the Brails, Froxfield and the Wiltshire border to the east. The northern margin was south of the River Kennet. The existing wooded Savernake Forest was at the heart of this area. The findings would serve as a comprehensive picture in time for comparisons with the past and more especially with the future. Particular attention was given to those taxa (species, subspecies, hybrids and variants), native or non-native, which could regenerate naturally without human help, and sometimes spread in the face of control measures.

Methods

Previous studies (Oliver 2000, 2003; Oliver and Davies 2001, 2004) were confined to the present Savernake Forest wooded heartland and Tottenham Park. Detailed lists which included situations and indications of natural spread and commonness (Oliver 2003) were

The study area and the walks



not fully adequate for the above aims. My walks for this study were carried out from September 2004 to August 2005.

There were 143 walks averaging a little over a quarter mile each (just under half a kilometre). Sixty kms in all were covered on foot, with detailed recording for each of the 143 separate stretches. Entirely randomised routes would have proved impractical, but also inappropriate. Furthermore endless waits for permission would have taken the heart out of my resolution to complete the work. There were 2 types of walk: simple linear routes, and more demanding trudges with incursions into surrounding vegetation. I also looked carefully at woody vegetation around junctions and cross roads. Most routes were right-of-way footpaths and bridle ways, road and woodland tracks. I tried to achieve a rough balance between woodland or copse depths, woodland tracks, woodland edges, lanes, roads, farmland tracks and perimeters, village fringes, avenues, and permitted routes through or alongside estates. I neither sought nor avoided "interesting" or "species-rich" areas beloved of amateur botanists; and neither sought nor avoided the opposite, stretches of virtual monoculture (frequently Hawthorn), tightly-trimmed field boundary hedging in sections of many rights-of-way. For this study, fringes of arboreta were inappropriate; and likewise routes within village centres with small or no gardens, unless these were part of a longer right-of-way. Of course some biases were inevitable. I preferred a section of the A4 road with a generous verge, to walking another where the choice was being run over by 60mph heavy lorries or an impenetrable densely brambled deep ditch. Most farmers and landowners were friendly, especially once I made it clear I was not a Ministry Official making secret notes on their territory; but on a very few occasions a route had to be modified. Despite the problems, I think and hope any biases cancelled out.

Special drives were made to help identifications, including a 60km one with stops in Spring 2005, so that some woody plants not obvious in summer and autumn would not be too underrepresented.

The map on the previous page shows the routes walked, most but not all in and between West Woods, contemporary Savernake Forest, Bedwyn Common and Brail, Chisbury and Hens Woods and Cobham Frith. The 2 components of scoring were the number of sites (walks, out of 143) at which the taxon was noted, and the frequency scores for each. The methods of assessing the latter are shown below.

Prevalence Scoring for each Taxon per Walk. (Average walk distance, just over 400 metres (quarter mile). Assign one of the scores in column 1 to each of columns 2-4, then add the 3 scores.

Score	Plants over 3 metres	Seedlings, saplings, stumps (living), or suckers	Hedgerow plants
1	1	1	1
2	2-4	2-4	2-4 hedgerow specimens
3	5-9	5-9	5-9 metres of hedge, or 5+ short stretches (1-4m) with the taxon under consideration.
4	10-20	10-20	10-20 metres of hedge, with the taxon under consideration.
5	21-100	21-100 seedlings etc at in one part of walk	Dominant hedgerow taxon for 21-100m, or 11-20 short stretches noted.
6	100+, or plantations.	21-100 seedlings etc in 2 or more parts of walk.	Dominant hedgerow taxon over 100m+, or more than 20 short stretches.

The maximum score, therefore, per taxon (species, hybrid etc) per quarter mile walk is 18. This was seldom achieved because a deep hedge of Hawthorn, say, might on one side graduate into trees, and merit 6+6. However it was unusual for many (or often any) Hawthorn seedlings to survive in most hedges. By contrast concentrations of woodland Hawthorn trees with scatters of seedlings might also merit 6 + 6, but could not score anything from the hedgerow column. It is also recognized that on a quarter mile walk, 1000 Hawthorns, Elders or Blackthorns could be counted, but just one Whitebeam. The maximum score ratios would be 18:1 rather than 1000:1. Even so, the systems of scoring worked reasonably well to show the very common vs frequent vs unexpected taxa. It would be an unusual walk in this part of Wiltshire not to see a single Hawthorn, Elder, Ash, Beech or Sloe; or all these!

In practice, even quarter mile walks were more varied than the table indicates. Hedges could change from a closely shaved monoculture to reach a copse, crossroads with wide verges, farmhouse garden

boundary trees, or overgrown lane. Some walks were restricted to narrow margins, but on others, incursions were made beyond the marginal fringes.

A walk in West Woods south of Lockeridge (Joan Davies)

Results

Table 1 shows results for the commoner and larger trees, shrubs and woody climbers, i.e. recorded at 20 or more sites. Table 2 covers the less common taxa, including individual taxa within the commoner ones.

Discussion and summary

The designation "taxon" encompasses species, subspecies, hybrids and distinctive varieties, forms and cultivars. The grand total for all recorded taxa surpassed 235. However some of these were large shrubby plants not seen anywhere to achieve tree shape and dimensions; 4 were large woody climbers; not all taxa could be identified (e.g. alien *Prunus* and *Sorbus* species, some *Chamaecyparis* cultivars). On Table 2, these were not counted in as separate numbers.

Taxa capable of becoming trees numbered 166. These comprised 123 species, 20 hybrids and 23 or more additional varieties, forms and cultivars (eg Copper Beech). This total of 166 included 8 taxa often designated "shrubs" in botany books (eg Hazel). However a huge neglected Hazel coppice with a 10 metre circumference base, and 20 large-girth splayed trunks each reaching 12 metres high contains 60 or more times as much wood as a neat 4 metre high Laburnum or Flowering Cherry, these last 2 always given tree status in the books.

In order of commonness, the first 10 large woody species according to prevalence scores were as follows: - Hawthorn, Elder, Ash, Beech, Sloe, Hazel, English Oak, Sycamore, Holly and Silver Birch. The equivalent sequence for number of sites at which the tree species was noted (out of 143 walks) was Hawthorn (136), Oak (131), Elder (127), Ash (125), Beech (117), Sloe (109), Hazel (102), Sycamore (96), Holly (91), and Birch (84). English oak *(Quercus robur)* was therefore widespread as one or two trees but not so often seen in quantity. Durmast/Sessile oak (*Q. petraea*) and the hybrid (*Q. x rosacea*) were only in non-plantation areas in the depths of Savernake Forest (Oliver and Davies 2004) – see Table 2. Hawthorn was ubiquitous, and had even previously been found as easily the commonest riverside tree in Wiltshire, well ahead of Crack willow (*Salix fragilis*) (Oliver 1997). One son-in-law, who is from Albania, had remarked on Hawthorn as the most conspicuous and attractive feature of the English (Wiltshire) countryside.

Some taxa, especially on Table 2, have no botanical future, existing only as non-reproducing trees introduced, favoured or cultivated by man. Natural seedlings or saplings were noted for 31 out of 36 taxa on Table 1 (27 seeding trees); but only 19 (out of over 200) on Table 2 (12 seeding trees). However, more could have had the seeding potential, and for many taxa on Table 2 the number of mature plants was low. There were largish scatters of Copper Beech seedlings in the southern part of Savernake Forest. *Cryptomeria* (Japanese Redwood) seedlings seemed entirely confined to the surface of a rotting *Cryptomeria* trunk, free from the most intensive dense nettle and bramble competition. *Araucaria* (Monkey Puzzle) seedlings were usually spotted as epiphytes in other tree forks, whereas *Tsuga* (Western Hemlock) and *Rhododendron* seedlings were sometimes epiphytic. Some taxa on Table 2 cannot produce viable seed, certain hybrids and cultivars; nor can species like *Sequoiadendron giganteum* (Wellingtonia) reproduce naturally, for maturation of the cone seeds needs longer hotter summer than Wiltshire can provide. At least 30 taxa from Tables 1 and 2 were capable of vigorous vegetative spread. Examples of extensive layering include some *Salix* shrubs, *Prunus laurocerasus* and *Prunus lusitanica, Lonicera nitida, Thuja plicata, Rhododendron* and *Ilex* taxa. Root-suckering, sometimes to 30

Table 1. Commoner and larger trees, shrubs and woody climbers

The table entries for each species are, in turn:
Column 1. Species/taxa scientific name.
Column 2. Popular name.
Column 3 (Stat). Status (NN = native or known to be well naturalised; NR = natural regeneration common in Britain; NP = mainly plantations or planted).
Column 4 (No). Number of sites (short walks) where the species was noted. (Woody climbers included).
Column 5 (Sdl). Number of sites with seedlings or young plants from seed. (Woody climbers excluded).
Column 6 (Yg) Number of sites with young plants of uncertain origin. (Woody climbers excluded).
Column 7 (Ve) Number of sites where the taxon spread vegetatively (Basal shoots excluded). (Woody climbers excluded).
Column 8 (Hg). Number of sites with the taxon as or within hedging. (Woody climbers excluded).
Column 9 (Tot). Combined total frequency score for the 143 walks. (Woody climbers excluded).

Scientific name	Popular name	Stat	No	Sdl	Yg	Ve	Hg	Tot
Acer campestre	Field Maple	NN	53	21			22	251
A. platanoides, 2 taxa	Norway Maple	NR	20	8				57
A. pseudoplatanus	Sycamore	NN	96	73			11	661
A esculus hippocastanum	Horse-chestnut	NR	20	6			2	57
B. pendula	Silver Birch	NN	84	33				424
B. pubescens	Downy Birch	NN	47	27				249
Chamaecyparis lawsoniana, all taxa	Lawson's Cypress	NP	22	1			2	50+
Cornus sanguinea	Dogwood	NN	25	2	4	10	17	85
Corylus avellana	Hazel	NN	102	69			35	785
Crataegus monogyna	Hawthorn	NN	136	92			58	1061
Euonymus europaeus	Spindle Tree	NN	32	15	5		14	155
Fagus sylvatica, all taxa	Beech	NN	117	77			22	900
Fraxinus excelsior	Ash	NN	125	83			20	912
Hedera helix	Ivy	NN	92					
Ilex aquifolium, all taxa	Holly	NN	91	67		3	19	485
Larix decidua, 2 taxa	European Larch	NP	26	3				70
L. kaemferi, inc. hybrid	Japanese Larch	NP	20	3				94
Ligustrum vulgare	Wild Privet	NN	22	4			8	70
Lonicera periclymenum	Honeysuckle	NN	44					
Malus, all taxa	Apple	NP	20	3			3	46
Picea abies	Norway Spruce	NP	23	7				125
Pinus sylvestris	Scots Pine	NP	28	3				117
Populus, all taxa	Poplar	NN/ P/R	25			12	1	87
Prunus avium	Wild Cherry, Gean	NN	32	2	3	18	1	109
P. cerasifera	Cherry Plum and varieties	NR/ NP	22		1		3	31
P. spinosa	Sloe, Blackthorn	NN	109	30	21	20	51	804
Q. robur, all taxa	Pedunculate/English Oak	NN	131	49			9	686
Q. x rosacea	Hybrid Native Oak	NN	25	10				100
Salix caprea	Goat/Pussy Willow, Great Sallow	NN	64	19			2	201
S. cinerea	Grey Willow, Lesser Sallow	NN	24	7				97
Sambucus nigra	Elder	NN	127	106			41	951
Sorbus aucuparia	Rowan	NN	28	5	10	7		147
Taxus baccata	Yew	NN	20	5			4	60
Tilia x europea	Lime, Linden	NP	23	1	1	1	2	107
Ulmus glabra	Wych Elm	NN	29	1	1	7	9	75
U. procera	English Elm	NN	24			24	17	126

Table 2. Less common taxa seen on walks out of 143 or the spring drive

Bracketed numbers show the number of site at which the taxon was noted.
= seedlings or naturally seeded saplings noted

Abies grandis (1)
A. cappadocicum (1)
A. davidii (1)
A. hersii (1)
A. negundo (1)
A. platanoides cv 'Drummondii' (1)
A. saccharinum (3)
A. tataricum (1)
A. tegmentosum (1)
Aesculus carnea (1)
A. indica (1)
Alnus cordata (2)
A.glutinosa (2)
A. incana (1)
#Araucaria araucana (3)
Berberis chinensis (1)
B. darwinii (1)
B. julianae (1)
B. thunbergii (2)
B. vulgaris (1)
#Betula x aurata (13)
B. jacquemontii (3)
B. utilis (1)
#Buddleja davidii (4+)
Buxus sempervirens (5)
#Carpinus betulus (15)
#Castanea sativa (17)
Cedrus atlantica (1)
C. deodara (1)
C. libani (1)
Cercis siliquastrum (1)
 # Chamaecyparis lawsoniana (natural type) *(15)*
Chamaecyparis lawsoniana cultivars *(9+)*
'Fletcheri' (2)
'Lutea' (2)
'Wisselii' (2)
#Others *(3+)*
Chamaecyparis obtusa (1)
C. pisifera 'Plumosa' (1)
Clematis vitalba (2)
Cornus alba (1)
Cornus mas (3)
#Cornus sericea (3)
Corylus colurna (1)
Cotoneaster bullatus (3)C. frigidus (3)
#C. horizontalis (3+)
#C. sternianus (3+)
C. x watereri (1)
Crataegus laevigata pink flowered *(1)*
C. x lavallei (1)
Crataegus monogyna red flowered *(1)*
C. persimilis (1)
C. submollis (1)
Cryptomeria japonica (1)
Cupressus glabra (1)
C. macrocarpa (2)
X Cupressocyparis leylandii (10)
X Cupressocyparis leylandii golden cultivars *(3)*
Cytisus scoparius (2)
Elaeagnus macrophylla (2)
Eucalyptus archeri (1)
Eucalyptus gunnii (2)
#Fagus sylvatica f. *'Purpurea' (5)*
#Fagus sylvatica f. *'Atropurpurea ' (2)*
Forsythia x intermedia (5+)
Fraxinus angustifolia (2)
F. ornus (1)
Ginkgo biloba (1)
Gleditsia triacanthos (1)
Humulus lupulus (2)
Ilex x altaclerensis (1)
Ilex vars and cultivars (2)
Juglans nigra (1)
J. regia (1)
Juniperus chinensis (1)
Laburnum anagyroides (2)
L. x watereri (3)
Larix decidua var. *polonica (3)*
Ligustrum ovalifolium (5)
Liriodendron tulipifera (2)
Lonicera x italica (2)
Lonicera nitida (3)
Magnolia cultivar *(1)*
Malus domesticus (16)
Malus sylvestris (15)
Malus tschonoskii (1)
Malus, decorative cultivars and hybrids *(4)*
Nothofagus obliqua (1)
Picea omorika (1)
P. pungens 'Glauca' (1)
P. sitchensis (2)
Pinus nigra ssps. *nigra* & *laricio (5)*
P. wallichiana (1)
Platanus x hispanica (2)
Populus alba (1)
P. balsamifera (1)
P. x canadensis (5)
P. x canescens (4)
P. x jackii'Aurora' and 'Gileadensis' (4)
P. nigra (1)
P. nigra 'Italica' (1)
P. tremula (8)
P. trichocarpa (1)
Prunus cerasifera (3)
P. cerasifera 'Nigra' (9)
P. cerasifera 'Pissardii' (10)
P. domestica (5)
P. x fruticans (4)
#P. laurocerasus (8)
P. lusitanica (2)
Prunus 'Kanzan' (2)
Prunus, (mainly Japanese Flowering Cherries) *(5+)*
Pseudotsuga menziesii (15)
Pterocarya caucasica (1)
P. x rehderana (1)
Pyracantha coccinea (1)
Pyrus communis (2)
Quercus cerris (1)
Q. ilex (1)
#Q. petraea (5)
Q. robur f. *fastigiata (1)*
Q. rubra/borealis (10)
Rhamnus cathartica (8)
#Rhododendron ponticum (6)
R. lutea (1)
Rhus typhina (2)
Ribes rubrum (1)
Ribes sanguineum (1)
#Ribes uva-crispa (1)
#Robinia pseudcacia (6)
Rosa multiflora (over 10m tall) (1)
Salix alba (5)
Salix alba var. *caerulea (1)*
S. fragilis (1)
S. purpurea (1)
S. x reichardtii (3)
S. x sepulcralis (2)
S. x sericans (3)
S. triandra (1)
Sequoia sempervirens (1)
Sequoiadendron giganteum (1)
Sorbaria kirilowii & S. sorbifolia (3)
Sorbus aria (3)
S. hybrida (1)
S. intermedia (1)
S. pseudohupehensis (2)
S. thibetica/cuspidata'Mitch-ellii' (1)
S. torminalis (1)
*Sorbus (*other Asiatic & N. American Rowans and Whitebeams) *(7+)*
Staphylea pinnata (1)
Syringa vulgaris (4)
#Taxus baccata (11)
T. baccata 'Fastigiata' (2)
T. baccata, golden cultivars *(2)*
#Thuja plicata (11)
Tilia cordata (2)
T. platyphyllos (7)
#Tsuga heterophylla (6)
Ulex europaeus (5)
U. minor ssp. *minor (1)*
Viburnum lantana (12)
V. opulus (6)
V. rhytidophyllum (1)
V. tinus (2)
Viburnum others, including *V. buddlejifolia* and *V. x bodnantense (3)*

or more metres distant, was a strong feature of several *Populus* taxa, *Acer cappadocicum, Pterocarya, Robinia, Ulmus procera, Prunus avium, Cornus sanguinea* and even *Sorbus aucuparia* (Rowan), the last despite specialist texts. *Cornus sericea* forms dense, impenetrable, expanding thickets by layering and root suckering together. Dense raised sprouting mounds around the bases of Common Limes in Savernake Forest can sometimes spread as curtains of verticals: these derive from horizontal stem shoots rather than being true root suckers, but they subsequently form strong roots.

Fifty-seven out of the 166 identified tree taxa (including the largest, sometimes tree-like shrubs such as Hazel) were seen to have produced seedlings, or reproduced vegetatively, or both. Well over one third of the 235+ listed woody taxa were found at 3 or more of the 143 sites.

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Acknowledgements

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Field Maple *(Acer campestris)* in Savernake Forest (Peter Andrews)

Sweet Chestnut *(Castanea sativa)* with epiphytic Rhododendrons at Bedwyn Common (Joan Davies)

Wiltshire Botany 12, 2011, pages 26-35

BIODIVERSITY AT PARISH LEVEL

The example of Winsley

John Presland

***Cephalanthera damasonium* (White Helleborine): Winsley's only UK Biodiversity Action Plan Priority Species**

What is biodiversity?

Biodiversity is a term for the variety of wildlife which we ought to be maintaining and enhancing. It refers to the existence of a large number of species, and variations within species, of living things (eg Pyramidal Orchid, the Marbled White butterfly), of the different communities of which they form a part (eg species-rich limestone grassland), and of the environments which these species and communities require (eg limestone grassland which has not been agriculturally improved by fertilisers, herbicides, etc). It is perhaps a fuller definition of "nature", but with value judgements implied.

The term "biodiversity" appears to have become more prominent than the formerly popular term "nature conservation". Perhaps this is because "nature conservation" had become too associated in the public mind with maintaining rare species rather than a wide variety of species and a variety of entire communities. Biodiversity encompasses both. Further, nature conservation may have implied that we only keep what we have, whereas biodiversity thinking includes enhancement of existing communities and creation of new ones to increase the number and variety of organisms and link them up into networks through which species can more easily move and establish themselves more widely. However, "biodiversity" is not an activity - it needs a word added to say what we need to do. Perhaps we should speak of "biodiversity promotion", since more than conservation is required. The Lawton Review (2010) has recently reported to the Government on how to take biodiversity further, taking the stance that we need to advance beyond trying to hang on to what we have to "large-scale habitat restoration and recreation". A major aim, they argue, should be to enlarge and improve current wildlife sites, add new ones and find means of joining them up. Wildlife sites should be "more, bigger, better and joined".

"Biodiversity" became a focus of activity in the 1990s, with a kick-start from the Convention on Biological Diversity (the 'Rio Convention'). This was signed by a large number of countries in 1992, including the UK. The United Kingdom Biodiversity Action Plan (UK BAP) (Government 1994) was the UK Government's response. It describes the UK's biological resources and provides a detailed plan for the protection of these resources. It initiated the compilation of a national list of 1150 Priority Species and 65 Priority Habitats (Government 2008). My most recent information is that it had developed 943 Species Action Plans, 56 Habitat Action Plans and 162 Local Biodiversity Action Plans with targeted actions, but these are increasing all the time. The Lawton Review makes many specific recommendations for legislation to strengthen the process. The new coalition government has committed itself to a White Paper for the Natural Environment.

What must public authorities do about biodiversity?

Section 40 of the UK *Natural Environment and Rural Communities Act* (*The NERC Act*) 2006 states that all public authorities must have regard to conserving biodiversity in all of their activities. This is part of a wider commitment by the European Union to halt biodiversity loss by 2010 (*Countdown 2010*). The duty means that all public authorities and their statutory undertakers must make efforts to conserve biodiversity and therefore have a plan for doing so. The local authority duties in relation to biodiversity must extend across their entire range of activities, such as Land Use Planning, Highways and Transportation, Public Open Space, Leisure and Tourism, Land Drainage and Flood Defence, Regeneration Schemes, and so on.

The UK BAP Plan is a comprehensive guide to such enterprises, providing a model on which local plans are being based. Each major Local Authority plan attempts to describe the biodiversity resources within its area, audit the activities currently promoting biodiversity, and set out targets for key habitats and species and methods of monitoring progress towards them. Some town and parish councils are considering following suit.

The actual activities required are manifold. The Authority has to audit its biodiversity resources and set targets. Planning applications for development must be scrutinised carefully to maximise their contribution to biodiversity. There must be consultation with local people and bodies, particularly landowners. All staff and volunteers must be trained to act in accordance with biodiversity principles. Much education of the public is needed - in schools and after. All these things must be done in consultation with any other bodies involved and particularly with other layers in central and local government.

How does this apply to small country parishes, my own village of Winsley, for instance? Below, I try to put more flesh on the bones of this concept. The remit is plainly very wide, and this article does not attempt to tackle it in its entirety. It concentrates on the botanical aspects, though this cannot be done in total isolation and there is also some discussion of animal life. The terms “botany”, “flora” and “plants” are used in a broad sense, including fungi and lichens, which are not now normally regarded as plants, but rather as belonging to kingdoms different from either animals or plants.

What should a parish do?

Firstly, the Parish biodiversity plan should be seen as part of the county plan. The Wiltshire Biodiversity Action Plan (BAP) was published in 2002, then revised in 2008. This revised plan contains Habitat Action Plans for Woodland; Wood-pasture, Parkland and Ancient Trees; Hedgerows; Calcareous Grassland; Neutral Grassland; Traditional Orchards; Farmland Habitats; Built Environment; Standing Open Water; and Rivers, Streams and associated habitats. These are the most significant of the UK priority habitats within the county. Individual actions for some species are included under the Habitat Action Plans, and a full list of Wiltshire BAP Priority Species is included in Section 3 of the overall Plan. However, the only action plan specifically for them is a Bats Species Action Plan because they utilise a wide range of habitats. Finally activities supporting a broad range of habitats and species have been grouped under a Generic Action Plan. Each of the Habitat and Species Action Plans contains objectives, targets and actions that are easily measurable so that progress can be meaningfully and accurately determined. The Wiltshire Biodiversity Partnership has a new website at www.biodiversitywiltshire.org.uk, where the latest information about progress and working group meetings and events can be found. However, it is difficult to decide what sequence of activities should be followed at parish level in order to arrive at a plan. In the sections that follow, I consider possible routes through the maze.

Auditing key species and habitats

I have taken the view that sensible planning cannot be achieved if you don’t know what you’ve got. So I propose that a parish needs first to list, in the light of the county plan, the special species and habitats within its boundaries and how they are currently protected and managed. In practice, land ownership does not precisely reflect habitats. The audit will therefore, focus on sites, and on describing the special habitats within them. This section describes the types of species and sites to be looked at, and is followed by a description of the parish of Winsley and a description of its key species, sites and habitats.

Legal protection for wild plants is very limited - animals do better. All wild plants are protected under the Wildlife and Countryside Act 1981 (amended in 1985), in that no person may uproot any wild plant without the owner's consent. There are also a very small number of species with a greater degree of protection listed in Schedule 8 of the Act. It is normally an offence to pick, uproot, sell or destroy any of these plants, unless authorised. In some cases, this applies only when the intention is to sell the plant – as for Bluebell. The UK BAP list of Priority Species provides further protection but the Act it stems from says little about what should actually be done. There are two other main categories of plant which need to be taken into account:

Species listed in the *Wiltshire Rare Plant Register* (Pilkington 2007). About 275 plant species are in-

cluded. A species has to be native to the county and be rare internationally, nationally or in one of the two vice-counties (North and South Wiltshire), or have its survival so threatened as to be included in the International Union for Conservation of Nature (IUCN) list of plants threatened on a worldwide basis (http://www.iucnredlist.org/news/iucn-red-list-site-made-easy-guide), Schedule B of the Wildlife and Countryside Act 1981 (as amended in 1985) or be a UK BAP Priority species. Inclusion therefore implies that protection, or at least watchfulness, is desirable, but there is no clear legal backing.

Axiophytes. These are species which are important because they are characteristic of important habitats. These have commonly been referred to as "indicator species" because they are so characteristic of the habitat types to which they belong that they can be used to help identify them. Thus, there are indicators of calcareous grassland, indicators of ancient woodland, indicators of unspoiled wetland, and indicators of arable land where "weeds" have not been eradicated by herbicides. About 40% or so of species in Britain fall into this category. So lists of them provide a powerful technique for determining conservation priorities. Sites with many axiophytes are usually of greater importance than those with fewer; and changes in their number on a site over time can be used for monitoring the management practices. A list of axiophytes is available at www.bsbi.org.uk/axiophytes.html.

The categories of site that need to be brought into the plan are as follows:

Sites of Special Scientific Interest (SSSIs). SSSIs are areas which are specially protected because they are the country's very best wildlife and geological sites. The owner or occupier has to give notice of any proposals to carry out any of a set of listed operations thought to put the flora or fauna or overall habitat at risk. They cannot carry out the operation without the agreement of the Government body Natural England, who administer the system. Local Authorities have a statutory duty to further the conservation and enhancement of SSSIs in carrying out their operations and making planning and other decisions. However the detail is very much a matter for local decision.

Wiltshire Wildlife Trust (WWT) nature reserves. These are areas of particular biodiversity interest, some owned and managed by the Trust, some managed by the Trust but owned by someone else, and some with just access agreements. Plainly, ownership gives the Trust considerable power to maintain and enhance the biodiversity of the site, while management and access also offer opportunities of this kind.

County Wildlife Sites (CWSs). These are areas of land of recognised importance for biodiversity, which fall outside the SSSI system and therefore have no specific legal protection. The scheme is managed by a partnership of WWT, the local authorities, Natural England and other bodies, but the Wildlife Sites themselves are mostly privately owned and are managed (or not) under their owners' various private arrangements. The designation does not impose any requirement for particular forms of management. The role of the project is to monitor the sites and to guide and facilitate their appropriate management for biodiversity by advising owners and planning bodies.

Protected verges. This scheme was set up in the 1970s and is managed in partnership between Wiltshire Council and the Wiltshire and Swindon Biological records Centre. A special management regime is implemented and signs are erected to indicate its existence. They are regularly monitored with the same aims as for County Wildlife Sites.

Land owned by other public bodies who have a duty to promote biodiversity. Such bodies include Water Boards who own small areas of land for reservoirs, etc; British Waterways, who manage canals; and the Environment Agency, who oversee management of rivers, lakes and some ponds. All of these organisations include conserving biodiversity in their management objectives and planning.

Sites managed for biodiversity by voluntary organisations such as the RSPB and the Woodland trust or privately.

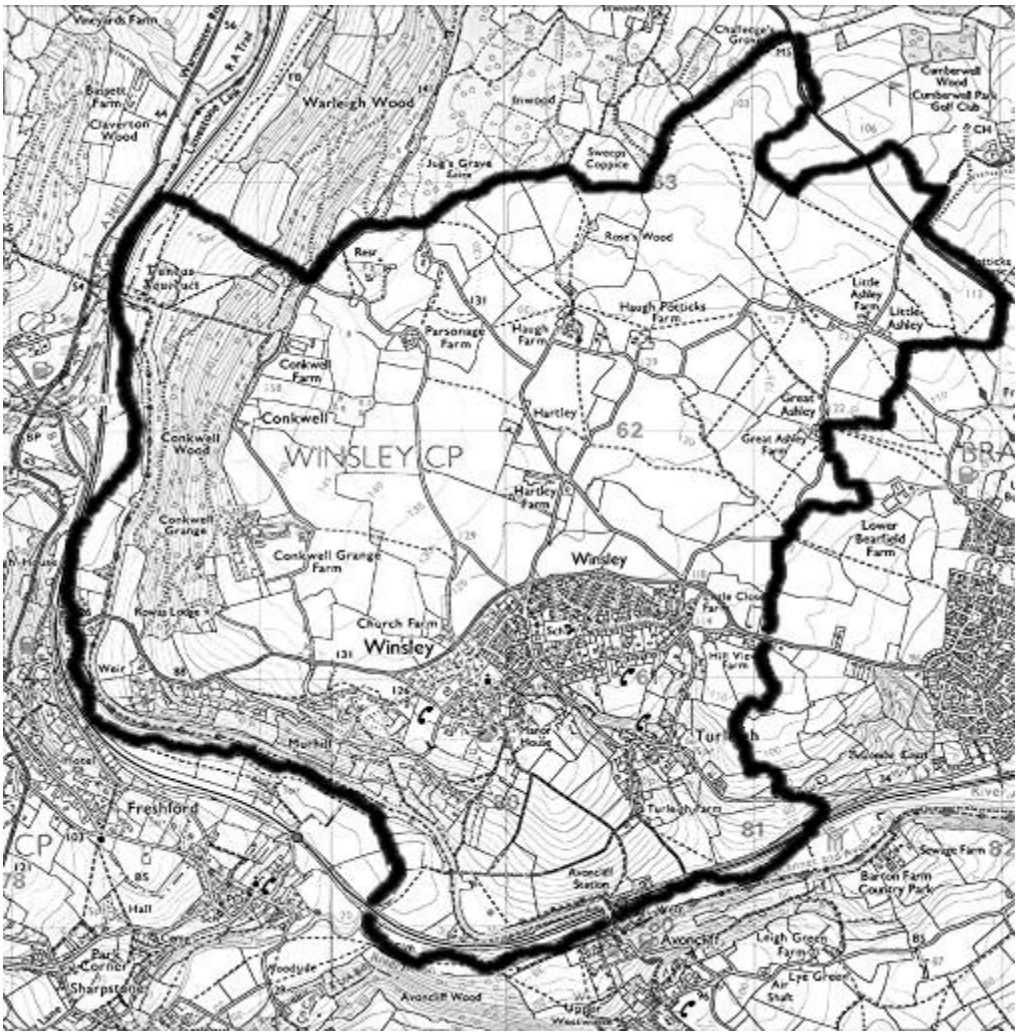
Other sites of biodiversity interest or potential. Areas not easily identified as types of site may contain important habitats.

The Parish of Winsley

The Parish of Winsley, shown in the map opposite, comprises two village and 5 hamlets. The River Avon marks its southern and western boundaries, and the remaining boundaries are in an agricultural area. The Kennet and Avon Canal follows the bottom of the valley of the Bristol Avon. The agricultural area is a plateau representing the highest part of the parish varying from about 120 to about 150 metres above sea level. To the south of it is the village of Winsley and from there the ground dips sharply southward and westward to the canal. This sloping part is predominantly woodland to the west and a mixture of residential, agricultural and woodland to the south. Road and field boundaries were originally mostly dry stone walls made of the limestone which lies beneath, but these have been removed in many places and then consist either of herbage and scrub at various levels or of hedgerows. The river is the Parish border, but both sides of the river are included here, since records do not always distinguish between them.

Below, I describe species in the parish where special protection may be needed and sites and habitats where nature is protected or needs to be protected in one way or another and could be a foundation of an overall plan and policy. The parish of Winsley has a variety of important plant species and habitats, but not more so than many other parishes, so is an example of what can be done. I'll concentrate mainly

Map of Winsley parish



on native flora, largely to save time, but Winsley has lots of introductions which add attractiveness and increase biodiversity. Treatment here will extend beyond the UK BAP Priority Species and Habitats, since I believe there is no intention to exclude any not on the lists.

Plant species

The only Winsley plant in the protected list in list in the Wildlife and Countryside Act 1981 (amended in 1985) is Bluebell, but only to prevent its sale. Picking or uprooting it for that purpose is a legal offence.

The Parish hosts only one of the plants listed as Priority Species under the UK BAP, and it is not subject to any active legal protection locally. This is *Cephalanthera damasonium* (White Helleborine). This has occurred in small numbers on an area of limestone grassland now discontinued as a WWT nature reserve, but more regularly under trees in the garden which houses the grassland. A more substantial but still small colony exists in a small wood within another garden, and I have seen it at two other wood edges in the past. Two others were considered for inclusion though not in the final list. One is *Cuscuta europaea* (Greater Dodder), which twines up the stems of Stinging Nettle as a parasite, and occurs along the River Avon from Staverton to Limpley Stoke, including sites in Winsley Parish. The other is *Neottia nidus-avis* (Bird's-nest Orchid). This is a saprophyte, that is, it obtains it's nourishment from dead organic material in the soil rather than manufacturing some from carbon dioxide in the air. It has been found in two woods.

There is a considerably larger number of Winsley Parish plants in the *Wiltshire Rare Plant Register*. In limestone grassland, *Onobrychis viciifolia* (Sainfoin) and *Orchis morio* (Green-winged Orchid) occur, both on sites managed for conservation. In woods, *Platanthera chlorantha* (Greater Butterfly Orchid), *Vicia sylvatica* (Wood Vetch) and *Neottia nidus*-avis (Bird's-nest Orchid) have been recorded and *Ornithogalum pyrenaicum* (Spiked Star-of-Bethlehem), a plant little known outside the Bath area, is common. Agricultural land hosts *Euphorbia platyphyllos* (Broad-leaved Spurge) and *Euphorbia exigua (*Dwarf Spurge), while *Chenopodium bonus-henricus* (Good King Henry) occurred many years ago. The River

Avon has *Potamogeton nodosus* (Loddon Pondweed) which in Wiltshire occurs only along the River Avon from Staverton to Freshford, *Ranunculus fluitans* (River Water-crowfoot) in its only North Wiltshire site, and *Rorippa amphibia* (Greater Yellow Cress) and local ponds have *Rorippa microphylla* (Narrow-fruited Water-cress) and *Veronica catenata* (Pink Water-speedwell). Roadsides and footpaths have yielded finds of *Astragalus glycophyllus* (Wild Liquorice), *Atropa belladonna* (Deadly Nightshade), *Foeniculum vulgare* (Fennel) though probably a garden escape, *Hyoscyamus niger* (Henbane) in several places for one year only in each, *Medicago*

Henbane *(Hyoscyamus niger)*: A Wiltshire Rare Plants Register plant found in Winsley

arabica (Spotted Medick), *Rumex pulcher* (Fiddle Dock), rare in Wiltshire but recorded in a number of places around Bradford-on-Avon, including Winsley, *Stellaria neglecta* (Greater Chick-weed), *Petroselinum segetum* (Corn Parsley), abundant *Valerianella carinata* (Keel-fruited Cornsalad) also on walls and extremely abundant *Ornithogalum pyre-aicum* (Spiked Star-of-Bethlehem). *Papaver dubium* ssp. *lecocqui* (Yellow-juiced Poppy) and *Petroselinum segetum* (Corn Parsley) have occurred as garden weeds. *Spiranthes spiralis* (Autumn Ladies-tresses) has been seen once on a garden lawn, and *Ruscus aculeatus* (Butcher's Broom) is in a garden hedge though possibly planted. *Smyrnium olusatrum* (Alexanders) recently appeared in some quantity beside the canal towpath. *Fritillaria meleagris* (Fritillary) was seen unexplained once in a garden but probably derived from a specimen originally planted, and *Apium inundatum* (Marshwort) appeared once in my garden pond, but was probably introduced with oxygenating plants. Several other plants have occurred too near the boundary for me to be sure if they were in Winsley or not - *Carex viridula* ssp. *brachyrrhyncha* (Long-stalked Yellow-sedge), and *Gagea lutea* (Yellow Star-of-Bethlehem). It should be noted that not all the plants included are rare or threatened in Winsley, but we need to be thinking on a broader scale.

Bearing in mind that biodiversity is supposed to encompass variation within species as well as the species themselves, it is worth mentioning *Ophrys apifera* var. *belgarum*, an unusual variant of Bee Orchid which occurred on a garden lawn, though it is not included in any of the relevant lists for protection. The basal shield-like pattern on the normal Bee Orchid lip is missing, and replaced by a long triangular red-brown area, bordered by distinctive harness-shaped patterns. There is a yellow band across the middle of the lip.

Bee Orchid *(Ophrys apifera)*: normal form left, var. *belgarum* right

Axiophytes are considered under habitats and sites.

Habitats and sites

Winsley Parish also has habitats which are listed as Priority Habitats under the UKBAP - arable field margins, hedgerows, lowland calcareous grassland, lowland mixed woodland, ponds and rivers. The Wiltshire BAP includes these, sometimes under different labels, and adds the built environment, which includes the rich dry stone walls of Winsley. Winsley Parish also has an SSSI, a number of County Wildlife Sites and a protected verge. Additional sites of importance are not covered by any county scheme.

Winsley Mines - an SSSI

Winsley Mines, the only SSSI in Winsley Parish, comprises extensive networks of man-made tunnels which are used by bats for hibernation, mating and as a staging post prior to dispersal. It also includes areas of woodland which are used as a feeding and commuting habitat by the bats. These disused stone mines, together with similar ones nearby at Box, are of key importance to Greater Horseshoe bats (holding 15% of the UK Greater Horseshoe bat population in

winter), Lesser Horseshoe bats and Bechstein's bat, as well as a mixed assemblage of several other bat species. Grilles have been installed over the most vulnerable mine entrances to prevent disturbance. Though this specific site is not mentioned in the Wiltshire BAP, it is clears that it covers it. Though the primary interest is not botanical, there are plants of interest and the habitat is an example of lowland mixed deciduous woodland. Eighteen indicator plants for ancient woodland have been recorded.

Stillmeadow (CWS)

This is a small limestone meadow (0.25ha) within a large privately owned garden. It was, until a few years ago, a Wiltshire Wildlife Trust Nature Reserve, and the Trust had an agreement with the owner to safeguard the site and the flora and mowed the meadow and removed the cut grass each August or September. However, for unclear reasons probably associated with changing priorities, the arrangement was discontinued, along with the mowing. It is still a County Wildlife Site, and is listed in West Wiltshire Development Plan as a conservation site. White Helleborine, which is a UK Biodiversity Action Plan Priority Species, occurs regularly under trees and bushes in the garden, and was observed one year on the meadow itself. This species is also in the Wiltshire Rare Plants Register, as is Autumn Lady's Tresses *(Spiranthes spiralis)*, which was recorded on the house lawn in one year only. Additionally, seventeen calcareous grassland indicators have been recorded, including Large Thyme *(Thymus pulegioides)*, Pyramidal Orchid *(Anacamptis pyramidalis)* and Bee Orchid *(Ophrys apifera)*, Common Milkwort *(Polygala vulgaris)*, Fairy Flax *(Linum catharticum)* and Wild Basil *(Clinopodium vulgare)*. Six further species have been recorded which are indicators of unimproved grassland generally, such as abundant Yellow Rattle *(Rhinanthus minor)*, Common Spotted Orchid *(Dactylorhiza fuchsii)* and the parasitic Common Broomrape *(Orobranche minor)*. A rare subspecies of Bee Orchid *(Ophrys apifera* var. *belgarum)* has also occurred on the lawn.

Murhill Bank (CWS and Parish nature reserve)

This is a steep, south-facing site with unimproved calcareous grassland, scrub and lowland mixed deciduous woodland, owned by the Parish Council and managed as a nature reserve. The only rare/threatened species are Sainfoin *(Onobrychis viciifolia)* and Bath Asparagus (*Ornithogalum pyrenaicum)*. Thirty-two indicators of calcareous grassland have been recorded, including Yellow-wort *(Blackstonia perfoliata)* Ploughman's Spikenard *(Inula conyzae)* Pyramidal Orchid *(Anacamptis pyramidalis)* Bee orchid *(Ophrys apifera)*, Rockrose *(Helianthemum nummularia)*, Horseshoe Vetch *(Hippocrepis comosa)* and Woolly Thistle *(Cirsium eriophorum)*. Ten further species have been recorded which are indicators of unimproved grassland generally, such as Common Valerian *(Valeriana officinalis)*, Yellow Rattle (*Rhinanthus minor)*, Bladder Campion *(Silene vulgaris)* and Restharrow *(Ononis repens)*. There have been 31 indicators of ancient woodland recorded, in the woodland and hedgerow, including Stinking Iris (*Iris foetidissima)*, Spurge Laurel *(Daphne laureola)*, Common Twayblade *(Listera ovata)*, Nettle-leaved Bellflower *(Campanula trachelium)*, Enchanter's Nightshade (*Circaea lutetiana*), Common Gromwell *(Lithospermum officinale)*, Wild Cherry *(Prunus avium)* and Wood Sanicle (*Sanicula europaea)*. One of the two woods is of Wych Elm *(Ulmus glabra*), not a common occurrence these days. Mistletoe *(Viscum album)* adorns an old apple tree. Various fungi, mostly in the woodlands and mostly on dead stumps, fallen trunks or dead branches have also been observed, such as Yellow Brain Fungus *(Tremella mesenterica)*, *Bisporella citrina*, Winter Fungus/ Velvet Shank *(Flammulina velutipes)* (an Elm specialist), Wrinkled Peach *(Rhodotus palmatus)*, uncommon in Wiltshire because it grows on the no longer common Elm, and *Psathyrella atrolaminata*. A variety of animals has also been recorded, including such butterflies as Marbled White. Brown Argus, Common Blue, Silver-washed Fritillary and Speckled Wood, the Five-spot Burnet Moth, a range of birds, deer, badgers, rabbits, lizards, bees, etc. The habitats are maintained by sheep grazing to remove the remains of each year's growth, removal of invading shrubs, tree saplings and, selectively, over-dominant herbaceous plants like Hemp Agrimony and thinning of trees in the woods.

Little Ashley Ponds (CWS and Parish nature reserve)

This is a relatively recent development, established as a parish nature reserve in 2005. It consists of two small roadside ponds. Its priority habitat is nutrient-rich standing water. It has two rare or threatened species in the WRPR - Narrow-fruited Water-cress *(Rorippa microphylla)* and Pink Water-speedwell *(Veronica catenata)*. An additional 17 species are indicators of high-quality aquatic or wetland habitats including Branched Bur-reed *(Sparganium erectum)*, Common Water-crowfoot *(Ranunculus aquatilis)*, Water Mint *(Mentha aquatica)* and Lesser Duckweed *(Lemna minuta)*. Great Crested Newts have been seen. Mallards visit and a moorhen has nested and produced young. The UK BAP aims to preserve and enhance all remaining examples of this type of habitat, and the voluntary organization One Million Ponds provides advice.

Flowery Meadow (CWS)

This is a steep limestone meadow with 17 indicators of calcareous grassland recorded, and six other grassland indicators. There are particularly fine

displays of Lesser Knapweed *(Centaurea nigra)* and Field Scabious *(Knautia arvensis)*, and Primrose *(Primula vulgaris)* and Cowslip *(Primula veris)* grow close to each other and hybridise to form the False Oxlip. It is grazed lightly by sheep all the year round.

Conkwell Wood (CWS)

This is a large area of lowland mixed deciduous woodland. Wood Vetch *(Vicia sylvatica)* and Bath Asparagus/Spiked Star-of-Bethlehem (*Ornithogalum pyrenaicum)* from the WRPR have been recorded and 58 other indicators of ancient woodland have been seen at some time, including, including 5 ferns, 3 sedges, Stinking Iris *(Iris foetidissima)*, good colonies of Bluebell *(Hyacinthoides non-scripta)*, Herb-paris *(Paris quadrifolia)*, Bird's-nest Orchid *(Neottia nidus-avis)*, Guelder-rose *(Viburnum opulus)*, and Toothwort *(Lathraea squamaria)*, parasitic on Hazel. Almost a hundred fungi have been recorded including the uncommon Wrinkled Peach (*Rhodotus palmatus).*

Rose's Wood (CWS)

This has Bath Asparagus (*Ornithogalum pyrenaicum)* from the WRPR and 18 indicator species, including superabundant Wood Anemone (*Anemone nemorosa*), Early-purple Orchid (*Orchis mascula*), Wood Spurge (*Euphorbia amygdaloides*) and Tufted Hair-grass (*Deschampsia cespitosa)*.

Winsley Hill bank and verge (Protected Verge)

The north side of Winsley Hill has been a protected verge for many years, and has been monitored by our members - Lady Jean Maitland, Jean Wall and John Presland. It has a good calcareous grassland flora, including 22 limestone grassland indicators, including Pyramidal Orchid (*Anacamptis pyramidalis*) Yellow-wort (*Blackstonia perfoliata*) and Autumn Gentian *(Gentianella amarella)*, and seven other grassland indicators, including Spotted Hawkweed *(Hieracium maculatum* probably), Common Spotted Orchid *(Dactylorhisa fuchsii*), Common Centaury *(Centaureum erythraea)* and the hemiparasitic Eyebright *(Euphrasia sp)*. Dwarf Thistle *(Cirsium acaule* forma *'caulescens'*) illustrates biodiversity within a species - it's not genetically different but is a form which develops in long grass. The normal form has no or very little stem, but this has a distinct one, presumably because it needs to compete with the taller vegetation. Giant Horsetail *(Equisetum telmateia)* occurs at one spot where one must assume an underground watercourse. There is a management plan which requires the local authority to cut no more than a single swathe at the foot of the bank except in October, when the entire verge should be cut. Bracken and scrub need to be controlled.

Wessex Water Reservoir

This is managed by Wessex Water, based in Bath, under a site management plan, which takes account of biodiversity and has to be consulted before any work is undertaken there. It includes a grasscutting regime to allow plants to flower and seed, by having one cut a year in late August or September, with removal of the cuttings. The site is monitored for biodiversity annually. Its most important part is a layer of limestone grassland on top of two underground reservoirs. This has Green-winged Orchid *(Orchis morio)* from the WRPR, eight other limestone grassland indicators and four other grassland indicators. When the reservoirs were repaired in 1993-4, the turf was removed to a depth of about 15cm and then replaced after completion of the job, which successfully maintained the flora.

River Avon

The Environment Agency oversees the management of the river, but responsibility lies with the owners of the adjoining land, often farmers but sometimes the Environment Agency itself, and often different for opposite banks. Owners need permission from the Agency to carry our work and can be instructed to do specific things by it. Oversight of management follows a Bristol Avon plan which takes account of biodiversity. The principal managers are based in Bridgwater, but work with a local committee involving other interested bodies - the Wiltshire Wildlife Trust and Wiltshire Council for instance. There are three WRPP species recorded there - Greater Dodder *(Cuscuta europaea)*, River Water-crowfoot *(Ranunculus fluitans)* and Loddon Pond-weed *(Potamogeton nodosus).* A recent survey found 17 wetland indicators, including Water-plantain *(Alisma plantago-aquatica)*, Trifid Bur-marigold *(Bidens tripartita)*, Small Teasel *(Dipsacus pilosus)*, Gypsywort *(Lycopus europaeus)*, Yellow Water-lily *(Nuphar lutea)*, White Water-lily *(Nymph-aea alba)*, Arrowhead *(Sagittaria sagitt-ifolia)*, Water Figwort *(Scrophularia auriculata)*, and Branched Bur-reed *(Sparganium erectum).*

Kennet and Avon Canal

British Waterways is responsible for maintaining the canal. Management is largely centralized, but there is a local office in Devizes, and they and the Kennet and Avon Canal Trust, also in Devizes, work together to advise on local needs, including biodiversity, and put together a plan for meeting them. From memory and rough records, at least 27 wetland indicators have occurred. Alexanders *(Smyrnium olusatrum)* is a WRPR species which has recently appeared in some numbers beside the towpath.

Sites managed for biodiversity privately

The Bradford-on-Avon Rugby Club and Bradford and Winsley Community and Sports Association together own a stretch of former farmland which they manage for leisure and biodiversity. They have planted a lot of hedges with native shrubs, are putting up bird and bat boxes, and have planted some spare corners with woodland. They allow and encourage interesting plants such as Yellow-wort and Common Centaury in their hedgerows, and areas of barish soil at the edges of the playing fields provide continued opportunities for Lesser Centaury *(Centaurium pulchellum)* and the WRPR agricultural weed Broad-leaved Spurge (*Euphorbia platyphyllos).* Narrow-fruited Watercress *(Rorippa microphylla)*, also in the WRPR, formerly occupied a pond which was filled in, and there is a possibility that it might be restored. Common Star-of-Bethlehem *(Ornithogalum umbel-atum)* may still be under a mass of vegetation on a roadside verge on their boundary. A vineyard is run with biodiversity in mind and has a record of Bath Asparagus *(Ornithogalum pyrenaicum).* A privately owned field is cut and raked regularly to promote wild plants and has some indicator species, and some private gardens also have habitats or plants of interest which the owners protect. My own garden has a variety of agricultural weeds which must have grown from seed buried under the soil during former agricultural use, which I allow to continue. One of these, Dwarf Spurge *(Euphorbia exigua)*, is in the WRPR, as is Corn Parsley *(Petroselinum segetum)*, which occurred only once, and 6 other agricultural indicator species have been noted. A number of animals have been identified - Mullein Moth caterpillar, Scarlet Tiger Moth caterpillar and adult, Ramshorn Snail in the pond, a range of birds including Heron, Kingfisher and Green and Spotted Woodpeckers and a nesting pheasant, Grass Snake, frogs and toads, three species of newt, several dragonflies and damselflies, Cockchafer, Herald and Lappet moths, various butterflies including Painted Lady, and Garden/Diadem/ Cross Spider *(Araneus diademus)*. Local farmers have planted tree, shrubs and hedges and the Cotswold Wardens have repaired and rebuilt dry stone walls. A local school has a wildlife garden.

Other sites of biodiversity interest or potential.

One very good limestone grassland field with 11 limestone grassland indicators and six other grassland indicators is in private hands with no commitment to maintaining its biodiversity. Another has 4 limestone grassland indicators and 7 other grassland indicators. Another has Pyramidal Orchid, and another has the grassland indicators Woolly Thistle *(Cirsium erio-phorum)* and Vervain *(Verbena officinalis)*. Several more have the odd grassland indicator. A field with a stream running through it has 4 wetland indicators. Privately owned local woods house, between them, the UK BAP Priority species White Helleborine *(Cepha-anthera damasonium)*, the WRPR species Bath Asparagus *(Ornithogalum pyrenaicum)*, Bird's-nest Orchid *(Neottia nidus-avis)* and Greater Butterfly Orchid *(Platanthera chlorantha)*. Roadsides and pathsides have yielded Deadly Nightshade *(Atropa belladonna)*, Henbane *(Hyoscyamus niger)*, Fiddle Dock *(Rumex pulcher)*, Keeled-fruited Cornsalad (*Valerianella carinata)*, Corn Parsley *(Petroselinum segetum)*, Wild Liquorice *(Astragalus glyciphyllos)*, Good-King-Henry *(Chenopodium bonus-henricus)*, Greater Chickweed *(Stellaria neglecta)* and very abundant Bath Asparagus *(Ornithogalum pyrenaicum)*. There are particularly good dry stone walls in Winsley Parish, an environment which I have argued bears a unique plant community, though it is not yet recognized as such and therefore has no indicators assigned. It has a distinctive flora with a variety of lichens and mosses and a few flowering plants which are now seen mainly on this or very similar surfaces - Biting Stonecrop *(Sedum acre*), Rue-leaved Saxifrage *(Saxifraga tridactylites*), Common Whitlow-grass *(Erophila verna*) and Wall Pennywort (*Umbilicus rupestris*). Shining Cranesbill *(Geranium lucidum*) also occurs, but also at the base of the walls

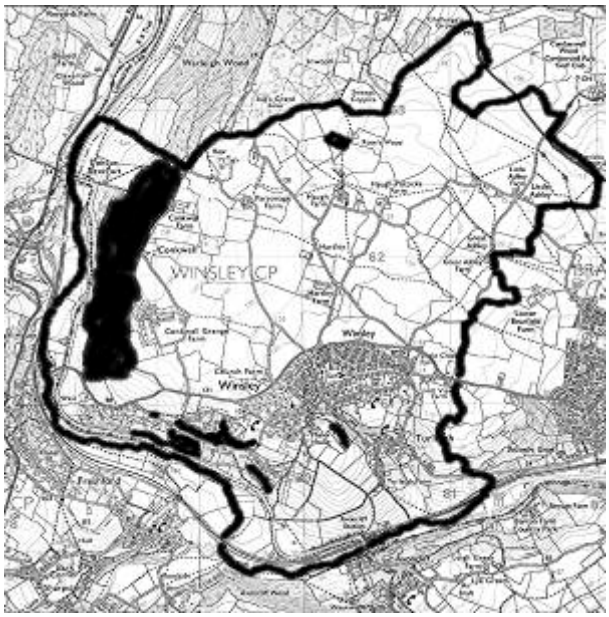
What should a Parish Council do next?

What should a Parish Council do with all this information? Firstly, they should draw up a biodiversity plan. In July 2005, Winsley Parish Council accepted a proposal from one of its members to draw up a biodiversity policy and make plans to implement it. Though this has not yet happened, the issue is still on the table. However, finding the time, expertise and, need it be said, funding are deterrents to effective action.

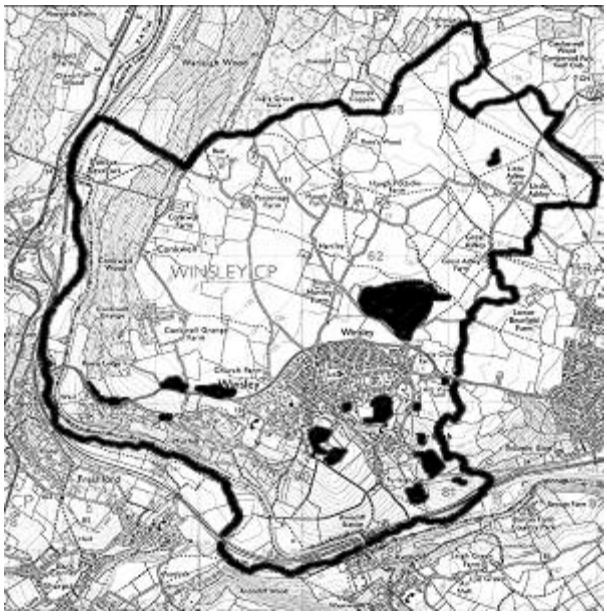
Ideally, all those who could contribute to the im-plementation of such a plan should be involved, including local landowners, bodies responsible for the River Avon and Kennet and Avon Canal, national and local conservation bodies, private landowners and home-owners interested in promoting wildlife in their own gardens. The plans should involve maps of areas of current and potential biodiversity interest. On the next page are three maps which might be a starting point, which I drew up based on the audit above. Map 1 shows woodland sites of actual or potential biodiversity value, Map 2 the same for limestone meadows and Map 3 the linear sites (waterways, roadsides, footpaths, etc). The geo-graphical position of some sites has been altered to allow for sensitivities of some landowners, but the general pattern is there.

A parish council can do all sorts of things within such a plan. It can manage its own nature reserves, playing fields, footpaths and road verges so that there is no overall loss of biodiversity and that it is enhanced

Map 1. Winsley woodland corridor



Map 2. Winsley limestone grassland corridor



whenever possible. Hedges and dry stone walls can be put round sites, mowing policies can encourage wild life, and unused areas of grassland could be ploughed and replanted with wild flower seeds. Representations can be made to owners and planning authorities to discourage development which might prejudice biodiversity, taking advantage in some cases of the Green Belt policy - and, indeed, to encourage development which promotes biodiversity. The Parish Council could help people to access grants for projects to foster biodiversity - under such schemes as Natural England's Environmentally Sensitive Areas (mostly for large blocks of land to help maintain traditional farming practices) and Country Stewardship (for farmers to enhance biodiversity, e.g. by re-establishing species-rich grassland), Defra's Set-aside scheme (payment to farmers to leave some of their land uncropped), the Charity-based Million Ponds Project and small funds held at particular times by Wiltshire Council and the Wiltshire Wildlife Trust.

Map 3. The linear sites (waterways, roadsides, footpaths, etc). (They are shaded in grey and include river and canal, not easy to show without colour)

As far as practicable, a site with a particular plant or animal community should be near enough to similar sites to allow a lost species to be replaced from another site and to promote interbreeding with plants or animals of the same species elsewhere to promote diversity within the species. The latter makes for healthier plants and animals and a better chance of some individuals being able to survive minor changes in the habitat. Wherever possible, there should be "wildlife corridors" (preferably continuous but otherwise with gaps as small as possible) running right through the parish - like the woodlands in Map 1 that run south from the northwest corner to the southwest corner of Winsley Parish and then, after a short gap along both sides of the main lane through Murhill and down to the canal. A wild flower meadow corridor is feasible (Map 2), beginning with the verges on Winsley Hill at the southwest corner and going through Murhill and Turleigh and up to the reservoir at the east end of the Parish. The linear sites are corridors in themselves (Map 3).

Similar considerations apply to individual species. Some species are protected by authorised bodies, others are not. A parish can monitor the state of the protected ones and use such legal provision as is

available to help do this. Other species need more subtle treatment and should form a major part of parish activity in this area, particularly where hardly any are the subject of county action plans, as in Wiltshire.

Another feature of the plan would involve education, advice and awareness - to such bodies as the Winsley Cricket Club, the Bradford-on-Avon Rugby Club and the Bradford and Winsley Community and Sports Association, home-owners, farmers, and other public bodies. Advisory literature would help, like a guide I have written on conserving the flora of limestone dry stone walls (Presland 2007). Getting ideas over to the general public is particularly important, so that grants to owners are not applied for in case other members of the community complain of favouritism.

A fundamental question is how much rigour should characterize the Parish Council's planning and activity. The Wiltshire Biodiversity Plan attempts to set out specific targets and consequent actions, with methods of measuring how far they have been achieved by a specified date, as shown in the extract from their table of objectives below. Each target and action has a Lead Partner, highlighted in bold, who is responsible for reporting progress towards that target.

Wiltshire Biodiversity Plan targets

Target	Target measure	Action	Actin measure	Partners
CGT1: Maintain current extent of calcareous grassland resource	Measure 1: No loss due to agricultural improvement (ongoing)	CGA1: Improve and update the baseline data to ensure all BAP quality habitat is mapped and available to partners.	Amalgamation of reversion data with data already held by BRC Map produced by Oct 2008	**WWT (Wildlife Sites Project)**, Landscapes for Wildlife, FWAG, NE, AONBs (CCWWD, NWD, Cotswolds), Wiltshire council

To operate this approach fully, a Parish Council would need to employ staff. Volunteers could alternatively be used, but are often hard to find and can't be held responsible in the same way as paid staff. The most important sites, will, of course, already be included, at least by implication, in the County Plan. The Parish Council might, therefore, see their task as monitoring and acting where they can in coordination with other bodies involved and leaving major planning and monitoring to the County. An important activity will be detecting matters which the County have overlooked and drawing their attention to the problem.

Overall, this is uncharted territory for a Parish Council, and it will be necessary for them to feel their way gradually, taking things a step at a time.

Government documents

Lawton Review Panel (2010) *Making Space for Nature: a review of England's wildlife sites and ecological network*. Report to Defra.
Biodiversity: The UK action plan. January 1994. Cm 2428 London: HMSO £18.50 net
Guidance for Local Authorities on Implementing the Biodiversity Duty. Department for the Environment, Food and rural Affairs (Defra).
UKBAP Priority Species and Habitats - http://www.ukbap.org.uk/NewPriorityList.aspx 2008

Other sources of advice on the planning process

Pilkington S (2007) *Wiltshire Rare Plant Register: The rare and threatened vascular plants of North and South Wiltshire*. Privately published by S L Pilkington, Trowbridge.
Presland J (2007) *Conserving the Flora of Limestone Dry Stone Walls*. Wiltshire Natural History Publications Trust.
Public Authorities and Biodiversity. A brief guiding pamphlet available from Wiltshire Wildlife Trust.
Wilshire Biodiversity Action Plan Progress Report 2002-2005. Wiltshire Biodiversity Forum. Available through Wiltshire Wildlife Trust.
Stategy for 2006 and Beyond. Wiltshire Biodiversity Forum. Available through Wiltshire Wildlife Trust.
Wiltshire Biodiversity Action Plan (BAP) 2008. Wiltshire Wildlife Trust on behalf of the Wiltshire Biodiversity Partnership - www.biodiversitywiltshire.org.uk.

Many thanks to Rob Large for helpful information and comments on a draft.

WILTSHIRE BOTANY ELSEWHERE

While most writing about botany in Wiltshire is found in *Wiltshire Botany* and Wiltshire Botanical Society's Newsletter, relevant articles do occur elsewhere. This section of the journal summarises information of this kind which has not been referred to in publications of Wiltshire Botanical Society – from just one article this time. It is hoped to make this a regular feature, depending on what publications have been located. Summaries of such publications will be most welcome.

***Onobrychis viciifolia* (Sainfoin) on Salisbury Plain, Wiltshire - George K Else, BSBI News, 114, April 2010, 12-13**

Onobrychis viciifolia Scop. is widespread on the chalk grasslands of Salisbury Plain, Wiltshire, where it clearly consists of two subspecies: the native *viciifolia viciifolia* and the alien *viciifolia decumbens.* The native subspecies (sometimes referred to as ssp. *montana)* has deep pink flowers and is decumbent to erect in form, but less decumbent than the alien subspecies. Generally the native plant has fewer leaflets than its close relative. With practice the two forms can be separated from one another at a distance of several metres. The native *viciifolia viciifolia* is locally and widely distributed over the Plain and is particularly common on the grasslands about Tilshead, extending further north to the Vale of Pewsey and the Marlborough Downs. It is clearly a plant that is not in any way threatened or in decline on the Plain. The introduced subspecies *decumbens* is common on the grasslands, often being found alongside the native subspecies. Apparent intermediates between the two subspecies occur from time to time. Henry Edmunds, a local farmer at Cholderton (on the Wiltshire/Hampshire border and very close to the Bulford area of the Plain), has grown ssp. *decumbens* as a crop for many years. Indeed, he is the only farmer on the Plain that continues to cultivate *Onobrychis* commercially. This form generally produces flowers earlier in the season, from about May and is over by July. The native form flowers from June to October. Cross-pollination has not been proved to occur on the Plain. It is clear that the native form of *Onobrychis* has been established in Britain for several thousand years. There is much discussion of the mining bee *Melitta dimidiate*, which commonly visits the native species but has not been observed on the introduced one.

Editor. Definition and identification of subspecies of Sainfoin is controversial. Sell and Murrells' recent flora describes both of these subspecies – but implies that neither is native.

Sainfoin *(Onobrychis viciifolia)*

PLANT RECORDS 2009

***Cotoneaster simonsii* (Himalayan Cotoneaster)**

Explanatory notes

- The following is a selection from WBS records received in 2009. For each species, initials of recorders and names of towns, villages and sites are not repeated. Assume it's the same one until a new one appears.
- Because of the enormous number of records received, including many "historical" records from outside sources, only those new to their 10 km square in the 2009 year are included. This is relative to the period since the flora mapping in the 1980s and 1990s for the 1993 Wiltshire Flora and recorded there.
- Where a record is also a 1st county or vice-county record, an unqualified statement means that it is the first record ever, as far as is known. Where the word "recent" is inserted, it means that it is the first since the flora mapping began, but had been recorded before this period.
- Where a recording square is only partly in Wiltshire, any comment on record status applies only to the part within Wiltshire.

Recorders

AA - Anne Appleyard
BL – Barbara Last
DG - David Green
DWr - D Wrench
HE – Henry Edmonds
JEO - Jack Oliver
JN - Joy Newton
JP - John Presland
JRM - John Moon
JSn - J Sansby
LBe - L Bersweden
LK - Louisa Kilgallen
LWa - Lesley Wallington
LWC - L Wiskington-Campbell
PC - P Cleverly
PCh - P Chave
PD - Paul Darby
PDS - Paul Stanley
PMW - Pat Woodruffe
PTh - Penny Theobald
RAi - Richard Aisbitt
RDu - Rosemary Duckett
RL - Rob Large
SFi – Sue Fitzpatrick
SL - Simon Leach
SPi - Sharon Pilkington
SS - Simon Smart
SY - Simon Young
TKa - Tim Kaye
VH – Valerie Headland
WBS - Wiltshire Botanical Society (excursion)

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Aconitum napellus; Monk's-hood; TKa; east of Marlborough; Savernake Forest, probably planted or garden escape.
Aesculus hippocastanum; Horse-chestnut; RL; Colerne; airfield.
Alchemilla filicaulis subsp. vestita; Common Lady's mantle; JEO; Beckhampton, Stonework, drives, abundant garden weed.
Alchemilla mollis; Garden Lady's-mantle; SPi/SL; Ashton Keynes; Kent End Quarry, presumably garden escape, in disturbed ground.
Alnus viridis; Green Alder; RL; Groundwell; scrub.
Anemone blanda; Balkan Anemone; JEO; Preshute west; escapes over 15 years from mass plantings.
Atropa belladonna; Deadly Nightshade; SPi; Ashton Keynes; Swillbrook Lakes, 2 large flowering plants by path.
Botrychium lunaria; Moonwort; SS; Ashton Keynes; Clattinger Farm.
Cannabis sativa; Hemp; RL; Groundwell; scrub; 1st recent vice-county record.
Carex disticha; Brown Sedge; DG; Ford; Donscombe Meadow, drainage runnel across meadow.
Carex paniculata; Greater Tussock-sedge; RL; Castle Combe; Brook Meadow.
Chara vulgaris var. longibracteata; Common Stonewort; SPi/SL; Holt; Courts Garden, choking a large ornamental pond.
Cicerbita macrophylla subsp. uralensis; Blue-sow-thistle; JN; Aldbourne; Ewins Hill; spreading on verge.
Cotoneaster simonsii; Himalayan Cotoneaster; JP; Murhill, Bank, one self-seeded in wood.
Cotoneaster sternianus; Stern's Cotoneaster; JEO; Lacock; roadsides and stonework. 3 natural seedlings.
Crocus tommasinianus x vernus; JEO; Lockeridge; 2 clumps with parents; 1st county record.
Epilobium obscurum; Short-fruited Willowherb; JN/RAi; Chilton Foliat; field near Littlecote House.
Epipactis phyllanthes; Green-flowered Helleborine; TKa; Swindon; Stanton Park, 1 plant.
Filago vulgaris; Common Cudweed; TKa; Swindon; Stanton Park, path, probably brought in with sandy substrate.
Fumaria muralis; Common Ramping-fumitory; WBS; Bromham; market gardens.
Glyceria notata; Plicate Sweet-grass; SPi/JN/RDu /LWa/RAi; Calstone; Down, dewpond.
Inula conyzae; Ploughman's Spikenard; RL; Groundwell; scrub.
Lamiastrum galeobdolon subsp. argentatum; Garden Yellow-archangel; SPi; Somerford Keynes; spreading vigorously along road verge.
Lathyrus latifolius; Broad-leaved Everlasting-pea; SPi; Ashton Keynes; Kent End Quarry, disturbed ground near edge of water.
Lathyrus nissolia; Grass Vetchling; PD; Minety.
Leucanthemum x superbum (L. lacustre x maximum); Shasta Daisy; JEO; Lacock; roadsides and stonework; RL; Groundwell; scrub.
Macleaya x kewensis (M. cordata x microcarpa); Hybrid Plume-poppy; JP; Conkwell, Winsley; one in wood near garden, presumed garden escape; 1st county record.
Mentha spicata; Spear Mint; RL; Purton; Purley Farm Fields.
Menyanthes trifoliata; Bogbean; TKa; Swindon; Stanton Park.
Papaver dubium subsp. lecoqii; Yellow-juiced Poppy; JN; Marlborough; business park, waste ground.
Poa angustifolia; Narrow-leaved Meadow-grass; SPi; Box; Box Hill, many on a wall.
Populus nigra subsp. betulifolia; Black Poplar; SPi; Lacock; roadside hedge.
Rumex maritimus; Golden Dock; SPi; Ashton Keynes; Kent End Quarry, plant near water's edge.
Salix x rubra (S. purpurea x viminalis); Green-leaved Willow; JEO; Marlborough; College grounds.
Schoenoplectus lacustris; Common Club-rush; RL; Castle Combe; Brook Meadow.
Securigera varia; Crown Vetch; JN; Ogbourne St George; verge.
Sedum anglicum; English Stonecrop; RL; Colerne; airfield; 1st vice-county record.
Solidago gigantea; Early Goldenrod; JP; Limpley Stoke; large colony by roadside.
Symphytum x uplandicum (S. asperum x officinale); Russian Comfrey; JN; Bishopstone; track.
Tolypella glomerata; Clustered Stonewort; LWC; Ashton Keynes; lake, edge of newly created scrapes; 1st county record (but see page 18).
Triticum aestivum; Bread Wheat; RL; Wanborough; Black Horse Pub Meadow.
Valeriana dioica; Marsh Valerian; RL; Castle Combe; Brook Meadow; South Marston; Nightingale Wood.
Valerianella carinata; Keeled-fruited Cornsalad; SPi; Devizes; town centre, locally abundant on waste ground.
Verbena bonariensis; Argentinian Vervain; SPi; Ashton Keynes; Kent End Quarry, plant in disturbed ground on bank.
Viola tricolor; Wild Pansy; WBS; Bromham; market gardens; JRM; East Kennet; edge of cereal field.
Viola x contempta (V. arvensis x tricolor); JRM; East Kennet; edge of cereal field; 1st recent vice-county record.

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Allium carinatum; Keeled Garlic; LBe; Winterslow; 1st vice-county record.
Allium oleraceum; Field Garlic; LBe; Farley; 1st recent vice-county record.

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Alnus cordata; Italian Alder; RL; Coombe Bissett; Chilhampton Down.
Atriplex littoralis; Grass-leaved Orache; SPi/SL; South Newton, one plant at foot of house wall by A36, halophyte; 1st county record.
Avena sativa; Oat; LBe; Winterslow.
Botrychium lunaria; Moonwort; SS; Cricklade; North Meadow.
Campanula portenschlagiana; Adria Bellflower; WBS/JEO; Salisbury; walls and wall-pavement angles.
Campanula poscharskyana; Trailing Bellflower; JEO; Salisbury; walls and wall-pavement angles; 1st recent vice-county record.
Carex humilis; Dwarf Sedge; SPi/SL; Tidworth; Haxton Down, small tufts in species-rich CG3.
Carex viridula subsp. brachyrrhyncha; Long-stalked Yellow-sedge; PMW/AA/SFi; south of Winterslows; Bentley Wood, wet area of track.
Ceratochloa carinata; California Brome; SPi/SL; South Newton.
Cochlearia danica; Danish Scurvygrass; SPi; Trowbridge; Frome Road, road edge; BL; Salisbury; ST; Firsdown; Thorny Down A36.
Conyza sumatrensis; Guernsey Fleabane; SPi; Trowbridge; few plants near railway bridge in pavement-wall angles; WBS; Salisbury; Bratton; several large plants in flower at base of roadside wall; 1st county record.
Cotoneaster astrophoros; Starry Cotoneaster 'Donard Gem'; JEO; Salisbury; wall-top/ stonework; 1st county record.
Cotoneaster integrifolius; Entire-leaved Cotoneaster; JEO; Salisbury; St Martins Church, 2 seeded plants on stonework.
Cotoneaster sternianus; Stern's Cotoneaster; JEO; Salisbury; St Martins Church, 2 seeded plants at base of church wall.
Crocus vernus; Spring Crocus; LBe; Winterslow; 1st vice-county record.
Cyclamen hederifolium; Sowbread; LK/RL; Harnham; slope.
Dryopteris affinis subsp. affinis; Scaly Male-fern; WBS/RAi; Stourhead; Six Wells Bottom, woodland near pools; PMW; south of Winterslows; Bentley Wood, copse.
Echinochloa crus-galli; Cockspur; SPi/SL; Heytesbury; A36, a few.
Eranthis hyemalis; Winter Aconite; LBe; Winterslow; several on waste ground that have been there for years.
Erigeron karvinskianus; Mexican Fleabane; SPi; Trowbridge; a few plants in flower, wall-pavement angles; WBS; Salisbury; 1st vice-county record.
Euphrasia nemorosa; Eyebright; RL; Longbridge Deverill; Longbridge Hill; 1st recent county record.
Fritillaria meleagris; Fritillary; SS; Cricklade; North Meadow.
Fumaria officinalis subsp. wirtgenii var. minor; HE/JRM; Cholderton; Estate, pasture, spread along cultivated margin.
Galega officinalis; Goat's-rue; SPi; Plaitford, many plants on verge.
Glyceria notata; Plicate Sweet-grass; RL; Tisbury; Clay Hill Wood.
Hypericum x inodorum (H. androsaemum x hircinum); Tall Tutsan; JEO; Salisbury; Wall-pavement crevice; 1st vice-county record.
Juncus tenuis; Slender Rush; PMW; south of Winterslows; Bentley Wood; copse.
Lamiastrum galeobdolon subsp. argentatum; Garden Yellow-archangel; RL; Semley; Semley Hill Wood.
Lathyrus nissolia; Grass Vetchling; VH; Tisbury; two good sized clumps and one smaller one.
Lathyrus sylvestris; Narrow-leaved Everlasting-pea; LBe; Winterslow; 1 plant growing by track.
Lavandula x intermedia (L. angustifolia x latifolia); Hybrid Lavender; JEO; Salisbury; cathedral precincts, self-sown on wall top; 1st county record.
Lemna trisulca; Ivy-leaved Duckweed; JEO/SPi; Salisbury; River Avon.
Mahonia aquifolium; Oregon-grape; RL; Burcombe; scrub.
Molinia caerulea; Purple Moor-grass; SS; Compton; meadow.
Nothofagus alpina; Rauli; PMW/SY; south of Winterslows; Bentley Wood, copse, chalk pit; 1st county record.
Oxalis corniculata; Procumbent Yellow-sorrel; WBS; Salisbury.
Persicaria amplexicaulis; Red Bistort; JEO; Salisbury; St Martins Church, 3 patches, 2 on rough ground.
Persicaria bistorta; Common Bistort; SY; Rode; big clump on a roadside.
Petasites fragrans; Winter Heliotrope; PTh; Laverstock; White Bridge.
Pilosella aurantiaca subsp. carpathicola; Fox-and-cubs; JEO; Salisbury; cathedral precincts, extensive spread and satellites; 1st vice-county record.
Poa infirma; Early Meadow-grass; PDS; Larkhill; Stonehenge Visitor Centre, two patches in car-park; 1st vice-county record.
Potamogeton x salicifolius (P. lucens x perfoliatus); Willow-leaved Pondweed; WBS; Salisbury; River Avon, deep water.
Puccinellia distans; Reflexed Saltmarsh-grass; SPi; Studley Green; small clump on road verge; PMW; Whiteparish; Pepperbox Hill, roadside verge edge.
Quercus x rosacea (Q. petraea x robur); PMW/AA/SFi; south of Winterslows; Bentley Wood, coppiced tree now around 50 years.
Ranunculus penicillatus subsp. pseudofluitans; Stream Water-crowfoot; WBS; Salisbury; River Avon, plentiful.

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Rumex pulcher; Fiddle Dock; SPi; Bulford, plant on roadside bund, possibly in imported soil.
Rumex x ruhmeri (R. conglomeratus x sanguineus); WBS/JEO/SPi; Salisbury; River Avon; 1st vice-county record.
Sedum spectabile; Butterfly Stonecrop; PMW; Whiteparish; Common, probably introduced; 1st county record.
Silybum marianum; Milk Thistle; JSn; Alderbury.
Sparganium emersum; Unbranched Bur-reed; SS/RL; Compton Chamberlayne, meadows.
Stellaria pallida; Lesser Chickweed; DWr; Salisbury; cathedral grounds.
Thlaspi arvense; Field Penny-cress; BL; Yarnbury; A303.
Trifolium hybridum; Alsike Clover; LBe; Winterslow.
Valerianella locusta; Common Cornsalad; LBe; Winterslow.
Veronica x lackschewitzii (V. anagallis-aquatica x catenata); Water Speedwell; RAi; Longbridge Deverill; River Wylye, clumps along edge; SPi; Wilton; River Wylye, robust plants by river.
Viola tricolor; Wild Pansy; LBe; Winterslow.
Viscum album; Mistletoe; SPi; Tilshead; Westdown Camp, large plant on young Sorbus.

Do you know your vice-county?

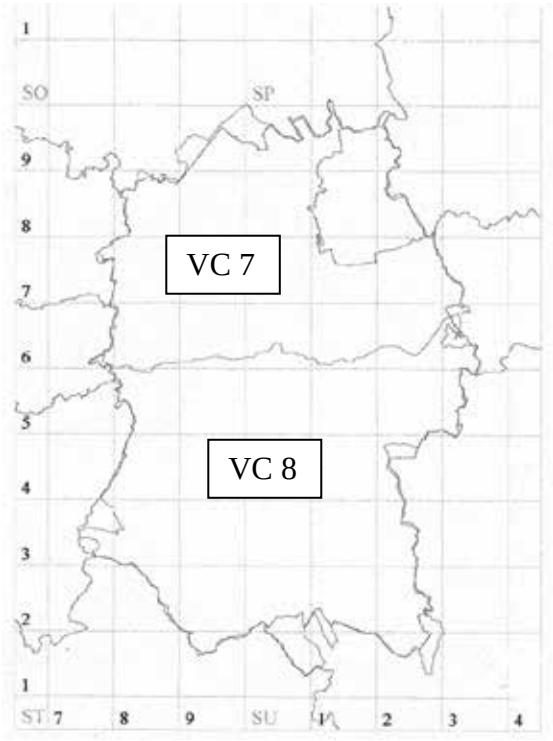
The BSBI has divided the country into vice-counties for purposes of botanical recording. Wiltshire, for example, is divided into two vice-counties, labelled 7 and 8. There are maps in the Wiltshire Flora which show the areas involved. However, it is not possible to be exactly sure from these maps whether a particular spot near one of the borders is within one of our vice-counties or not. It is possible to find out on the internet, so long as you have a reasonably accurate map reference. Enter the following address into your internet program - if you can be bothered

http://herbariaunited.org/gridrefVC/?gridref=SJ8398&do=search&search=get+VC

If you can't be bothered, search for "botanical vice-county boundaries" and, from the options that appear, select "Grid reference vice-county lookup". On the page that appears, type in the map reference, then click "Look up county or grid reference". You will be told the vice-county that it's in. There's also a local map that you can enlarge.

The following map shows the actual boundaries of our two vice-counties. These do relate to administrative county boundaries, but not exactly. We have lost bits to neighbouring counties and gained others. The darker lines show administrative boundaries and the lighter ones the vice-counties.

Boundaries of Wiltshire vice-counties



Adria Bellflower *(Campanula portenschlagiana)*

Flowers of Adria Bellflower (left) and Trailing Bellflower *(Campanula poscharskyana)* (right)

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