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Website: http://www.wiltsbotsoc.co.uk

A NATURE TRAIL AT MARLBOROUGH COLLEGE

Sean Dempster and Allison Wells

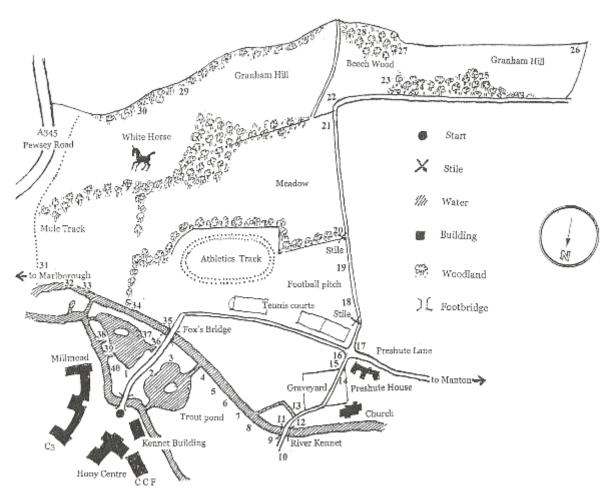
The nature trail

The Marlborough College Nature Reserve was established in 1972. At about the time of the millennial year, a nature trail was developed there by Sean Dempster and Allison Wells of the school Biology Department. It starts just inside the vehicular entrance to the grounds and the route is marked by numbered and arrowed discs on trees and posts. A booklet was written to guide visitors round the trail and a third edition appeared in 2012.

The nature trail is not open to the public, but can be visited by arrangement with Sean Dempster, on 01672-892240 or smdd@marlboroughcollege.org, who will also supply the booklet. It takes about an hour and a half to complete. In winter, walking boots or Wellingtons and a waterproof coat are advisable. Visitors are asked to stay well away from grazing cattle and sheep, and not to climb fences or pick wild flowers.

This article provides a guided tour of the trail and a list of the wild flowers and ferns. The booklet contains further helpful and interesting information, including the history of the nature reserve and lists of the birds and mammals there.

Route of the Marlborough College Nature Trail



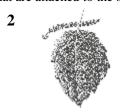
A tour of the trail

1. Birds & Mammals on large pond

See the display board for identification of common species

2. Grey Poplar (*Populus x canescens*)

The tree appears white due to the presence of down adhering to the lower side of the leaves. The grey poplar has grey bark that has deeply pitted, diamond-shaped lenticels, and is coarsely cracked at the base. This tree is male, but at the time of year when seeds are released from the capsules of female poplars, it is common to see the ground and surrounding vegetation thickly covered in white cotton filaments that are attached to the seeds.



3. Fish and Invertebrates on small pond

See the display board for identification of common species.

4. Crack Willow (Salix fragilis)

This tree's name is due to its brittle twigs that snap off with ease. It is easily recognised by its smooth shoots and its non-hairy, toothed leaves which usually have tiny glandular swellings where they join the stalk. Commonly found by rivers and in wet woods, it roots readily in wet mud or water. The dried bark of the Crack Willow contains a drug widely used in herbal medicine to reduce fever, and in the treatment of rheumatism, neuralgia and chills. It is closely related to salicylic acid, from which aspirin was developed.



5. Dogwood (Cornus sanguinea)

This small tree exhibits clusters of white flowers which have an unpleasant odour, attracting flies and beetles. The flowers are succeeded by small green berries which turn to purple/black in September and are exceedingly bitter. These berries yield oil that is used in France for soap making, and was once burned in lamps.



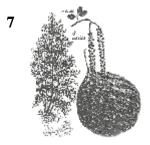
6. White Willow (Salix alba)

Named according to its silvery grey appearance, which is due to the silky hairs covering both sides of the leaf, this species is commonly used for basketry, as the twigs are not as fragile as the Crack Willow's. It has shorter leaves that usually lack obvious glandular swellings where they join the stalk.



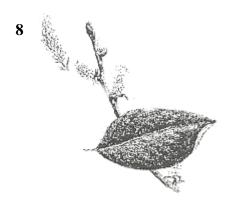
7. Alder (Alnus glutinosa)

The tree's deep roots help to stabilise river banks and the nitrogen fixing ability of the bacteria in the root nodules increase soil fertility. The Alder's leaves are covered with hairs that are sticky to touch, and the seeds are produced only when the tree is approximately twenty years old. The tree had a reputation for making the best charcoal for gunpowder mills, and is widely used by wood turners, carvers and cabinetmakers. Additionally, the wood was used to make early water pipes, and the soles of the Lancashire weavers' clogs.



8. Sallow (Salix caprea)

Sometimes referred to as the Goat Willow or Pussy Willow, it is the first willow to flower in the spring. The Sallow forms a large bush or small tree and when in bloom the tree attracts an astonishing collection of bees and moths due to its abundant pollen and nectar. The tree has oval leaves, with wavy edges and a broadish stalk.



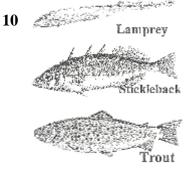
9. Sycamore (Acer pseudoplatanus)

Commonly known as the Great Maple, this tree was introduced in the fifteenth century. It has winged seeds that have enabled it to become widely distributed. The tree's sap contains a high concentration of sugar which is extruded through its leaves. Sycamores are very successful trees as they grow quickly and are tolerant of extreme conditions.



10. River Kennet

This famous chalk stream contains fish species such as brown and rainbow trout, grayling, bullheads, lampreys, eels and sticklebacks. The river rises near Uffcote, and flows east to Reading, where it joins the Thames.



11. Yew (Taxus baccata)

Noted for its longevity, it is often found in cemeteries, and some Yews around the country are believed to be over one thousand years old. The scarlet berries that ripen in September are an identifiable characteristic. Nearly all parts of the tree are poisonous, and increase in toxicity when cut (therefore should never be left on the ground). The berries are edible only if the seeds are spat out! Before the invention of gunpowder the timber was valuable for making bows. It is still used to decorate veneers and make fence and gate posts.



12. Hornbeam (Carpinus betulus)

In autumn the leaves turn yellow, then ruddy gold and then a rusty hue. Fruits appear in autumn and hang in a spray from the underside of the branches that makes it quite distinctive from other native trees. The Hornbeam's timber bums brightly, and was used as 'Hornbeam torches' at ancient Roman weddings. The hardness of the timber makes it suitable for making floors, and the mechanical parts of pianos.



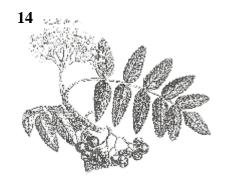
13. Western Red Cedar (Thuja plicata)

This species is planted on a small scale as a forest tree. Its light and durable timber makes it easy to work with. It is used for making ladders, rugby goal posts, timber clad houses and roof shingles. Western red cedar foliage, which smells like pineapple, is sold for making wreaths.



14. Mountain Ash / Rowan (Sorbus aucuparia)

In the past this was the most common tree planted in suburban gardens. It bears fruit the size of holly berries which, when ripe, are highly attractive to thrushes and blackbirds. The seeds are coated with a cartilaginous wall which protects them from digestive fluids.



15. Horse Chestnut (Aesculus hippocastanum)

Exhibits a nut-like seed (conker) that is bitter and eaten by cattle, deer and sheep. Due to the tree's rapid growth, its timber is too soft to be of value.

At this point it is worth taking a moment to observe the profusion of mosses, lichen and algae growing on the ancient headstones in this graveyard.



16. Cherry Laurel (*Prunus laurocerasus*)

Typical of this species are large, striking, dark violet to black berries from which it readily multiplies. The crushed leaves of the tree give off the volatile Prussic acid (HCN) which is used by entomologists in killing bottles. Because of the acid released from the leaves, woodchippers should not work with the species in confined spaces.



17. Silver Birch (Betula pendula)

Besides being one of the daintiest trees, the silver birch is the hardiest of all broadleaves. "Burelles' of twigs may appear high in the crown of some trees, looking like old birds' nests These are called Witch's Broom, and can be caused in various ways, including insects laying their eggs in the tree. Birch has both male and female flowers on the same tree.

From here one can see the Marlborough White Horse, built in 1804 by pupils from a school in the town.



18. Elder (Sambucus nigra)

In the past it was believed that this species had medicinal powers. The berries can be used for making a full bodied red wine. If the pith is removed from the younger shoots, a tube is available for making blow pipes, popguns or music pipes. Some consider the flowers offensive in odour, whereas others use them to make Elderflower champagne.



19. English Elm (Ulmus procera)

The once common Elm is a hedgerow tree that produces red, tufted flowers. Its leaves are covered in hairs that can cause a minor degree of irritation. The tree does not produce many fertile seeds, and therefore reproduces by growing abundant suckers round the base of the bole. The Elm population has been devastated by Dutch Elm Disease which is transmitted by the Elm bark Beetle. The beetle carries a fungus that blocks the phloem tubes which transport sugar around the tree. Here there is the trunk of a dead elm surrounded by saplings which have grown from suckers.



20. Blackthorn (Prunus spinosa)

The tree's branches and twigs turn in every direction and carry vicious spines, so a close encounter will result in one becoming scratched and developing sores which often become septic. It is a small native suckering shrub that is distinguished by a mass of white flowers in spring. Its fruits (sloes) ripen in October and are used to flavour gin, and the stems are used to make walking sticks.



21. Field Maple (Acer campestre)

Also known as the English Maple, the tree is typically bush-like and is commonly found in hedges throughout Europe. It is the only maple native to Britain and has rough greyish bark and small deep green leaves.



22. Hawthorn (Crataegus monogyna)

Otherwise referred to as the May or Quickthorn, this tree is commonly found in hedgerows. Spines are produced on the older branches, and the flowers are generally sweet scented. The red berries produced in autumn are eaten by many species of birds.



23. Hazel (Corylus avellana)

This species usually forms the undergrowth in woods and features zigzag twigs that are covered with reddish brown hairs. The timber of the Hazel is used widely for making walking sticks, divining rods and hoops for casks. The tree is managed by cutting the main trunk region, thereby promoting shoots of new growth, a practice known as coppicing.



24. Oak (Quercus robur)

Noted for being the largest and second longest lived of our native trees, the oak exhibits egg and cup shaped fruit called acorns. The tree, its leaves and fruit, are featured in many ancient myths and traditions. Ancient tribes worshiped in the Oak groves, and traditionally couples were married under an Oak tree. In the legends of many countries, the acorn was said to be man's first food. For centuries the hard durable timber of the Oak has been used in buildings; it was renowned for constructing Men-of-War fighting ships, with the 'crooks and knees' from the English Oak being especially prized. The, smaller wood provided firewood and charcoal; extracts from the bark were used for tanning and, in the autumn, acorns from the woods and forests provided food for pigs. Today the Oak is the paragon of the modern emphasis on the values of biodiversity. More species of insect are associated with Oak than with any other tree, or indeed any other plant, in Britain.

The Oakwood that you are now in is an example of semi-ancient woodland and contains a variety of characteristic herbs such as Bluebell, Wood Violet, Wood Anemone, Dog's Mercury, Arum (Cuckoo Pint), Toothwort, Celandine, and Moschatel (Town Hall Clock).

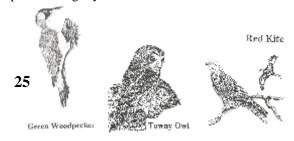


25. Granham Hill

At this point you are leaving the wood and entering Granham Hill. The land here is being managed under a Countryside Stewardship Scheme, which means that the use of inorganic fertilisers and pesticides is prohibited. As a result, the grassland, particularly on the slope to your right, contains a large variety of typical chalk down and species, such as Cowslip, Common Spotted Orchid, Primrose, and Salad Burnet.

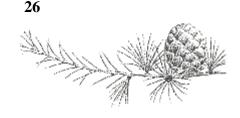
As you gain height and get better views across the Kennet valley, you should keep an eye out for the following birds: Buzzard, Kestrel, Sparrow Hawk, Red Kite, Jay, Green, Greater and Lesser Spotted Woodpeckers.

If you are walking the trail at dusk, listen out for the shriek of a Tawny Owl, and be prepared for an encounter with Foxes and Badgers as they embark upon their nightly search for food.



26, European Larch (Larix decidua)

Introduced to England prior to 1629, it is the only European conifer to shed all its leaves annually. Larches can either have reddish/purple or yellow flowers. After being pollinated these flowers change into egg-shaped cones. The timber is exceedingly durable and is used for tanning and the production of turpentine.



27. Beech (Fagus sylvatica)

Titled the 'mother of the forests' this species is characterised by smooth bark and autumn leaves which turn orange, and in the sun look like a blazing fire. Very few plants grow beneath a Beech wood, because the trees produce chemicals that inhibit the growth of other plants and, in addition, the canopy is so thick that little light gets through to the ground. The tree produces nuts that are rich in oil and are used for pig feeding. An additional characteristic is the growth of truffles on the roots of beeches.



28. Norway Spruce (Picea abies)

The common Christmas tree is easily recognised by its stiff sharp needles (which leave a distinct peg on the twig when they fall) and long cylindrical cones which hang from its branches. The species has a life span of approximately two hundred years and is common in forest plantations, game coverts, shelterbelts, farms and gardens.



29. Ash (Fraxinus excelsior)

This species' smooth twigs and pyramidal black buds arranged in opposite pairs are its most identifiable features. The Ash fruits have a twist in the wing, causing them to spin steadily and reach the ground seed-end first. The timber produced by the Ash is strong and elastic and is used for fashioning oars, axe and hammer shafts. Cattle are fond of Ash leaves, but if too much is consumed it degrades the quality of the butter produced.



30. Holly (*Ilex aquifolium*)

Cattle are aware of the high quality food produced by this species and therefore, in self defence, the tree evolved spines to keep its enemies at a distance. The female tree has scarlet, glossy berries which ripen in September and are used for Christmas decorations. The wood produced by the tree is very hard and white, and is often a substitute for box wood; when dyed black it is used in lieu of ebony.



31. Ivy (Hedera helix)

A renowned climber of walls and trees, it also frequently carpets the ground via tiny rootlets. Ivy blankets its host, but, contrary to common belief, does not cause it direct harm. However, a tree laden with Ivy is subject to wind rock and uprooting in winter gales. It ceases its climbing and flowers once the leaves are exposed to full sunlight.



32. Guelder Rose (Viburnum opulus)

Also known as the King's Crown or the Water Elder, this species' leaf buds are wrapped in scales. The inner flowers secrete nectar and the fruits of the rose are round and translucent red. The fruits are nauseous to taste, but are used in Scandinavia to complement a mixture of honey and flour.



33. Privet (Ligustrum vulgare)

This evergreen species is a tall shrub that reaches heights of about five metres. It is noted for its leathery, glossy leaves, white flowers (which are heavily scented) and oily, nauseating, black berries which are poisonous to children. It thrives on chalk or limestone soils.



34. Spindle (Euonymus europaeus)

This species is on the borderline between being a tree and a shrub, and is similar in appearance to the Buckthorn and Dogwood. The Spindle exhibits small clusters of insignificant green flowers known as cymes. By contrast, the fruits are conspicuous: bright pink integuments opening to reveal brilliant orange, shiny seeds. The Spindle's wood is hard and tough and is used for fashioning the tool that wool is wound on after spinning. Additionally, the young shoots are used to make fine charcoal for artists.



35. Lime (Tilia x europea)

The Common Lime is a hybrid of two species and is Europe's tallest broad-leaved tree, as well as being the largest of any of the world's forty five species of Lime. Larger trees have burred trunks and densely sprouting bases. The tree's flowers are yellowish green and pendulous. During the summer the leaves are often shiny with the honeydew from the aphids that swarm the trees. The honeydew drips into the soil below the tree and feeds nitrogen-fixing bacteria that provide nitrogen for the tree There are also intracellular bacteria within the aphids, which manufacture amino acids to make proteins for the aphids. This complex symbiosis involves four organisms, a little-known wonder of nature comparable to anything in the Amazonian rainforests. By the end of summer the foliage can sometimes become coated with grime sticking to the honeydew and blackened with sooty fungi. Lime wood is easily worked and used in wood carving.



36. Weeping Willow (Salix x sepulcralis 'Chrysocoma')

This tree, which is also a hybrid, is a popular ornament of riverside lawns, and is characterised by its slender hanging branches. Napoleon was fond of this species and it increased in popularity when he died because of the introduction of a young weeping willow on his grave at St Helena.



37. Italian Alder (Alnus cordata)

The tree grows rapidly (up to two metres a year) and is recognised by its dark green, glossy, heart-shaped leaves, the undersides of which have tufts of pale orange hair giving them a distinctive tinge especially during the summer months.



38. Dawn Redwood (Metasequoia glyptostroboides)

This deciduous conifer was thought to be extinct and was only known as a fossil until being rediscovered in south-eastern China in 1941. Now common in England, the tree is hardy and has a growth rate of about a metre per annum. The bark is orange brown in colour and flakes from the main stem. This tree is sometimes confused with the Swamp Cypress (see number 39), but differs in that its foliage appears earlier in the year and the leaves and shoots are generally arranged opposite one another.



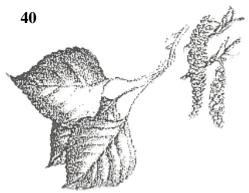
39. Swamp Cypress (Taxodium distichum)

This is a another deciduous conifer that generally prefers waterside sites, but grows fairly well on most soils. This species was introduced in 1640. Its bright green leaves, that are arranged alternately on the stem, change colour in autumn becoming fox-red or orange brown during late October. A feature of older trees in water or swamps are the woody knees (pneumatophores) which aid in the aeration of the roots.



40. Black Poplar (Populus nigra or hybrid)

One of the most characteristic features of the native sub-species of this tree is its burred bole, but most Black Poplars seen, are either of foreign origin or hybrids with North American species These trees exhibit leaves that can vary from triangular or diamond shapes to almost circular. The Black Poplar's buds are slightly sticky and have a faint resinous odour which is much stronger in the Balsam Poplar. Like all Poplars and Willows, the Black Poplars hybrids are dioecious which means that individuals are either male or female.



Congratulations: you have reached the end of the trail. Rest your weary legs on the bench behind you and admire the wildlife of the Trout Pond.

Herbaceous Plants, Grasses and some Woody Plants on the trail

Degree of commoness

1= single plant, infrequently seen or intermittent/ casual weeds

2= occasional

3= common or very common, at least on some parts of the trail at certain times of the year

Achillea millefolium Yarrow/Mifoil	2
Adoxa moschatellina Moschatel	2
Aegopodium podagraria Ground Elder	2
Aethusa cynapium Fool's Parsley	1
Agrostis stolonifera Creeping Bent	3
Alliaria petiolata Garlic Mustard	3
Alopecurus pratensis Meadow Foxtail	2
Angelica sylvestris Angelica	3
Anenome nemorosa Wood Anemone	3
Anthoxanthum odoratum Sweet Vernal Gras	ss 1
Anthriscus sylvestris Cow Parsley	3
Apium nodiflorum Fool's Watercress	3
Arctium minus Lesser Burdock	2
Arrhenatherum elatius Tall (False) Oat-	2
grass	
Arum maculatum Cuckoo Pint/Lords	s 3
and Ladies	
Asperula cynanchica Squinancywort	2
Asplenium scolopen- Hart's Tongue Fer	m 1
drium	
Aster lanceolatus Narrow-leaved	1
Michaelmas Daisy	
Aster salignus Common	1
Michaelmas Daisy	
Brachypodium False (Wood) Bro	me 2
sylvaticum	2
Briza media Quaking Grass	2
Bromopsis ramosa (Great) Hairy	2
(Wood) Brome	1
Bryonia dioicaWhite BryonyCallitriche stagnalisCommon Water-	3
starwort	3
Calystegia sepium Hedge Bindweed/	3
Bellbine	3
Campanula glomerata Clustered Bellflow	ver 2
Campanula rotundifolia Harebell	2
Capsella bursa-pastoris Shepherd's Purse	3
Carduus acanthoides Welted Thistle	3
Carex acutiformis Lesser Pond Sedge	-
Carex flacca Glaucous Sedge	1
Carex hirta Hairy Sedge	2
Carex pendula Pendulous Sedge	1
Carex riparia Greater Pond Sedge	
Centaurea nigra ssp Common Knapwe	
nemoralis	
Centaurea debauxii Rayed (Common)	3
i i i i i i i i i i i i i i i i i i i	1 -
Knapweed	

	T	-
Chamerion angusti-	Rosebay Willow-	2
folium Circaea lutetiana	herb/Fireweed	2
Circaea iutetiana	Enchanter's	2
Circina acadea	Nightshade	2
Cirsium acaulon	Stemless Thistle	3
Cirsium arvense	Creeping Thistle	3
Cirsium palustre	Marsh Thistle	1
Cirsium vulgare	Spear Thistle	3
Clinopodium vulgare	Wild Basil	2
Conopodium majus	Pignut	2
Convolvulus arvensis	Field Bindweed	3
Cornus alba	White Dogwood	1
	(originally planted)	
Cornus sanguinea	Dogwood	2
Cornus sericea	Red Osier (originally	2
(stolonifera)	planted but now	
	spreading)	
Crepis capillaris	Smooth Hawksbeard	2
Cymbalaria muralis	Ivy-leaved Toadflax	1
Dactylis glomerata	Cocksfoot	3
Dactylorhiza fuchsii	Common Spotted	1
	Orchid	
Deschampsia cespitosa	Tufted Hair-grass	3
Dipsacus fullonum	Teasel	1
Epilobium hirsutum	Great Willowherb	3
Epilobium montanum	Broad-leaved	2
	Willowherb	
Epilobium obscurum	Short-fruited	2
	Willowherb	
Epilobium parviflorum	Hairy Willowherb	2
Euphrasia officinalis	Eyebright	1
Festuca gigantea	Giant Fescue	2
Festuca rubra	Red Fescue	2
Ficaria verna	Lesser Celandine	3
Filipendula ulmaria	Meadowsweet	2
Fumaria officinalis	Common Fumitory	1
Galanthus nivalis	Snowdrop	1
Galeopsis bifida	Bifid Hemp-nettle	1
Galeopsis tetrahit	Common Hemp-	1
1	nettle	
Galium aparine	Cleavers/ Goose-	3
1	grass	
Galium mollugo	Hedge Bedstraw	1
Galium palustre	Marsh Bedstraw	1
Galium uliginosum	Fen Bedstraw	1
Galium verum	Ladies' Bedstraw	2
Gentianella amarella	Autumn Gentian/	1
	Felwort	
Geranium dissectum	Cut-leaved Crane's-	3
	bill	
Geranium pratense	Meadow Crane's-bill	2
Geranium pyrenaicum	Hedgerow Crane's-	1
F J. 2.000	bill	1
Geranium robertianum	Herb Robert	3
Geum urbanum	Wood Avens/Herb	3
Soun woutun	Bennet	
Glechoma hederacea	Ground Ivy	3
Glyceria maxima	Reed Sweetgrass	3
Hedera helix ssp helix	Ivy	3
som ssp neum	1 1	

Hedera helix ssp	Atlantic Ivy	2
hibernica		
Heracleum sphondylium	Hogweed	3
Holcus lanatus	Yorkshire Fog	3
Hordeum murinum	Wall Barley	1
Hypericum hirsutum	Hairy St John's Wort	2
Hypericum perforatum	Perforate St John's Wort	2
Hypericum tetrapterum	Square-stalked St.	1
	John's Wort	
Hypochaeris radicata	Cat's-ear	1
Juncus articulatus	Jointed Rush	1
Juncus bufonius	Toad Rush	1
Juncus effusus	Soft Rush	1
Juncus inflexus	Hard Rush	3
Lamium album	White Dead-nettle	1
Lamium purpureum	Red Dead-nettle	1
Lapsana communis	Nipplewort	2
Lathraea squamaria	Toothwort	1
Lathyrus pratensis	Meadow Vetchling	2
Leontodon autumnalis	Autumn Hawkbit	1
Leontodon hispidus	Rough Hawkbit	1
Leucanthemum vulgare	Ox-eye Daisy	2
Linum catharticum	Purging Flax	2
Lolium x boucheanum	Hybrid Rye Grass	1
(L. perenne x multi-		
florum)		
Lolium perenne	Rye Grass	3
Lotus corniculatus	Birdsfoot Trefoil	1
Luzula campestris	Field Wood-rush	1
Lycopus europaeus	Gypsywort	1
Lysichiton americanus	Skunk Cabbage	1
	(originally planted)	
Matricaria discoidea	Pineappleweed	3
Medicago lupulina	Black Medick	3
Mentha aquatica	Water Mint	3
Mercurialis perennis	Dog's Mercury	3
Myosotis arvensis	Field Forget-me-not	1
Myosotis scorpioides	Water Forget-me-not	2
Mysotis sylvatica	Wood Forget-me-not	2
Nasturtium officinale	Water Cress	3
Nasturtium x sterilis (N.	Hybrid Water Cress	1
officinale x micro-		
phyllum)		
Odontites verna	Red Bartsia	2
Oenanthe crocata	Hemlock Water Dropwort	3
Oxalis actosella	Wood sorrel	3
Persicaria maculosa	Redshank	2
Petasites hybridus	Butterbur	2
Phalaris arundinacea	Reed Canary Grass	3
Phleum bertolini	Lesser Timothy	3
Phleum pratense	Timothy	3
Phragmites australis	Common/Great Reed	2
Pimpinella saxifraga	Burnet saxifrage	2
Plantago lanceolata	Ribwort Plantain	3
Plantago major	Greater Plantain	3
Plantago media	Hoary Plantain	2
,		

Polygonum arenastrum	Equal-leaved	1
7.0	Knotgrass	
Polygonum aviculare	Knotgrass	2
Poa annua	Annual Meadow	2
	Grass	
Poa pratensis	Meadow Grass	2
Poa trivialis	Rough Meadow	3
	Grass	
Polypodium interjectum	Intermediate Poly-	2
	pody	
Polystichum aculeatum	Hard Shield Fern	2
Potentilla anserina	Silverweed	3
Primula veris	Cowslip	2
Primula vulgaris	Primrose	2
Prunella vulgaris	Self-heal	2
Ranunculus acris	Meadow Buttercup	3
Ranunculus repens	Creeping Buttercup	3
Ribes rubrum	Red Currant	3
Rosa canina	Dog Rose	3
Rosa rubiginosa	Sweet Briar	1
Rosa tomentosa	Downy Rose	1
Rubus caesius	Dewberry	2
Rubus corylifolius	Dewberry-	2
group	Blackberry hybrids	-
Rubus fruticosus	Bramble	3
Rubus idaeus	Raspberry	2
Rubus ulmifolius	Elm-leaved Bramble	2
Rumex acetosa	Common Sorrel	1
Rumex conglomeratus	Clustered Dock	3
Rumex crispus	Curled Dock	3
Rumex obtusifolius	Broad-leaved Dock	3
Rumex x ruhmeri	Hybrid Clustered	2
(R. conglomeratus x	Wood Dock	-
sanguineus)	Wood Book	
Rumex sanguineus	Wood Dock	3
Sanguisorba minor	Salad Burnet	2
Sanicula europaea	Wood Sanicle	1
Scabiosa columbaria	Small Scabious	1
Scrophularia auriculata	Water Figwort	2
Senecio aquaticus	Marsh Ragwort	2
Senecio jacobaea	Ragwort	2
Senecio yulgaris	Groundsel	1
Solanum dulcamara	Bittersweet/Woody	3
эдинин ишсиниги	Nightshade	3
Sonchus asper	Prickly Sowthistle/	3
sonenis usper	Milk Thistle	
Sonchus oleraceus	Smooth Sowthistle/	3
Sonenas oteraceus	Milkthistle	
Stachys sylvatica	Hedge Woundwort	3
Succisa pratensis	Devil's Bit Scabious	2
Symphytum officinale	Comfrey	2
Tamus communis	Black Bryony	1
		1
Thymus serpyllum	Wild Thyme	+
Trifolium dubium	Lesser (Yellow)	2
Tuifolium mi	Trefoil	2
Trifolium micranthum	Slender Trefoil	
Trifolium pratense	Red Clover	2
Trifolium repens	White Clover	3

Trisetum flavescens	Yellow (Golden)	1
	Oat-grass	
Urtica dioica	Stinging Nettle	3
Veronica anagallis-	Blue water Speed-	1
aquatica	well	
Veronica beccabunga	Brooklime	2
Veronica chamaedrys	Germander Speed-	3
	well	
Veronica filiformis	Slender Speedwell	2
Veronica x lackschwew-	Hybrid Water	1
itzii (V. anagallis-	Speedwell	
aquatica x catenata)		
Veronica serpyllifolia	Thyme-leaved	2
	Speedwell	
Vicia sepium	Bush Vetch	2
Viola reichenbachiana	Early Dog Violet	1

Acknowledgements

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Plants on the nature trail

Moschatel Toothwort
(Adoxa moschatellina) (Lathraea squamaria)





ABNORMALITIES IN PLANTS: RECENT FINDS

Wiltshire Botanical Society

Double Marsh Marigold



Abnormalities in Plants

Abnormalities in Plants, a 92-page book written by John Presland, Jack Oliver and Martin Barber, was published in 2009 by Wiltshire Botanical Society. It gives an account of the range of such phenomena in the wild and in cultivation, sets this in a historical background, discusses the purposes of this field of enquiry and looks at causes of particular phenomena. Many photographs and drawings are included. Though illustrated almost entirely by examples from Wiltshire, it is a general exploration of the subject the abnormalities described could have occurred almost anywhere. It is on sale at Summerfield Books (Tel 017684 84909) at a price in the region of £7 plus postage, and members wanting to order online or by telephone or requiring a professionally wrapped copy should apply there. However, there is a special offer for members of Wiltshire Botanical Society who are happy either to purchase it at society meetings (by prior arrangement - 01225 865125) at £4 or to send to John Presland (175c Ashley Lane, Winsley, Bradford-on- Avon, Wiltshire BA15 2HR) a self-addressed envelope for A4 papers stamped at the rate for large letters weighing 251-500 gm and a cheque for £4 made out to Wiltshire Botanical Society.

Society members have reported on a number of further abnormalities since the book was finalised and taken photographs of them. This new information is presented below. To save undue repetition, all descriptions and photos not otherwise attributed are John Presland's.

Double flowers

A double flower is one in which the number of conspicuous flower parts is greatly increased. These are popular in gardens. Though this makes them unnatural history, they are still interesting. The Marsh Marigold (*Caltha palustris*) at the National Trust garden called "The Courts" at Holt, is particularly dramatic. It looks as though stamens and carpels have been replaced by petals, which are consequently of far greater number than usual.

A double Japanese Anemone in a garden at Freshford, near Bath, had developed extra petals without replacing other parts. A double Sneezewort (Achillea ptarmica) occurred in a public garden in Bath.

Abnormal colour forms

These are also commonly introduced. Unfortunately, they can't be illustrated in black and white, so words will have to do. Jack Oliver noted a Leyland Cypress (*X Cupressorcyperis leylandii*) with golden foliage.

Japanese Anemone at Freshford



Sneezewort in public garden in Bath



There is a range of colour variations of these hybrids of species of *Chamaecyparis* and *Cupressus* in cultivation, such as forms with yellow leaves rather than green. Jack has also reported on Sycamore (*Acer pseudoplatanus*) variants diversely referred to as var. *purpureum*, 'atropurpureum' or 'Spaethii' with leaf undersides in shades of purple. One of these was seen on a Society visit to Salisbury. Colour abnormalities are also common in wild plants. Pat Woodruffe found a wild Scarlet Pimpernel (*Anagallis arvensis*) with salmon-coloured flowers near Stockbridge in Hampshire

Variegation and chimeras

Variegation is a colour abnormality in which unusual colors and the normal colours are both together in a pattern. A number of cultivated plants with variegated leaves in Winsley illustrate this. The first is an Ivy cultivar, white to yellow in the middle of the leaf and green at the edges. Then there is a variety of Winter Creeper (Euonymus fortunei), probably the variety 'Silver Queen'. A variegated Yellow Archangel Lamiastrum galeobdolon ssp argentatum) with green edges and centre with silvery blotches in a Winsley garden has also been recorded in the wild in various parts of Wiltshire as a naturalised and spreading escape, often in woodland Sometimes a dotted pattern may emerge, as in a shrub in a Winsley

garden which may have been a Cherry Laurel or its relative.

Variegated Ivy at Winsley



Variegated Winter Creeper at Winsley



Variegated Yellow Archangel in a Winsley garden



Variegated Winsley shrub with dotted pattern



Variegation on leaves of Wild Privet (*Ligustrum vulgare*) was observed in Winsley, with irregular yellow patches on the green leaves.

Variegation on leaves of Wild Privet



Sharon Pilkington found a Giant Fescue (Festuca gigantea) in the wild on a Society outing to Gloucestershire with a white stripe along the otherwise green leaf.

In many of these cases, the surface and internal parts are genetically of different colours, and internal parts erupt through the surface in some places to produce the pattern. Green is one of the colours in the leaf examples here, the other being white in some and yellow in others. The interior can burst through in the centre, or in the middle, or in some other pattern, as the photos of examples here show. This phenomenon is also often referred to as a chimera. Where the difference is between internal and external parts it is called a periclinal chimera. In other examples the difference is found in a sector of a plant - a sectorial chimera. Imagine the stem cut across, and one sector of this affected. It also affects all parts growing on or from that sector. John Presland, on holiday in France, came across a cultivated Cherry Plum (Prunus cerasifera 'Atropurpurea' or Prunus pissardii) with differently coloured leaves on different branches, presumably because one branch had arisen from an abnormal sector.

Variegated Giant Fescue (Festuca gigantea)



Variegation can also occur in flowers, as in *Geranium pratense* 'Splishsplash', which has white petals with blue radial streaks.

Geranium pratense 'splishsplash' in a Winsley garden

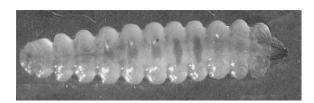


Not all variegations are chimeras. For instance, colour changes can occur as a result of disease, as in Horse-chestnuts suffering from the leaf mining caterpillars of the alien moth *Cameraria ohridella*, reported by Jack Oliver and John Presland in different parts of the county.

Horse Chestnut attacked by leaf mining caterpillars



Caterpillar of $Cameraria\ ohridella\$ - Photo Jack Oliver



Abnormalities of number

Sometimes plants have abnormal numbers of some of their parts. This happens in double flowers, but there are other examples. Tim Kaye found a Twayblade with four instead of the usual two leaves on the stem at Stanton Park near Swindon. John Presland came across the wild Hairy Rocket (Erucastrum gallicum) with six instead of the usual four petals on Salisbury Plain. Geoffrey and Ann Appleyard sent a photo of Carex nigra seen on the WBS trip to the Gower in south Wales, with five female spikes on more or less the same place on the stem where normally there is only one.

Abnormal division

Daphne Cox of Winsley came across a Tulip with forking of the stem to produce 2 flowers instead of one. It was in a bunch of cut flowers she bought. Tim Kaye found a Perennial Rye-grass which appeared to have a branched inflorescence instead of the usual simple spike and a nettle with a forked leaf from Stanton Park near Swindon. Pat Woodruffe reported a Ribwort Plantain with several small heads protruding from the base of the main one (Wren and chicks Plantain) at Dean Park near the Hampshire border, a form also noted by Jack Oliver at Lockeridge. Lobing of the fronds of Hart's-tongue (formerly Phyllitis scolopendrium, now Asplenium scolopendrium) was observed in a Winsley garden, and lobing of the petals of Creeping Buttercup (Ranunculus repens) by Ron Hurst in his garden in Bradford-on-Avon.

Hairy Rocket with six petals.



Carex nigra with five female spikes together - Photo Ann and Geoffrey Appleyard



Twayblade with four leaves - Photo Tim Kaye



Tulip with forked stem



Perennial Rye-grass with branched Inflorescence - Photo Tim Kaye



Forked leaf on a nettle - Photo Tim Kaye



Wren and chicks Plantain - Photo Pat Woodruffe



Creeping Buttercup flower with lobed petals



Hart's-tongue lobed and normal fronds



Fasciation

In fasciation, several structures of the same type are fused into one, often resulting in grotesque forms. Tim Kaye found examples in a Dandelion in his garden in Swindon and a Scentless Mayweed (Tripleurospermum maritimum) on an arable weed survey at Bishopstone, Paul Darby in Red Bartsia on Salisbury Plain, John Presland in Purple Toadflax (Linaria purpurea) in Winsley and Ron Hurst in Digitalis parviflora in a nursery and in Roseroot (Sedum roseum) in his garden, all featuring the inflorescence and, in at least three cases, its stem The foxglove had a flattened inflorescence with flowers side by side instead of round the circular stem. John Presland came across a fasciated fruit in Wilson's Honeysuckle (Lonicera nitida). A delivered bouquet of cut flowers brought cockscombs into the Presland household - Celosia cristata, with its bright red, flattened fan-shaped inflorescence composed of hundreds of tiny individual flowers and topped by a crest of convoluted ridges made up of many overlapping bract-like structures which may be distorted flowers or flower stalks.

Fasciation in a Dandelion - Photo Tim Kaye



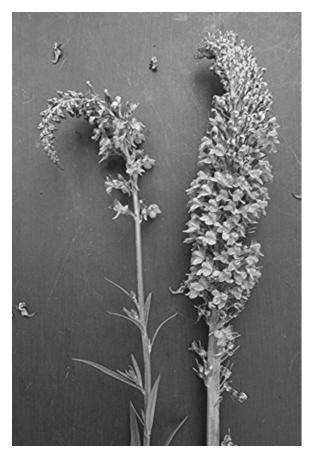
Fasciation in Scentless Mayweed - Photo Tim Kaye



Fasciation in Red Bartsia - Photo Paul Darby



Normal and fasciated Purple toadflax



Digitalis parviflora normal



Digitalis parviflora fasciated



Fasciation in Roseroot



Fasciated fruits of Lonicera nitida



Fasciated inflorescence of Cockscomb (Celosia cristata)



Proliferation

Proliferation is the development of plant parts in unusual places. Westonbirt features a Maple which has produced roots where the trunks had grown in a prostrate way and touched the soil. New leaves have appeared at the rooting sites, so are also in an unusual place.

Maple with rooting trunks



The original book on abnormalities reported a Witch's Broom on Birch, but did not give its scientific name - *Taphrina betuli*. Dave Shorten has found a different species on Hornbeam near Bradford-on-Avon - *Taphrina carpini*. Witch's brooms are commonly caused by a fungus, which brings about proliferation of twigs to form the characteristic shape in Dave Shorten's photograph.

Witch's Broom on Hornbeam - Photo Dave Shorten



Other abnormalities of shape

Most of the abnormalities described so far have been distortions of shape. There are, however, other shape variations which are not easily labelled as specific types. For instance, Pat Woodruffe found a Common Cat's-ear (Hypochaeris radicata) at Bentley Wood northeast of Salisbury with an enlargement of the stem over a short distance, with a return to normal above, as though the plant had grown abnormally thick for a short time. Joan Davies provided photos of a Poplar Oak planted in a Marlborough garden in the 1970s - so-called because of its regular conical outline, but also having twisted branches and a distinctive leaf shape.

A Foxglove in Daphne Cox's Winsley garden, among many normal foxgloves, looked like one of the manifestations of the *heptandra* mutant described

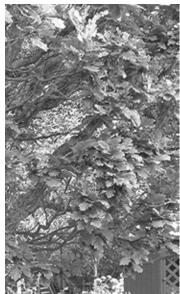
Abnormal Cat's-ear - Photo Pat Woodruffe



Poplar Oak at Marlborough - Photos Joan Davies







fully in *Abnormalities in Plants*, though somewhat different from earlier examples in the same garden. The earlier example had a range of flower abnormalities, which represent different stages in a sequence which each flower progresses through as the plant grows. To simplify, the youngest (at the top of the inflorescence) had no corolla (the tubular coloured part); the next a corolla in the form of a single strip; then the upper half of the corolla broadened, sometimes becoming two-lobed; then it broadened further, sometimes becoming three-lobed; then the lower half of the corolla started to develop; and finally the upper and lower halves joined to varying extents to approximate to a normal flower.

The above sequence and the flower forms involved are very variable. The recent new example had split petals, but still maintained an attractive experience. It is interesting that an apparently identical plant is currently being sold in nurseries as a new variety. It has presumably arisen spontaneously elsewhere than in Winsley and been taken up for commercial purposes under the name *Digitalis* 'Serendipity'.

Heptandra mutant of Foxglove (*Digitalis* 'Serendipity')



Other abnormal foxgloves may also be due to the same mutation. Plants with a pleated flower, a closed flower and a small and largely yellow flower have all cropped up in Daphne Cox's garden.

Many other abnormalities arise from insects laying their eggs in or on the plant, which is then

Foxglove with pleated flower



Foxglove with closed flower



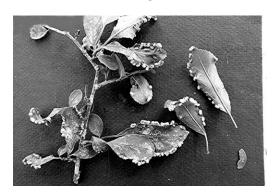
Foxglove with small and largely yellow flower



stimulated to grow abnormally in a way that enables the young to have protection and/or feed off its tissues till they reach adulthood. Thus, John Presland noted in Winsley a Beech leaf with small yellow galls in which gall-midge larvae (probably Hartigiola annulipes) feed, while in Leamington Spa, he observed globular pink galls of the gall-midge Dasyneura sisymbrii, contrasting with the yellow petals, which appeared to have taken over some of the flower buds of Creeping Yellow Cress (Rorippa sylvestris). Gall-mites were responsible for two more of his finds - Eriophyes (=Phytoptus) similis on leaves of Blackthorn (Prunus spinosa) at Winsley and Aceria erinea for the swellings on the leaves of a Walnut (Juglans regia) at Holt. The strange swellings of acorns called Knopper galls on a Winsley Common Oak (Quercus robur) host the larvae of the gall-wasp Andricus quercusalicis.

Galls can take a variety of forms. The simplest, like the one on Walnut, is just a patch of glandular hairs which protect the larvae while they feed on the ordinary plant tissues, though the hairs line a hollow on the underside of the leaf which results in a raised area on the upper surface. In all the others the larvae feed on specialised tissues produced by the plant. The one on Blackthorn is a shallow pit fringed with hairs on the leaf underside but causing a raised area above. In the Beech example, it is a pouch projecting from the leaf upper surface but with an opening on the lower. In the yellow cress and oak, the galls completely enclose the insect, which has to bite its way out.

Blackthorn leaves with galls



Beech leaf with galls



Galls in inflorescence of Creeping Yellow Cress



Walnut with leaf galls



Knopper galls on Common Oak



Future recording

Plant abnormalities can crop up anywhere at any time. The editor welcomes reports and photographs, which could form the basis of a future update.

VASCULAR PLANTS IN WILTSHIRE

Activities and highlights in 2011

Sharon Pilkington

Slender Bedstraw (Galium pumilum) - Photo Sharon Pilkington



New and interesting

As usual, many interesting new records were forthcoming from across the county. Most of these were introduced and naturalised species, including **Wall Bedstraw** *Galium parisiense* in Corsham (Darrell Watts), **Hard Fescue** *Festuca brevipila* in Swindon (Jack Oliver), and **Indian Pokeweed** *Phytolacca acinosa* in Ramsbury (Joy Newton). Our native **Limestone Fern** *Gymnocarpium robertianum* was last found in North Wiltshire in limestone quarries near Box and Conkwell in the nineteenth century but a new population was spotted by pteridologist Nick Hards flourishing in a well at Great Chalfield Manor, not far away.

From Pewsey, Jane Brown and Paul Darby reported a strange-looking **mouse-ear hawkweed**, which turned out to be a first VC record of the hybrid between the widely naturalised Fox-and-cubs *Pilosella aurantiaca* and our native Mouse-ear Hawkweed *P. officinarum*.

2011 was the year that I discovered that many of us (including the county recorder) have been overlooking a native species for many years when sharp-eyed Jan Burnell spotted Narrow-leaved Meadow-grass Poa angustifolia growing in abundance on a road verge near Tilshead. Previously, this grass had been seen occasionally on crumbling walls, where it looks very much like Red Fescue Festuca rubra when it is not in flower. Jan's find got me thinking about the possibility of finding it elsewhere in dry grassland, particularly across Salisbury Plain, where there were no previous records. Sure enough, once we started looking, it turned out to be rather frequent, especially in slightly enriched chalk grassland in valley bottoms - where it also often grows with Red Fescue. I anticipate many more records from Salisbury Plain Training Areas and other downland sites in the future!

In 2010 I was invited by ecologists working for British Waterways to take a look at some habitat management work that had been done to de-silt some of the balancing lagoons at the top of the Caen Hill flight of the Kennet & Avon Canal. Removal of mud and vegetation had encouraged many aquatic plants to flourish again in these undisturbed pools, including several stoneworts, which are superb indicators of clean, unpolluted water. I returned in October 2011 and was stunned to find one of the lagoons was choked with the Nationally Scarce *Nitella mucronata*. This is now possibly the only known population of this beautiful stonewort in North Wiltshire, so it is heartening to see how effective BW's management work has been.

National Projects (BSBI)

Below are reports on two national projects - the Atlas Updating Project and the Threatened Plants Project.

Atlas Updating Project

This is going to be one of the BSBI's big national initiatives for the next 7 years or so, in order to collect data for a new national Atlas, to be produced probably in about 2025. Every county recorder has been asked to survey every 10km grid square in his or her vice-county and in Wiltshire we made a flying start in 2011. A number of voluntary recorders have started to compile lists of all species of plant in their chosen square(s). This is important because naturally people want to collect records of the notable species and in many instances the common ones are ignored, distorting the picture of how widespread they actually are and masking any significant declines or increases. Sue Fitzpatrick submitted an incredible 14,000 records from her square (near Salisbury) alone and has now advanced to start a second one. I recently ran a workshop which encouraged more Wiltshire Botanical Society members to get involved in Atlas recording, and will be putting together information packs and identification events to provide volunteers with support.

Threatened Plants Project - Year 4

Another suite of species were chosen by the BSBI in 2011, including **Dodder** Cuscuta epithymum, **Burnt Orchid** Neotinea ustulata and **Slender Bedstraw** Galium pumilum. Once again, WBS members stepped forward to help survey previously known populations of these species and as in previous years there were rather mixed results. In Westbury, we had no rain at all in April, and many of the downs across the county were parched at a time when they should have been lush and green. Burnt Orchid is a species that appears to be rather sensitive to dry spring conditions and consequently it was very shy to appear at some of its previous sites.

Slender Bedstraw is one of Wiltshire's rarest plants, with only one confirmed population, in one of the remotest parts of Salisbury Plain's Central Impact Area. Other records on the plain and elsewhere are probably erroneous. In June Sarah Grinsted, Paul Skelton and I set out to resurvey the known site at Slay Down, numbering perhaps 15–20 plants in 2007. We walked in from the south, a way we had not been before, and in doing so realised that there is a population of many hundreds or even thousands of plants of G. pumilum scattered across species-rich downland pockmarked with old shell craters and anthills. Along the way we found Frog Orchids Coeloglossum viride, Ling Calluna vulgaris, Basil Clinopodium acinos, Narrow-leaved Meadow-grass and lots of other species, so we killed two birds with one stone by also completing a survey card for the Atlas project.

Frog Orchid Coeloglossum viride





Dodder Cuscuta epithymum



PLANT RECORDS 2011

Bur Chervil (Anthriscus caucalis)







Explanatory notes

- Ÿ The following is a selection from WBS records received in 2011. 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.
- Only those new to their 10 km square in the 2010 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 vicecounty 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.
- Names are those in the 3rd edition of *New Flora* of the British Isles (Clive Stace 2010).

Recorders

AA - Anne Appleyard

ASm - A Smith

BL - Barbara Last

DG - Dave Green

DWa - D Watts.

FM - F Mitchell

GBa - Graham Bathe

GM - G Mahout

GY - Gwyneth Yerrington

JBr - Jane Brown

JBu - Jan Burnell

JC - J Cole

JEO - Jack Oliver

JFo - Jenny Ford

JN - Joy Newton

JP - John Presland

JRM - John Moon

LBe - Leif Bersweden

LMo - Lindsay Moore

MMa - Matt Maynard

NHd - N Hards

PD - Paul Darby

PM - Piers Mobsby

PMW - Pat Woodruffe

RAi - Richard Aisbitt

RDu - Rosemay Duckett

RL - Rob Large

SBu - Samantha Bull

SDa - Stephen Davies

SFi - Sue Fitzpatrick

SG - Sarah Grinsted

She - Sonia Heywood

SPi - Sharon Pilkington

TKa - Tim Kaye

TM - Tony Mundell

WBS - Wiltshire Botanical Society (excursion)

Vc 7

Aconitum napellus; Monk's-hood; TKa; Swindon; Coate Water Country Park.

Alcea rosea; Hollyhock; JEO; Quemerford; road-sides.

Alchemilla filicaulis subsp. vestita; Common Lady's-mantle; JEO; Marlborough; wall-road angles and roadsides.

Alchemilla mollis; Garden Lady's-mantle; SPi; Corsham; Hartham Park; naturalised.

Anchusa officinalis; Alkanet; TKa; Swindon.

Anisantha madritensis; Compact Brome; DG/WBS; Chittoe; Spye Park; arable field edges and untended ground, 3 locations.

Anthriscus caucalis; Bur Chervil; RAi; Wroughton; Bassett Down; one plant at edge of rape field.

Arrhenatherum elatius var. bulbosum; False Oat-Grass; WBS; Rushall; plentiful in arable edge.

Asparagus officinalis; Asparagus; JEO; East of Marlborough; Savernake Forest, NW; seedlings on drives from gardens.

Azolla filiculoides; Water Fern; GY/JP; Bradfordon-Avon; River Avon; masses along river, and also at Limpley Stoke downstream and Melksham upstream.

Betula pubescens; Downy Birch; PD; Minety; Brownockhill Plantation.

Brassica juncea; Chinese Mustard; JP; Winsley; self-sown from birdseed dispenser; 1st recent county record.

Bromus racemosus; Smooth Brome; LMo; Kingsdown; Ashley Fields.

Calystegia silvatica; Large Bindweed; SDa/JC/RDu/JP/RAi; Braydon; protected roadside verge.

Carex elata; Tufted-sedge; RL; Ashton Keynes; Cotswold Water Park; 1st county record.

Carex strigosa; Thin-spiked Wood-sedge; SPi; Upper Seagry; one at edge of dirt track.

Centaurea cyanus; Cornflower; TKa; Hannington; possibly sown.

Centaurea montana; Perennial Cornflower; JEO; Quemerford; roadside.

Ceratochloa carinata; California Brome; SPi; Corsham; Hartham Park.

Ceratophyllum demersum; Rigid Hornwort; JP; Limpley Stoke; river.

Cichorium intybus; Chicory; TKa; Highworth.

Conyza canadensis; Canadian Fleabane; SPi; Corsham; Hartham Park.

Cotoneaster horizontalis; Wall Cotoneaster; RL; Ashton Keynes; Cotswold Water Park.

Cotoneaster x suecicus; C. dammeri x conspicuous (**Swedish Cotoneaster**); JEO; Lockeridge; fieldside; Marlborough; stonework, alleyway, and carpark; 1st county record.

Cotoneaster x watereri; C. frigidus x salicifolius (Waterer's Cotoneaster); JEO; Marlborough; walltop seedling; Clatford; fence-line seedling.

Dactylorhiza praetermissa; Southern Marshorchid; ASm; Broad Blunsdon; Clattinger Farm.

Dactylorhiza x grandis; D. fuchsii x praetermissa; SDa/JC/RDu/JP/RAi; Braydon; protected verge.

Dryopteris affinis; Scaly Male-fern; PD; Minety; Brownockhill Plantation.

Dryopteris affinis subsp. affinis; Scaly Male-fern; RAi/She/RDu; Chippenham; Birds Marsh Wood; SPi; Oaksey; Oaksey Wood.

Dryopteris borreri; Scaly Male-fern; JEO; Lockeridge; West Woods; Manton; ancient well; East of Marlborough; Savernake Forest, NW; woodland; Lockeridge; West Woods; NHd; East of Marlborough; Savernake Forest; Bedwyn; Common; all 1st recent vice-county records.

Echinops bannaticus; Blue Globe-thistle; JEO; Quemerford; roadside ditch; 1st county record.

Epilobium palustre; Marsh Willowherb; RL; Ashton Keynes; Cotswold Water Park.

Erodium moschatum; Musk Stork's-bill; DWa; Corsham; in grass patch; 1st recent county record.

Eschscholzia californica; Californian Poppy; JP; Winsley; road gutter.

Euphorbia lathyris; Caper Spurge; JEO; Leigh Delamere; roadside.

Fallopia baldschuanica; Russian-vine; JEO; Quemerford; roadside tangle.

Festuca brevipila; Hard Fescue; JEO; Swindon; field margins; 1st county record.

Festuca glauca sens. str; JEO; Swindon; seedlings of landscaped blue grass; 1st county record.

Foeniculum vulgare; Fennel; JEO; Pennyhooks; roadside, 2 locations.

Forsythia x intermedia; F. suspense x viridissima; JEO; Savernake Forest; 1st county record.

Fraxinus angustifolia subsp. oxycarpa; JEO; Preshute; 1st county record.

Fumaria muralis subsp. boraei; Common Ramping-fumitory; SPi; Marlborough; several in spoil for bridge work.

Galium palustre subsp. elongatum; Great Marshbedstraw; SDa/JC/RDu/JP/RAi; Braydon; protected roadside verge; 1st recent vice-county record.

Galium parisiense; Wall Bedstraw; DWa; Corsham; a few in pavement/wall; 1st county record.

Geranium pusillum; Small-flowered Crane's-bill; JEO; Manton; hedge base & gravel parking area.

Geranium rotundifolium; Round-leaved Crane's-bill; TKa; Highworth; Pentylands Country Park.

Geranium versicolor; Pencilled Crane's-bill; JEO; Lockeridge; 1 roadside plant remaining.

Guizotia abyssinica; Niger; JP; Winsley; self-sown from birdseed dispenser; 1st county record.

Gymnocarpium robertianum; Limestone Fern; NHd; Great Chalfield; Manor; in well in garden; 1st county record.

Hydrocotyle ranunculoides; Floating Pennywort; SBu; Wootton Bassett; pond; 1st county record.

Hypericum androsaemum; Tutsan; RAi; Broad Town; beside overgrown footpath.

Hypericum maculatum; Imperforate St John's-wort; JEO; Lockeridge; West Woods.

Impatiens capensis; Orange Balsam; JP; Bradford-on-Avon; canal, clumps at intervals.

Juglans nigra; Black Walnut; JEO; Lockeridge; seedlings from nuts planted by grey squirrels.

Juncus effusus var. subglomeratus; RAi; Swindon; Kingshill Canal; towpath, bank and water.

Lamiastrum galeobdolon subsp. montanum; Yellow Archangel; JEO; Lockeridge; West Woods and elsewhere; shaded hedge and common, 3 locations.

Lemna minuta; Least Duckweed; JEO; Leigh Delamere; carpeting surface of large pond.

Linaria purpurea; Purple Toadflax; JEO; Bowden Hill; roadside, 2 locations.

Linaria repens; Pale Toadflax; DG/WBS; Chittoe; Spye Park; garden borders and untended ground.

Lolium x boucheanum; L. perenne x multiflorum; JEO; Calne; common on fringes of flax field.

Lonicera xylosteum; Fly Honeysuckle; JEO; Clatford; in woodland, Lockeridge; both bird-sown from gardens; JP; Winsley; hedgerow, allegedly been there many years.

Lysimachia punctata; Dotted Loosestrife; DG/WBS; Chittoe; Spye Park; woodland.

Meconopsis cambrica; Welsh Poppy; JEO; Lacock; wall-road angles, common, 2 locations, var. aurantiaca in one.

Mimulus guttatus; Monkeyflower; TKa; Swindon; Coate Water Country Park.

Mimulus x burnetii; M. cupreus x guttatus; JEO; Lockeridge; garden escape in damp pavement cracks, seedlings; 1st county record.

Misopates orontium; Weasel's-snout; SPi; Marlborough; several brought in on spoil for bridge work.

Nitella flexilis sens. lat; Smooth Stonewort; SPi; Ashton Keynes; CWP lakes; 6 locations; 1st county record.

Nymphoides peltata; Fringed Water-lily; JP; Devizes; canal, large patches.

Oenothera glazioviana; Large-flowered Evening-primrose; JEO; Cherhill; roadsides; Quemerford; roadsides.

Ornithogalum umbellatum; Garden Star-of-Beth-lehem; RL; Corsham; Mynte Wood.

Persicaria bistorta; Common Bistort; RL; Ashton Keynes; Cotswold Water Park.

Petunia x hybrida; P. axillaris x integrifolia; JP; Bradford-on-Avon; wall/pavement angle; 1st county record.

Philadelphus coronarius; Mock-orange; RL; Corsham; Mynte Wood.

Phytolacca acinosa; Indian Pokeweed; JN; Ramsbury; many in churchyard and nearby verges.

Pilosella aurantiaca subsp. aurantiaca; Fox-and-cubs; JEO; Ogbourne St Andrew; roadsides.

Pilosella aurantiaca subsp. carpathicola; Fox-andcubs: JP: Winsley: allotment.

Plantago coronopus; Buck's-horn Plantain; JEO; Swindon; road edge; TKa; Swindon; 3 locations.

Plantago lagopus; Hare's-foot Plantain; JP; Winsley; self-sown from birdseed; 1st county record.

Poa angustifolia; Narrow-leaved Meadow-grass; SPi; Marlborough; meadow and stonework.

Polypodium interjectum; Intermediate Polypody; RAi/She/RDu; Chippenham; Birds Marsh Wood; tree bases, ditch-side; NHd; North Newnton.

Prunus domestica subsp. insititia; Damson/ Bull-ace; RL; Aldbourne; Aldbourne Chase; 1st recent county record.

Ranunculus peltatus; Pond Water-crowfoot; MMa/LMo; Bremhill; meadow.

Nasturtium microphyllum; Narrow-fruited Water-cress; RAi; Swindon; excavated pond.

Rumex x dufftii; R. obtusifolius x sanguineus; JEO; East of Marlborough; Savernake Forest Arboretum; 2 locations, one in semishaded woodland, one 7ft high.

Sedum telephium; Orpine; RL; Ashton Keynes; Cotswold Water Park.

Sparganium emersum; Unbranched Bur-reed; TKa; Swindon; lagoons.

Taraxacum sellandii; JEO; Uffcott; road verges.

Triticum aestivum; Bread Wheat; DG/WBS; Chittoe; Spye Park; re-seeded arable field.

Valerianella carinata; Keeled-fruited Cornsalad; WBS; Ludgershall; Collingbourne Wood; verge of track.

Veronica brachysiphon; Hooker's Hebe; JEO; East of Marlborough; Savernake Forest, NW; seedlings on drives from garden shrub; 1st county record.

Vicia faba; Broad Bean; SPi; Marlborough.

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Adiantum capillus-veneris; Maidenhair Fern; SFi; Salisbury; naturalised on channel sides.

Alchemilla mollis; Garden Lady's-mantle; SFi/AA; Laverstock; Bourne valley; Amesbury; track by Boscombe Down.

Alopecurus x brachystylus; A. geniculatus x pratensis; RL; Mere; Mere Park Meadows; 1st county record.

Amaranthus bouchonii; Indehiscent Amaranth; PMW/AA/SFi; Brickworth; several plants on edge of arable field; 1st county record.

Anchusa arvensis; Bugloss; SPi; Westbury; verge reprofiled by Wessex Water; SFi; Amesbury; track by Boscombe Down.

Anthemis cotula; Stinking Chamomile; SPi; Westbury; masses in field corner.

Aquilegia vulgaris; Columbine; SFi; Salisbury; garden escape, 2 locations.

Arrhenatherum elatius var. bulbosum; False Oat-Grass; WBS; Rushall; plentiful in arable edge.

Atriplex littoralis; Grass-leaved Orache; SPi; Salisbury; A36; single plant beside road.

Azolla filiculoides; Water Fern; FM; Quidhampton; ditch along edge of SSSI and backs of gardens.

Betula pubescens; Downy Birch; SFi; Wilsford.

Borago officinalis; Borage; SFi; South Newton; Keeper's Lodge; field margin.

Brassica rapa; Turnip; LMo; Southwick; Country Park.

Calystegia silvatica; Large Bindweed; SFi; South Newton; Stoford; SF/AA; Chilhampton.

Campanula portenschlagiana; Adria Bellflower; SFi; Salisbury; 2 locations.

Carduus x stangii; C. crispus x nutans (x dubius); SFi; Gomeldon; 1st recent county record.

Carex divulsa subsp. leersii; Many-leaved Sedge; SFi; Little Durnford; reserve; Salisbury; Clarendon; 2 locations; Stratford sub Castle; Old Sarum; by paths; Salisbury; Avon valley; 3 locations; South Newton; SPi; Dilton Marsh; 2 on driveway.

Catapodium rigidum; Fern-grass; WBS; Tilshead; Tilshead Down.

Centaurea montana; Perennial Cornflower; SFi; Salisbury; planted and self-sown.

Centaurium pulchellum; Lesser Centaury; SPi; Warminster; Imber Clump; small clump in highly disturbed ground.

Centranthus ruber; Red Valerian; SFi; Laverstock; Bourne valley; Salisbury; 2 locations.

Ceratophyllum demersum; Rigid Hornwort; JP; Limpley Stoke; river.

Chara vulgaris; Common Stonewort; SPi; Tilshead; Copehill Plantation.

Cirsium x medium; C. acaule x tuberosum; JRM; Tidworth; Salisbury Plain Training Area Haxton Down.

Cotoneaster horizontalis; Wall Cotoneaster; SFi; Little Durnford; reserve; self-sown.

Crocosmia x crocosmiiflora; C. aurea x pottsii (Montbretia); SFi; Netherhampton; Boys Meadow withybed.

Cyclamen hederifolium; Sowbread; SFi/AA; Hurdcott; Upper Woodford.

Dactylorhiza x grandis; D. fuchsii x praetermissa; WBS; Warminster; Smallbrook Meadows Reserve.

Danthonia decumbens; Heath-grass; WBS; Winterbourne Earls; Figsbury Ring.

Doronicum pardalianches; Leopard's-bane; SFi; Salisbury; Clarendon Way.

Dryopteris affinis; Scaly Male-fern; SFi/AA; Little Durnford; reserve; Salisbury; Clarendon; 2 locations.

Dryopteris affinis subsp. affinis; Scaly Male-fern; NHd; Pewsey; Jones' Mill.

Dryopteris borreri; Scaly Male-fern; NHd; Wootton Rivers; New Mill; wood.

Epilobium lanceolatum; Spear-leaved Willow-herb; RL; West Knoyle.

Eranthis hyemalis; Winter Aconite; BL; Salisbury; SFi/AA; Great Durnford; Lake, Staircase Plantation; 2 large patches in woodland.

Erigeron acris; Blue Fleabane; GBa; Wilton; Wilton Common; field.

Erigeron karvinskianus; Mexican Fleabane; SFi; Salisbury: 2 locations.

Erodium cicutarium agg; Common Stork's-bill; SFi; Gomeldon; Coombe Bissett; Tottens Down.

Erysimum cheiranthoides; Treacle-mustard; SFi/PMW; Cholderton; abundant to occasional in

stonecurlew plots; JRM; Cholderton; Estate; all over stone curlew plot.

Euphorbia x pseudovirgata; E. waldsteinii x esula (**Twiggy Spurge**); SFi; Salterton; 3 patches, each 2x2m+; Laverstock; Bourne valley; throw-out.

Foeniculum vulgare; Fennel; SFi/AA/PMW; West Harnham; LBe; Harnham; public footpath.

Forsythia x intermedia; F. suspense x viridissima; LMo; Westbury; White Scar Hanging; 1st county record.

Fumaria muralis subsp. boraei; Common Ramping-fumitory; SFi; Salisbury; in pots in garden.

Galeopsis angustifolia; Red Hemp-nettle; WBS; Rushall; probably 20-30 plants in cereal crop margin over 200 metres.

Galinsoga parviflora; Gallant Soldier; SFi; Laverstock; Bourne valley; Salisbury; 2 locations; 1st recent vice-county records.

Galium x pomeranicum; G. mollugo x verum; TM; Warminster; Cotley Hill; 1 plant with both parents within a few metres; 1st county record.

Geranium x oxonianum; G. endressii x versicolor (**Druce's Crane's-bill);** SFi; Hurdcott; garden waste dumped; Upper Woodford; Great Durnford; Ham Wood and northwards; 1 clump each side of path.

Geranium pusillum; Small-flowered Crane's-bill; JEO; Alton Priors; 2 plants.

Geranium rotundifolium; Round-leaved Crane's-bill; SPi; Dilton Marsh; sizeable patch at lane edge.

Geranium sanguineum; Bloody Crane's-bill; SFi; Gomeldon; with other garden escapes.

Hesperis matronalis; Dame's-violet; LMo; Southwick; Country Park.

Hieracium vulgatum; Common Hawkweed; JP; Donhead St Mary; wooded roadside verge.

Hyacinthoides x massartiana; H. non-scripta x hispanica (Hybrid Bluebell); PMW; Whiteparish; 2 locations.

Hypericum calycinum; Rose-of-Sharon; AA/ SFi/ PMW; Winterbourne Gunner; Porton Down, Battery Hill; big patch.

Kickxia elatine; Sharp-leaved Fluellen; SPi; Tilshead; Westdown Plantation.

Lagarosiphon major; Curly Waterweed; SPi; Thoulstone; neglected golf course pond.

Lamiastrum galeobdolon subsp. argentatum; Garden Yellow-archangel; SFi; Netherhampton; Boys Meadow; Stapleford; Laverstock; Down.

Lamium hybridum; Cut-leaved Dead-nettle; JRM; Amesbury; field edge.

Lathyrus latifolius; Broad-leaved Everlasting-pea; SPi/GM; Edington; naturalised on road verge.

Lathyrus nissolia; Grass Vetchling; WBS; Warminster; Smallbrook Meadows Reserve; Tilshead; Tilshead Down; Tilshead; quite abundant in places on protected verge.

Lemna trisulca; Ivy-leaved Duckweed; WBS; Warminster; Smallbrook Meadows Reserve.

Linum usitatissimum; Flax; SFi; Coombe Bissett; Great Yews; PMW; Whiteparish; Dean Hill; edge of wheat crop.

Lonicera nitida; Wilson's Honeysuckle; SFi/AA; Little Durnford; Camp Down.

Luzula multiflora; Heath Wood-rush; RL; Pott-erne.

Lysimachia punctata; Dotted Loosestrife; SPi; Upton Scudamore; established along disused road.

Lysimachia vulgaris; Yellow Loosestrife; BL; Broadchalke; River Ebble.

Mahonia aquifolium; Oregon-grape; SFi; Little Durnford; Keeper's cottage; Salisbury; naturalised; Upper Woodford.

Meconopsis cambrica; Welsh Poppy; SFi; Little Durnford; reserve; naturalising; SFi; Salisbury; 2 locations.

Medicago sativa subsp. sativa; Lucerne; SFi; Netton; Great Durnford; AA/SFi; Allington; Porton Down.

Medicago sativa nothosubsp. varia; Sand Lucerne; PMW; Whiteparish; 1 plant.

Mentha x villosa; M. spicata x suaveolens (Applemint); PMW; Whiteparish; Earldoms; on path.

Hypopitys monotropa; Yellow Bird's-nest; SPi; Westbury; Beggar's Knoll; about 20 plants at edge of beech wood.

Muscari armeniacum; Garden Grape-hyacinth; SFi; Laverstock; Bourne Valley; planted, spreading. Myosotis ramosissima; Early Forget-me-not; JFo/SG/PM/SPi; Warminster; Ladywell.

Myosotis sylvatica; Wood Forget-me-not; SPi/GM; Edington; naturalised on a grassy bank.

Ononis spinosa; Spiny Restharrow; WBS; Rushall; SPi/JFo; Market Lavington; Salisbury Plain Training Area Chirton Down.

Onopordum acanthium; Cotton Thistle; LBe; Farley; a few in arable field.

Oxalis articulata; Pink-sorrel; SFi; Salisbury; 1st county record.

Phacelia tanacetifolia; Phacelia; SFi/AA; Chilhampton; occasional in broad field margins under higher stewardship.

Pilosella x stoloniflora; P. aurantiaca x office-inarum; JBr; Pewsey; parents grow in same area; 1st county record.

Plantago coronopus; Buck's-horn Plantain; SFi; Salisbury; roadside and pavement; AA/SFi/PMW; Newton Tony; Porton Down, Tower Hill.

Poa angustifolia; Narrow-leaved Meadow-grass; JBu; Tilshead; plentiful on protected verge; SPi/JFo; Market Lavington; Salisbury Plain Training Area Chirton Down; SPi; Fittleton; reversion sward; WBS; Tilshead; plentiful in bits of protected verge.

Polypodium interjectum; Intermediate Polypody; NHd; North Newnton.

Pyrus communis; Pear; AA/SF/PMW; Newton Tony; Porton Down, Tower Hill plantation.

Raphanus raphanistrum subsp. raphanistrum; Wild Radish; SFi/AA; South Newton; Amesbury; Amesbury Down; Lower Woodford; Smithen Down; SFi/AA; South Newton; Camp Hill; frequent in field margin under higher stewardship.

Ribes sanguineum; Flowering Currant; SFi; Salisbury; Lower Bemerton.

Rorippa palustris; Marsh Yellow-cress; SPi; Thoulstone.

Rosa micrantha; Small-flowered Sweet-briar; SFi; Little Durnford reserve; Salisbury; Cockey Down; Stratford sub Castle; Old Sarum; several plants on ramparts; Middle Woodford; Newton Hill; Little Durnford; reserve; 5 locations; AA/SFi; Winterbourne Gunner; Porton Down, Battery Hill.

Rosa spinosissima; Burnet Rose; AA/SF/PMW; Winterbourne Gunner; Porton Down, Battery Hill; large patch; 1st county record.

Sagina apetala; Annual Pearlwort; RL; Stourton; Stourhead Woods East.

Salvia verbenaca; Wild Clary; PMW/AA/SFi; Brickworth; several.

Setaria viridis; Green Bristle-grass; PMW; Whiteparish; Earldoms; edge of maize crop; 1st recent vice-county record.

Silene noctiflora; Night-flowering Catchfly; AA/SFi/PMW; Winterbourne Gunner; Porton Down, Sisymbrium orientale; Eastern Rocket; SPi; Devizes; a few near Sainsbury's.

Solanum lycopersicum; Tomato; SFi; Salisbury; edge of pavement; 1st recent vice-county record.

Soleirolia soleirolii; Mind-your-own-business; SPi/GM; Edington.

Sparganium emersum; Unbranched Bur-reed; SFi/AA; Little Durnford.

Stellaria neglecta; Greater Chickweed; SPi; Chapmanslade; hundreds on lane verge.

Symphytum grandiflorum; Creeping Comfrey; SFi/AA; Little Durnford.

Symphytum x uplandicum; S. asperum x officeinale (Russian Comfrey); WBS; Warminster; Smallbrook Meadows Reserve.

Trifolium incarnatum subsp. incarnatum; Crimson Clover; SFi; South Newton; Keerper's Lodge; edge of field margin.

Trifolium micranthum; Slender Trefoil; PMW; Whiteparish; Common.

Triticum aestivum; Bread Wheat; SFi/AA; Ford; Laverstock; Bourne valley; SFi; Homington.

Typha angustifolia; Lesser Bulrush; RL; East Knoyle; Mere Park Meadows.

Valerianella carinata; Keeled-fruited Cornsalad; LBe; Winterslow; road verge.

Verbascum lychnitis; White Mullein; SFi; Laverstock; Bourne valley; 1st recent county record.

Verbena officinalis; Vervain; AA/SFi/PMW; Winterbourne Gunner; Porton Down, Battery Hill.

Vicia faba; Broad Bean; SFi/AA; Wilton; Camp Hill; 1st vice-county record.

X Festulolium loliaceum; Festuca pratensis x Lolium perenne; SPi; Tilshead; Chapperton Down.