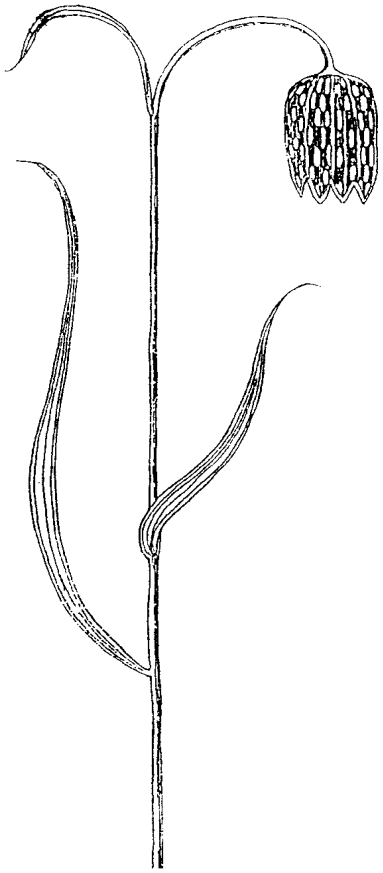
WILTSHIRE BOTANY



JOURNAL OF THE WILTSHIRE BOTANICAL SOCIETY

ISSUE NO. 11, FEBRUARY 2010

ISSN 1460-4612

WILTSHIRE BOTANY

Journal of the Wiltshire Botanical Society

Issue No. 11, February 2010

CONTENTS

	Page
Editorial	1
Pepperbox Hill, Salisbury, Wiltshire: Survey of scrub *Anne Appleyard and Pat Woodruffe*	3
Keys to some Wiltshire plants: *Rumex* *Epilobium* *Lemnaceae* *Ken Adams*	14
Healer, super-food and free: In praise of the humble nettle *(Urtica dioica)* *Zoe Hawes*	20
Galanthus nivalis forma 'pleniflorus' P.D. Sell *Jack Oliver*	23
Reedy look-alikes in Wiltshire: A guide to identifying: Common Reed (*Phragmites australis)* Reed Canary-grass (*Phalaris arundinacea)* Reed Sweet-grass (*Glyceria maxima)* Sweet Flag (*Acorus calamus)* Yellow Iris (*Iris pseudacorus)* Bur-reeds *(Sparganium* species Bulrushes *(Typha* species*)* *Ken Adams*	25
Wiltshire botany elsewhere	29
Plant records 2008	36

Wiltshire Botany 11, 2010, pages 1-2

EDITORIAL

Three-cornered garlic *(Allium triquetrum)* (p. 37)

The current issue

This issue includes a very varied group of articles. A major study is the survey of the scrub habitats of Pepperbox Hill near Salisbury. The land is owned by the National Trust, which commissioned Wiltshire Botanical Society to carry out the survey. It was organized and largely carried out by Pat Woodruffe and Anne Appleyard, and this article is a summary of their report.

Ken Adams provides several keys for groups of plants often found difficult to identify - Willow-herbs (*Epilobium)*, Duckweeds (*Lemnaceae)*, Docks *(Rumex)* and a collection of plants of reed-like appearance. The focus is on species recorded in Wiltshire, but some are included that could well turn up here, so that we can look out for them,

An interesting new departure for the journal is a contribution by Zoe Hawes on the herbal properties of one of our commonest plants - the Stinging Nettle. Zoe is a medical herbalist and nurse, living and practising near Bath, She describes some of the folk tales that persist about the Stinging Nettle and recent studies that are shedding light on its many properties, often supporting the wisdom of old.

The cultivated Snowdrop variety *Galanthus nivalis* forma 'pleniflorus' P.D. Sell, is now widespread in the wild. Jack Oliver describes a study of its distribution in the Kennet Valley, where it is often abundant despite appearing not to produce seeds.

While most writing about botany in Wiltshire is found in *Wiltshire Botany* and Wiltshire Botanical Society's Newsletter, relevant articles and other publications periodically occur elsewhere. In another innovatory contribution a collection of summaries of and/or extracted information from such publications is presented. It is hoped to make this a regular feature. Summaries of such publications will be most welcome. In this issue we include information from two articles on trees, one on the effect of climate change on Wiltshire fungi, one on the frequency of *Minuartia hybrida* on Salisbury Plain, an account of John Ounsted's botanical library, notebooks and correspondence, an article on orange-trunked trees in Savernake Forest, a case study of the Wiltshire Fritillary meadows, information on the flora of dry stone walls and a report of a field meeting at Clatford Arboretum.

Finally, the usual selection from a year's botanical records is included - for 2008 this time. The selection for 2007 was published in the Society's *Newsletter*, Issue 33, Winter 2008/2009, pages 19-22, because there was no issue of *Wiltshire Botany* last year.

Photographs in this issue were taken by the editor unless otherwise stated.

The next issue

Contributions on any topic are invited for the next issue. However, one theme which it is particularly hoped to develop is biodiversity, a term for the variety of wildlife which we ought to be maintaining and enhancing. It refers to the survival of a large number of species of living things, of the different communities of which they form a part, and of the environments which these species and communities require. It's a very live topic nationally at the moment. Guidance was provided in the Society's *Newsletter,* Issue 34, Summer 2009, page 27. Briefly, however, what I have in mind for a contribution can be summarized as:

- The writer selects an area for study - the home village or town or valley, or an area of particular interest.
- The study area is described - perhaps with a map.
- The types of habitat found are listed, e.g. meadows, woodlands, road verges, walls, rubbish tips, neglected gardens, surface of Water Board reservoir, waste ground, building sites, etc, etc. Again a map could be helpful.
- A description of each type of habitat and/or site, including its size, location, geographical features, the most numerous plants and how it is managed.
- A list of the rarer and/or more interesting plants that are found in addition to the main ones.
- Any special conservation status, and any available information about Local Authority plans for it.
- Any ideas about what may be needed to conserve its natural history interest.

The editor will be pleased to advise and encourage anyone who is interested in contributing but has anxieties about the task.

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.

Did you know?

Purple Loosestrife ***(Lythrum salicaria)*** arrived on the eastern seaboard of North America in the early 1800s. It now forms solid stands which seem to be self-replacing and permanent, and it has conquered millions of acres of wetlands and displaced native species, reducing some to the brink of extinction. It has prodigious fecundity, good seed dispersal and vigorous growth. In Europe it is plagued by a whole specialised fauna of herbivorous insects, which keep it in check. However, not one of the North American insects has developed a taste for it - they eat North American plants.

Japanese Knotweed ***(Fallopia japonica***), a worry to some pepop[le in Britain, has its native habitat on Mt Shimagare in Japan, where it dominates the barren craters.

Records of Frog Orchid ***(Coeloglossum viride)***

The records received in 2008 included no new 10 kilometre square occurrences for Frog Orchid, and these are the only records included in the selection in this issue. Readers may, however, be interested to learn that what we regard as one of our special plants was recorded in 10 new 2km squares.

Frog Orchid ***(Coeloglossum viride)***

Wiltshire Botany 11, 2010, pages 3-13

PEPPERBOX HILL, SALISBURY, WILTSHIRE: SURVEY OF SCRUB

Anne Appleyard and Pat Woodruffe

Introduction

Pepperbox Hill, owned by the National Trust, lies adjacent to the A36 south-west of Salisbury (National Grid Reference SU 224248). It was designated as part of the Brickworth Down and Dean Hill SSSI by the Nature Conservancy (Natural England) in 1951 for its high quality chalk grassland with nationally restricted plant and butterfly species. At that time, the SSSI, including Pepperbox Hill, was also of considerable importance as one of the largest colonies of regenerating juniper in Hampshire or Wiltshire. Since then, significant changes have taken place to the plant communities on Trust land and, in 2006, the Trust commissioned members of Wiltshire Botanical Society (WBS) to carry out a survey of scrub habitats. Survey work was completed in the autumn of 2006 and the report produced in January 2007 (Wiltshire Botanical Society 2007). This paper is a summary of that report with some minor updates. Pepperbox Hill shows the succession from bare chalk through juniper scrub to yew woodland. The aim of the survey was to determine the distribution, species diversity and condition of the various areas of scrub on the reserve to assist management decisions related to maintenance of the balance between grassland, scrub and woodland. The presence of juniper was already well documented (see section on juniper) but past reports of some unusual roses were not specific in terms either of location or quantity. It is for the National Trust, in collaboration with Natural England, to decide on the significance of each of the stages represented and how to manage to achieve the given aims. In submitting a detailed account of the species present in the scrub, WBS hoped to have contributed to this discussion and helped in the decision making process.

The site enjoyed open public access for much of the last century and there are many accounts of the children of Whiteparish being taken there by wagon for Sunday School outings (Chase and Munro 2000). It is believed that the site was grazed by cattle until World War II but since then management has been sporadic. Photographs of the western part of the site exist dating from 1955, when the scrub was low and

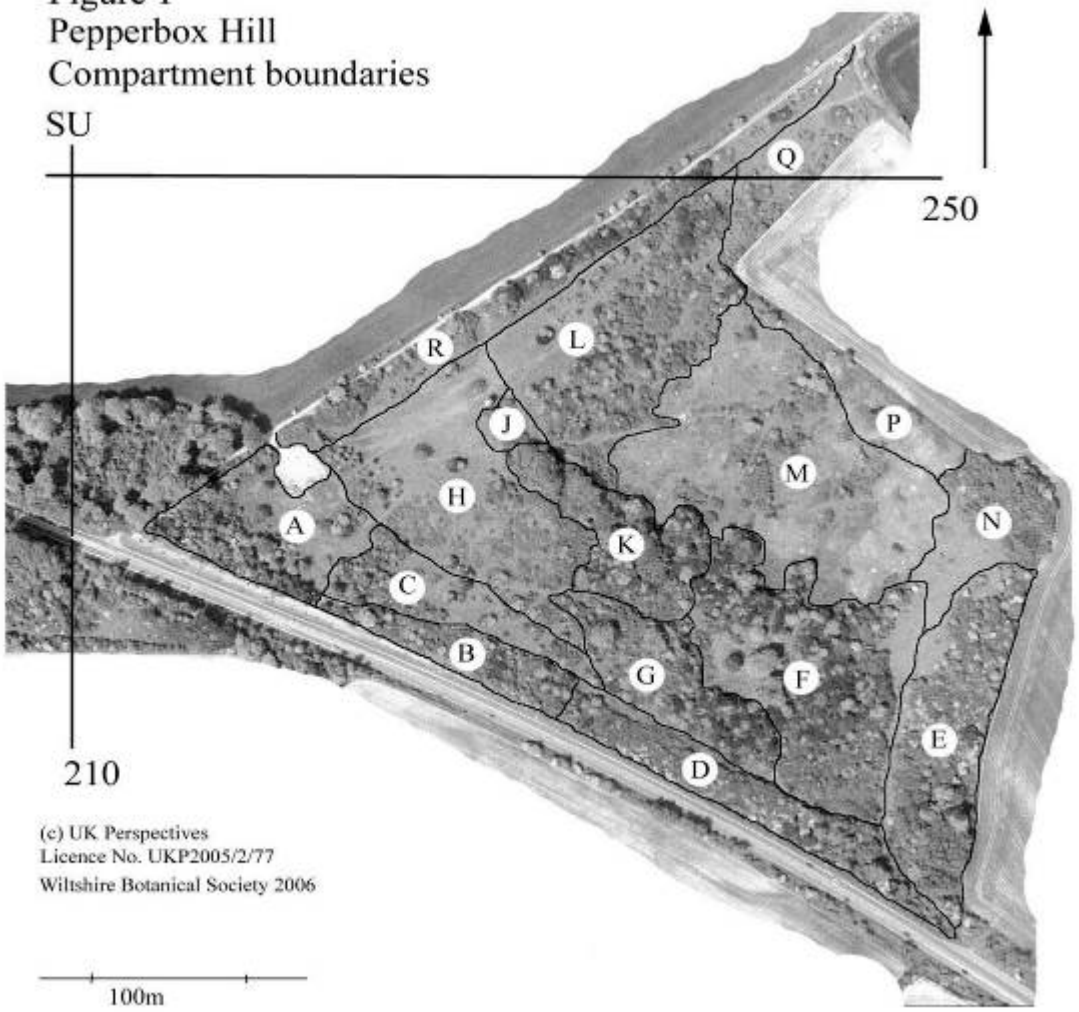
The scrub at Pepperbox Hill - view looking east from the folly

the juniper young. It is possible to speculate that extensive regeneration occurred after the cessation of grazing in the 1930s and continued, in the case of juniper, for some 30 or more years. Other scrub species have continued to expand their range within the site and to invade the grasslands. The more easterly and southerly areas were mature scrub in 1972, when Pat Woodruffe first became familiar with the reserve. The paths that permeated the scrub can be picked out on the aerial photograph (Figure 1) and seen on the ground by the tightness of the sward and range of chalk grassland species which still survives in it. To the east of Eyre's Folly, better known locally as 'The Pepperbox' and shown by a dark circle above the J in Figure 1, mechanical clearance of an extensive area of scrub, regenerating after previous clearances, was carried out during the period of the survey. Grazing by a small number of Belted Galloway cattle was subsequently reintroduced, but it was too soon to assess the effects of this. Reintroduction of grazing has, however, resulted in Natural England changing their Condition Assessment for this part of the SSSI from 'Unfavourable' to 'Unfavourable recovering' in respect of the chalk grassland.

Methodology

For ease of survey and description, the site was divided into sixteen compartments (Figure 1). A list of all tree and shrub species was compiled for each compartment, together with their abundance using the DAFOR scale (Dominant, Abundant, Frequent, Occasional, Rare). Detailed notes were made on vegetation structure and condition and used to generate descriptions for each compartment, together with annotated plans overlain onto aerial photographs. Management suggestions were made for each compartment.

Figure 1
Pepperbox Hill
Compartment boundaries



The scrub and woodland communities on the site were classified according to the National Vegetation Classification, which is widely used in nature conservation, research and land use planning. The NVC results from a 15 year research programme to provide a comprehensive classification of British plant communities, largely in response to the need for a systematic basis for the selection of habitats for conservation. It covers all natural, semi-natural and major artificial habitats in Great Britain (excluding

Northern Ireland), and is published as *British Plant Communities* (Ed J. S. Rodwell) in a five volume series. *Volume 1 Woodlands and Scrub* (1991) and *Volume 3 Grasslands and Montane Communities* (1992) are relevant in the current context. The volumes include distribution maps for most communities and sub-communities. They also provide information on floristic variation and its relationship to important environmental influences. A number of the plant names used in the NVC to designate plant communities have subsequently been changed. Those used in the books have been retained here to avoid confusion, but current valid names are given in brackets where appropriate.

Scrub and woodland communities

Using the National Vegetation Classification, the most important and diverse scrub communities on Pepperbox Hill can be assigned with confidence to the *Viburnum lantana* sub-community of *Crataegus monogyna - Hedera helix* scrub W21d (Wayfaring tree sub-community of Hawthorn-Ivy scrub). This is described in *British Plant Communities Vol 1 Woodlands and Scrub* (Rodwell 1991), as the most distinctive and species-rich kind of hawthorn-ivy scrub, in which wayfaring tree, dogwood *(Cornus sanguinea*) and wild privet *(Ligustrum vulgare*) are constant species and juniper (*Juniperus communis*) is more frequent than elsewhere. Buckthorn (*Rhamnus cathartica*) and spindle *(Euonymus europaeus*) may also occur, as they do on this site. Cover of hawthorn and bramble is often lower than in the other sub-communities and blackthorn *(Prunus spinosa*) is also less frequent. Roses, including *Rosa micrantha* and *R. rubiginosa*, with *R. arvensis* and *R. canina* agg. are described as conspicuous in the sub-community. Traveller's joy *(Clematis vitalba)* and black bryony (*Tamus communis*) are also characteristic. Dewberry *(Rubus caesius)* may occur in the early stages of colonisation of grassland by this type of scrub. Yew *(Taxus baccata*) and whitebeam *(Sorbus aria)* may be frequent. While not restricted to chalk soils, many of the characteristic shrub species are best represented on chalk, as here. Juniper and young yews tend to be associated with shallower, drier soils on steeper, more exposed slopes. The soils on which W21d is found are characteristically base-rich and calcareous and are often classic rendzinas, where excessive drainage and impoverishment are combined with extreme base-richness. Since many of this community's characteristic species have strongly continental affinities, it is best represented on chalk in the south and east, although it occurs on other limestone bedrocks as far north as the Lake District. Hazel (*Corylus avellana*) favours deeper soils and this probably explains its localised occurrence on Pepperbox Hill. Elder *(Sambucus nigra*) is local within the W21d sub-community and often associated with disturbed and enriched sites such as in the vicinity of rabbit burrows, as observed on this site.

The results of the current survey of Pepperbox Hill indicate that the most diverse of the scrub communities are good examples of the W21d scrub type. This occurs in almost all compartments (Table 1), although in some it is localised and may, for example, occur only in a narrow fringe as a woodland edge habitat. In some compartments, the scrub occurs in a mosaic with species-rich chalk grassland (CG7 *Festuca ovina - Hieracium pilosella (Pilosella officinarum) - Thymus praecox (Thymus polytrichus)* grassland).

The north-west edge of Cpt A (Figure 1) is considered to be the *Hedera helix - Urtica dioica* (Ivy - nettle) sub-community of W21 *Crataegus - Hedera* scrub (W21a). This is characterised as species-poor scrub with a dense canopy dominated by hawthorn or a mixture of hawthorn, blackthorn and elder. There may be patches or a marginal fringe of bramble and dog rose and occasional saplings of ash and hazel. Suckers of elm *(Ulmus* sp) may dominate some stands, as they do in part of the compartment here. The field layer is species-poor and dominated by ivy. In comparison with the juniper, yew and other species characteristic of W21d, the dominance of hawthorn indicates deeper and/or moister soils on gentler slopes. Parts of Cpt R dominated by blackthorn have also been assigned to this sub-community. Hawthorn becomes dominant in the central section of Cpt E and this is probably closer to W21a than scrub at the northern end, which has a greater species diversity. Secondary woodland dominated by sycamore (*Acer pseudoplatanus)* on deeper soils in Cpt D, may have developed from a W21a community.

While most of the scrub on the site is W21a or W21d, there is a small area, Cpt J, immediately south-east of the Pepperbox that includes some gorse (*Ulex europaeus*), not found anywhere else on the site. This is probably associated with deeper and/or less alkaline soils. Gorse does not occur in the floristic tables for W21 and, in this respect, the scrub is closer to W22 *Prunus spinosa - Rubus fruticosus* scrub (blackthorn - bramble). This area does, however, have several species more characteristic of W21 and this community still provides a better match than W22, despite the gorse.

In the case of woodland types, precise classification, particularly to sub-community level, depends to a considerable extent on the woodland ground flora, best recorded in the spring, when many species flower before the tree canopy closes. As the current survey was undertaken in autumn, some attributions are tentative.

TABLE 1: NATIONAL VEGETATION CLASSIFICATION: COMMUNITY TYPES BY COMPARTMENT

Community/ Sub-community	Description	Compartments
Scrub W21a	Crataegus monogyna - Hedera helix *Hedera helix – Urtica dioica sub-community*	A, E, R
W21d	Crataegus monogyna – Hedera helix *Viburnum lantana sub-community*	A, B,C, D, E, F,G, H, J, K,L,M, P,Q,R
Woodland W10	Quercus robur – Pteridium aquilinum – Rubus fruticosus	E, K
W10c	Quercus robur – Pteridium aquilinum – Rubus fruticosus *Hedera helix sub-commumity*	N
W12	Fagus sylvatica – Mercurialis perennis	A
W12c	Fagus sylvatica – Mercurialis perennis *Taxus baccata sub-community*	C, F, G
W13	Taxus baccata	F, G
W13a	Taxus baccata *Sorbus aria sub-community*	B, R
Grassland CG7	Festuca ovina – Hieracium pilosella (Pilosella officinarum) – Thymus praecox (Thymus polytrichus)	B, C, L
CG7d	Festuca ovina – Hieracium pilosella (Pilosella officinarum) – Thymus praecox (Thymus polytrichus) *Fragaria vesca – Erigeron acer sub-community*	M

W10 *Quercus robur-Pteridium aquilinum - Rubus fruticosus* (Pedunculate oak-bracken - bramble) woodland occurs in Cpt K on the deeper soils running southwards from Eyre's Folly, where mature oaks are dominant. Parts of Cpt E have also been assigned to W10, as has the northern section of Cpt N. In the latter case, the abundance of hazel in the understorey and of ivy in the ground flora suggest that an attribution to W10c, the *Hedera helix* (ivy) sub-community is appropriate. W10 is absent from chalk and limestone unless these are overlain by non-calcareous deposits, as thought to be the case in parts of Pepperbox Hill. The presence of gorse in Cpts J and K provides additional evidence of less alkaline soils, as discussed above.

Some of the woodlands on the site are dominated by beech rather than oak and are identified as W12 *Fagus sylvatica-Mercurialis perennis* (Beech - dog's mercury) woodland. This applies to part of Cpt A, where there are several large beeches. The pines in this compartment are considered to have regenerated from introduced material and have not been used in classification of the woodland. Parts of Cpt G have also been assigned to W12, but on the basis of the abundance of hazel, have been placed in W12a, the *Mercurialis perennis* sub-community. Hazel favours the deeper soils typical of this sub-community. There are some stands in Cpts C and F where yew occurs with the beech and these are assigned to the *Taxus baccata* sub-community W12c. The effects of the dense shade cast by the dominant trees are apparent in the suppression of growth of scrub species in these stands.

In places on the site, yew has become dominant and these areas have been classified as W13 *Taxus baccata* woodland. Most of the stands cast very dense shade and there is little or no ground flora and few associated tree or shrub species. In Cpts B and R, however, whitebeam is relatively frequent and these stands are assigned to W13a, the *Sorbus aria* sub-community. Yew woodland has sometimes developed from juniper scrub and it is likely that this is the case on this site. Both yew and juniper are tolerant of

dry, exposed sites and shallow soils. Apart from one occurrence on Magnesian limestone in County Durham, W13 is confined to the chalk of southern England.

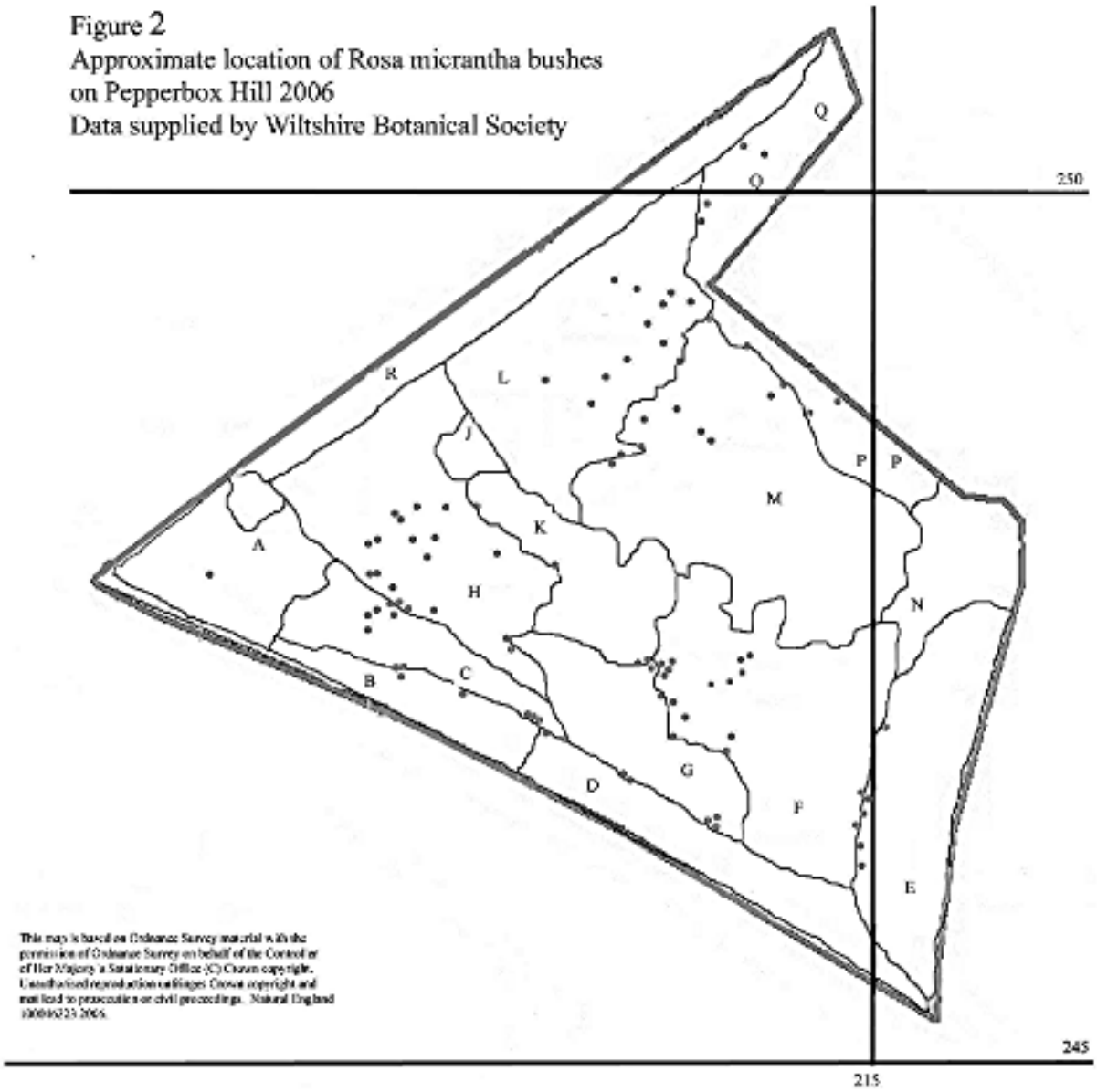
Roses: Species, hybrids and distribution

One of the objectives of the survey was to identify wild rose species and to assess their abundance and distribution, to assist in providing advice on scrub management. There were some past records of unusual roses on the site, but neither their locations nor their abundance were known. Identification of wild roses is difficult, not least because of the readi-

ness with which the species hybridise, and many field naturalists do not therefore attempt it. *The Wiltshire Flora* (Ed B.Gillam 1993), which includes relatively few rose records, acknowledges this difficulty and states that records were accepted only from experienced botanists: roses are therefore under-recorded in the county. A further problem is that few species can be identified with certainty when flowering; determination depends to a considerable extent on the characters of the fruit. As the current survey was undertaken in autumn, initial priority was therefore given to rose identification while the hips were present and in good condition. An earlier start, in September, would have been ideal, as many species were losing their leaves, which also provide important diagnostic characters, by the time the survey started in October. Comparison of a large number of specimens in the field and from material collected by the survey team did, however, allow many roses to be positively identified. Some identifications were confirmed by the BSBI County Plant Recorder, Sharon Pilkington, either from specimens or during a site visit.

Five rose species and a number thought to be of hybrid origin, were identified during the survey. Of these, *Rosa micrantha* (small-flowered sweet-briar), *R. rubiginosa* (sweet-briar) and *R. stylosa* (short-styled field rose) are included in the *Rare Plants Register* for the county (Pilkington 2007). The remaining two species, *Rosa arvensis* (field-rose) and *R. canina* (dog-rose) are both widespread in Wiltshire. The distribution of each species, both on site and nationally, is described below. There is also a section on hybrid roses. Roses are very abundant and widespread on the site and it would have been too time-consuming to identify every plant and record its precise location, but Figure 2 provides a good

Figure 2
Approximate location of Rosa micrantha bushes
on Pepperbox Hill 2006
Data supplied by Wiltshire Botanical Society



indication of the location and distribution of *Rosa micrantha*. Some other detailed records were made and are available in the report to the National Trust, but are not included here. *Roses of Great Britain and Northern Ireland* (Graham and Primavesi 1993) was the main reference work used in identification. In the following accounts, the *New Atlas of the British and Irish Flora* (Preston et al 2002) is referred to as the New Atlas and Gillam (1993) as the Wiltshire Flora.

***Rosa micrantha* (Small-flowered sweet-briar)**

This can be readily distinguished as one of the sweet-briars by the presence of sweet-scented, sticky brownish or translucent glands on the leaflets, leaf stalks, fruit/flower stalks (Plate 1) and sepals. There was a previous record for this rose on the site (unpublished BSBI record 1996) but its distribution and abundance were not known prior to the current survey. The survey showed that it is widespread and frequent but that, like other roses, is confined to scrub on the edges of paths and clearings, except in areas of more open scrub. Its distribution shows that it will regenerate after scrub clearance and that it benefits from the relatively open conditions prevailing in the early successional stages.

Plate 1 *Rosa micrantha*

The Wiltshire Flora lists *Rosa micrantha* as present in only six (less than 1%) of the 1km squares in the county, although recent records made by the authors confirm that it is under-recorded. The New Atlas states that the distribution of the species is much better known than when mapped by Graham and Primavesi (1993) but that it remains under-recorded. Records are concentrated in south-central and south-eastern England with more scattered records in south-west England and in Wales. It grows on well-drained soils, mainly on calcareous substrates, as on Pepper-box Hill. This site, with its relatively large population and on the border between South East and South West England, is clearly a site of significance for the species.

***Rosa rubiginosa* (Sweet-briar or Eglantine)**

The presence of acicles (straight prickles) mixed with the curved prickles on its stems (Plate 2) and persist-ent, erect sepals distinguish this rose from others on the site. Like *Rosa micrantha*, it has numerous, sweet-smelling glands. Only one plant of this species was found, by the track which runs along the north-west boundary of the site, outside the stock fence. According to Graham and Primavesi (1993), it occurs mainly on calcareous soils and is particularly charact-eristic of open scrub on chalk or limestone. It is also found in hedgerows. The New Atlas shows only two, pre-1970 records for Wiltshire, but the Wiltshire Flora has a number of records for the south of the county from the late 1980s and early 1990s, includ-ing Porton Ranges and Bentley Wood. It is, however, recorded as present in less than 1% of 1km squares in the county. As a distinctive species that is relatively easy to identify, it is less likely than other rose species to be under-recorded.

Plate 2 *Rosa rubiginosa*

***Rosa stylosa* (Short-styled field-rose)**

One of the characteristics of this species is that the hip has a strongly conical disc, through which the styles protrude in a short column (Plate 3). It is well distributed on the site, but is much less common than *Rosa micrantha*, with only a few confirmed records. Some additional records were made subsequent to the rose survey, but do not significantly alter the initial findings. Several plants with only some charact-eristics of *R. stylosa* were found and these are thought to be *R. stylosa* hybrids.

The New Atlas states that the species is found almost exclusively on well-drained calcareous soils and that it is tolerant of slight shade. It is a frequent species in parts of southwest England, but the atlas shows only a few records for Wiltshire, on the west side of the county. As with *Rosa micrantha*, it is thought to be under-recorded, especially in areas where it appears to be rare. The Wiltshire Flora records it as a species of woodland edges and hedgerows, present in less than 1% of 1km squares in the county.

Plate 3 *Rosa stylosa*

***Rosa arvensis* (Field-rose)**
Although this species is uncommon on Pepperbox Hill, being found in only two locations during the current survey, the Wiltshire Flora records it as frequent and often locally abundant in the county. It is a woodland species, tolerant of some shade and also occurs in hedgerows and open scrub. Nationally, it is one of the most widespread rose species, although rare in the north and usually introduced where it occurs in Scotland.

***Rosa canina* (Dog-rose)**
This is the most widespread and abundant of the rose species on the site and its distribution was not mapped. The Wiltshire Flora (1993) describes it as the most common rose species in the county and this applies to most of Britain and Ireland. It occurs in a wide range of habitats and can colonise open, disurbed sites rapidly.

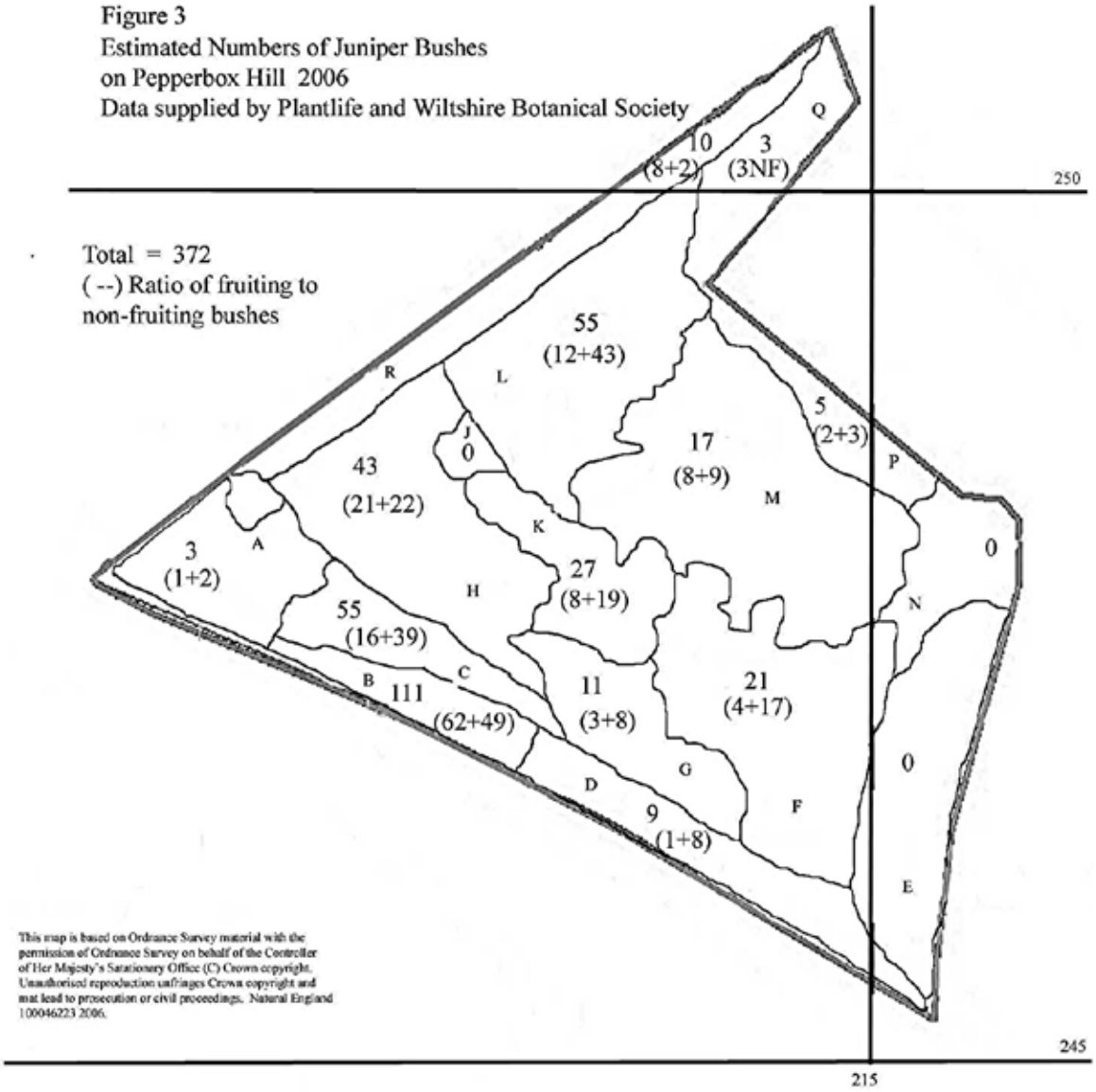
Rosa canina is a very variable species and Graham and Primavesi (1993) have described and mapped four groups showing distinct characteristics. They state that, as yet, there is no evidence that any of the four groups has a distinct ecological niche or geographical distribution and no attempt was therefore made to assign the plants on Pepperbox to these groups. Records made were therefore for the aggregate species.

Hybrid roses
A number of the roses found on the site could not be identified to species level and were thought to be hybrids; roses hybridise freely and this was not unexpected. In some cases, plants were close to one species, but lacked some important characters and were recorded as for example, *Rosa stylosa* hybrids. Others were recorded as undetermined hybrids. A rose expert could probably ascertain their parentage, but this was beyond the scope of the current survey.

There was, however, one presumed hybrid of which several examples were found. These had consistent characteristics quite different from other roses on the site and keyed out as *Rosa caesia* subsp *glauca x R. canina*. The County Plant Recorder arrived at the same conclusion using the Graham and Primavesi key. *Rosa caesia* subsp *glauca* (Hairy northern dog-rose) is largely a northern species, as its English name suggests. In The New Atlas, the most southern post-1950 record for the subspecies is from Oxfordshire (Vice County 23). Given that neither the hybrid nor one of its parents is recorded in Wiltshire, it was considered important to ascertain whether or not the identification was correct. Samples were duly sent off to Mr R. Maskew in September 2007, but unfortunately, as he was away when they arrived, the specimens were in poor condition by the time he looked at them. While he thought that they were 'probably *R. x dumalis (R. caesia x canina*)', their condition, and the presence of some glands on the pedicels prevented a more positive determination. He stated that *R. caesia* was almost certainly present in the south in the past. The persistence of characters in the rose population from a species that no longer occurs is of interest, but in view of the uncertainty of the identification, we were advised to ignore the specimens for recording purposes. (Maskew 2007 pers. comm.).

The Juniper bushes – their age and health

Juniper is a major component of the most important and diverse scrub communities on the site and the occurrence of regenerating juniper was a factor in the inclusion of Pepperbox Hill in the Brickworth Down and Dean Hill SSS1. Recent estimates in 2005 (Stewart and Woodruffe) and 2006 (Wiltshire Botanical Society) indicate that there are about 375 juniper bushes on this site (see Figure 3) and that regeneration has occurred in two distinct phases; those to the west (Cpts. A, B, C, D, F, G, H and K) are prob-



ably of more recent origin than those further east (Cpts. L and M).

Phases of juniper regeneration in this locality are sometimes linked to the post-myxomatosis period of 1954-55 and the plants are therefore estimated to be around 50 years old. However, a photograph taken by N L Chadwick on the western part of Pepperbox Hill (Cpts. C, H and K) in 1955 clearly shows many bushes of 60cm or more height together with some much smaller ones. It would therefore seem that regeneration commenced further back than the estimated 50 years, perhaps nearer to 70 years, and may be linked to the cessation of grazing in the 1930s. In 1976, Pat Woodruffe photographed the same area and young, small bushes were clearly visible, but there has been no evidence of regeneration since this time. Thus it seems likely that this current western population has developed over a period of roughly 40 years, between the1930s and 1970s.

In contrast, the easterly population is generally older. Furness (1972) estimated the age of a sample of bushes to be around 70 years. This means that they are now in excess of 100 years old and Ward (1982) estimates that few bushes survive for more than this length of time in Southern England. Many have been shaded by scrub regeneration and are in poor health, or have already succumbed. There is increasing evidence to show that the removal of competing scrub from very old bushes is of little benefit and may indeed hasten their demise. Several bushes were lost on Pepperbox Hill in 1987 when a late snow storm followed some clearance and caused bushes to be bent and snapped. In a letter to Simon Evans (NT) Lena Ward (1987) states 'in the cleared area I counted 82 junipers that appeared okay as against 20

with at least some breakage'. This clearance is thought to have been to have been in parts of Cpt. F and M.

According to the SSSI citation, it is unusual to find an uneven aged stand of juniper in Southern England and the evidence suggests that periods of regeneration are usually both rare and brief. The extent of rabbit predation is an important factor and, on some sites, regeneration can be linked to human disturbance. Recent regeneration is known to have taken place on the verge adjacent to the A36, next to Pepperbox Hill, where bare chalk was exposed during roadworks and remains largely unvegetated. There is also recently discovered active regeneration in a disused railway cutting at Dean Hill Park at West Dean where chalk was exposed during creation of the cutting and some chalk exposures remain. The authors and other members of WBS are involved in monitoring seedling growth and survival. This site is close to, but outside the Brickworth Down and Dean Hill SSSI. Within the SSSI at Dean Hill, the majority of junipers are old and in poor health.

Regeneration sometimes appears to occur in the absence of disturbance: on Porton Ranges Corbett (2004) reported finding 168 juniper plants between 3 and 10 years old in an area of young scrub with fairly tall grasses and mature bushes. At the time of regeneration the rabbit population was low but subsequently it has built up and these junipers have been lost. Without active intervention to create suitable conditions, opportunities for natural regeneration of juniper on much of Pepperbox Hill seem to be limited.

Lack of regeneration does not appear to be a consequence of failure to produce fruit; many female juniper bushes produce copious numbers of berries but few appear to germinate and establish successfully. Observations of the young plants on the A36 roadside show that seed can germinate very close to parent bushes (Banks 2004). In an attempt to estimate the viability of seed, 10,000 berries were sown on Porton Ranges in 2002. Only three seedlings have been found to date (Corbett 2006) and small mammals predated these. Others might have germinated but were taken before being recorded.

During the Pepperbox survey, the number of juniper plants in each compartment and the ratio of fruiting to non-fruiting plants were mapped (Figure 3). The totals are similar to those obtained by Plantlife and Wiltshire Botanical Society volunteers in May 2005 (Stewart and Woodruffe 2005). There is no shortage of fruiting bushes. The ratio of fruiting to non-fruiting plants varies considerably in each compartment and no discernible trend can be seen; for example, plants in more open situations do not appear to have a greater ratio of fruit bearers. It is tempting to suggest that this ratio also represents the numbers of male and female plants, but this is not necessarily so.

Discussion

The balance of woodland / scrub / grassland

The respective proportion of these three habitats has changed immensely over the past 60 years, since the National Trust became owners of the site. The trend has favoured scrub and woodland at the expense of grassland - a natural process of plant succession, which will occur despite active management to counter it. However, the site was designated an SSSI in part because of the way in which it demonstrates succession and it must therefore be important to retain the seral stages. An attempt has been made to evaluate the conservation value of each of the three main habitats, considering their flora and the fauna, diversity and the significance of rare or declining species.

Woodland

Succession from mature scrub to woodland is occurring rapidly on some parts of the site. If left to do so, small areas of two climax communities will almost inevitably develop: beech woodland and yew / whitebeam woodland. Unfortunately both have poor species diversity because of the lack of light that penetrates the canopy. Rodwell (1991) states that juniper frequently succumb to yew. He quotes Watt (1926) who believed that in many areas 'every young juniper had its protected cluster of yew seedlings and every maturing yew its dead or dying juniper'. The frequency of both seedlings and maturing yew on Pepperbox does not bode well for juniper survival. Clearance of existing dense woodland is unlikely to result in restoration of species-rich scrub or grassland, but further woodland encroachment is considered undesirable. Selective clearance work would more usefully be targeted on areas of mature scrub that are in the process of developing into woodland in order to maintain species-rich scrub.

Reduction in numbers of the introduced beech, pine and sycamore would also be beneficial. There are substantial numbers of beech trees on the site, some planted in the 1970s adjacent to the car park. Older trees occur in Cpts. A, B, F, G and K and their leaf fall is sufficient to carpet the ground, thus excluding many grassland species which can tolerate neither the slow rate of litter decomposition nor acidification of the soil.

Two other trees that are not native to the site are pine and sycamore. The pines are regenerating quite speedily in some areas, notably along the margin of Cpts. A and B and on the roadside verge. There are many juniper bushes along this boundary which are being threatened by the pines. Since this roadside embankment is one of very few places where there is

evidence of juniper regeneration, it would seem appropriate to control the pines.

Sycamores pose a substantial threat to the native flora on several parts of the site. Several mature trees are producing quantities of seed, making the task of controlling them very difficult. It is suggested that removal should be extensive but concentrate first on the areas where good quality chalk grassland remains.

Scrub

The scrub habitat is much more biodiverse than any of the types of woodland likely to develop on the site. It supports a much greater range of fauna, particularly birds, small mammals and numerous insects.

Three components are of particular significance; juniper, roses and gorse. All are intolerant of shading and thus there are no conflicts in management of these species.

The majority of roses are found at the edges of scrub, along broad paths or where islands of scrub occur. They also occur in the early successional stages where scrub has been cleared and is regenerating. *Rosa micrantha* and *Rosa canina* in particular seem to regenerate well after clearance. Other species do not appear to respond as quickly and may benefit from a longer cycle. Some scrub clearance and the maintenance of paths will benefit the roses by maximising the edge effect. Too frequent trimming is likely to be detrimental since it will not allow sufficient time for the plants to reach the flowering and fruiting stage; cutting approximately every ten years would be appropriate. Phasing of work so that approximately one tenth of the total is completed annually, should allow the roses to flower and fruit and should maximise diversity of habitat. Roses are intolerant of dense shade and the succession to dense scrub and woodland will be incompatible with their survival.

About 100 of the juniper plants are old and coming to the end of their life span. Some hand clearance around them might prolong their life and also maintain or improve some of the chalk grassland flora, especially whilst stock continues to graze the downland. The mature, but healthy plants to the west of the site should be given first priority. These are in danger of being shaded and are sufficiently robust to benefit from clearance. Again, this will benefit both the juniper and the grasslands which still surround many of them.

Within the site the scrub falls into two distinct types: that associated with juniper, especially the better juniper bushes to the west of the folly, and that likely to develop in the area cut in October 2006. The two currently require quite different management.

The areas associated with juniper bushes are frequently good quality chalk grassland and previous management by mowing in Cpt. C has probably created the scrub islands, which have subsequently been maintained by rabbit grazing of the surrounding grassland. Several of the scrub species which grow together with the juniper are quite common – privet and dogwood, for example. They regenerate rapidly and might be suppressed to favour the juniper. Competitive yew should also be removed, particularly in Compartments B, C and H. Coppicing of some hazel in Compartment G would also benefit juniper.

The area in Cpt. M that was cleared mechanically in October 2006, offers opportunities for some experimental management. It seems unlikely to develop as species-rich grassland without sustained and active intervention, but the small reservoir of chalk grassland species that occurs along old paths might be encouraged to expand by creation of scrapes in adjacent areas. Juniper regeneration might be facilitated by exposing areas of bare chalk, which could be rabbit fenced and planted with juniper berries. Interest in the initiation and long-term monitoring of such a project might be sought from Environmental Management Departments at local universities (Southampton or Bournemouth). Early stages in the development of this compartment will probably allow the proliferation of some nectar sources which will favour insects.

Grasslands

Although there is a substantial amount of grassland on the site, it is declining both in species diversity and in area. Some of the more extensive areas are on deeper soils (Cpts. H and the junction of E / F / N) and these do not favour chalk grassland specialists. It is the quality chalk grassland that is the most threatened habitat on the site (Cpts. B and C and parts of H, L, M and Q). With the exception of Cpt. C, there are now very small fragments indeed. The depth of soil over the chalk is a major factor in determining the quality of the grassland, and also the scrub; the shallower soils support the more diverse communities.

Large-scale clearance is neither desirable nor appropriate but careful hand-clearance of some common scrub species, as suggested above, could be highly beneficial to both the scrub specialists and the grassland flora. Some yews growing on the edge of paths have low, spreading branches that cover considerable areas. If these were trimmed back, significant areas of grassland might be recovered. Once this has been achieved, the grazing stock will help to control the

balance. Much of the grassland provides good habitat for insects but those parts with nectar sources and specific food plants are more significant.

Although excessive trampling and soil compaction are detrimental, dispersal of the public along a network of paths might be beneficial. The reinstatement of several paths that are currently overgrown, would help to keep invasive, coarse grasses in check and also provide walkers with additional routes. Maintenance of wider paths would also favour roses.

References

Banks J (2004) *Juniperus communis* in Wiltshire. *Wiltshire Botany* **6**: 34-37.
Chase E and Munro J & D (2000) *Whiteparish 100 years of an English Village*. Whiteparish Historical and Environmental Association.
Corbett S (2004) Conservation at Porton Down. *Wiltshire Botany* **6**: 28-33.
Corbett S (2006) Personal communication.
Furness M (1972) *Survey of Pepperbox Hill*. Dissertation for Dip.Env. Sci. University of Southampton.
Gillam B ed (1993) *The Wiltshire Flora* Pisces Publications, Newbury.
Graham G G and Primavesi A L (1993) *Roses of Great Britain and Ireland.* BSBI Handbook No. 7.
Maskew R (2007) Personal communication.
Pilkington S **(**2007) *Wiltshire Rare Plant Register*. Privately published.
Preston CD, Pearman DA and Dines TD eds (2002) *New Atlas of the British and Irish Flora*. Oxford University Press.
Rodwell J S (ed) 1991 *British Plant Communities Vol 1 Woodlands and Scrub.* Cambridge Unversity Press, Cambridge.
Rodwell J S (ed) 1992 *British Plant Communities Vol 3 Grasslands and Montane Communities.* Cambridge Unversity Press, Cambridge.
Stewart K and Woodruffe P (2005) *Pepperbox Hill Juniper Survey Day Report – unpublished report to National Trust by Plantlife and Wiltshire Botanical Society.*
Ward L K (1987) Personal communication to Simon Evans (National Trust).
Watt A S (1926) Yew Communities of the South Downs. *Journal of Ecology* **14**: 282-316.
Wiltshire Botanical Society (2007) *Pepperbox Hill: Survey of the Scrub*. Unpublished Report for the National Trust.

Acknowledgements

We should like to thank various members of the Wiltshire Botanical Society who have contributed to this project; in particular the late Jeremy Wood and also Eileen Rollo, Sharon Pilkington and Joy Newton. Thanks are also due to R. Maskew, the Botanical Society of the British Isles referee for his help with identification of rose specimens and to Sue Fitzpatrick for helpful comments on drafts of this paper. Photographs are by Pat Woodruffe.

A view through the mosaic of scrub and grassland to The Pepperbox or Eyre's Folly which was built circa 1606 and from which the site takes its name.

"Belties". Low density grazing over the past few years has done much to reduce the invasion of scrub species and to restore the quality chalk grassland

Wiltshire Botany 11, 2010, pages 14-19

KEYS TO SOME WILTSHIRE PLANTS

***Rumex* species**
***Epilobium* species**
Lemnaceae

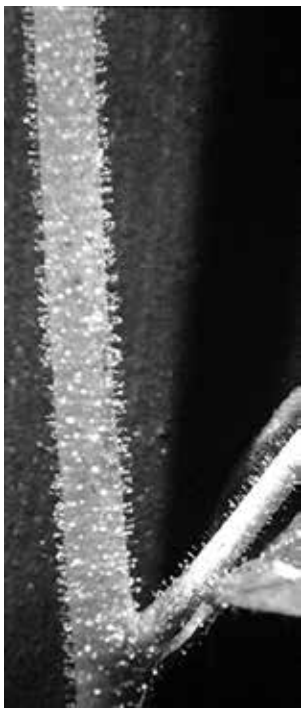
Ken Adams

On the following pages, several keys are provided for groups of plants often found difficult to identify. The focus is on species recorded in Wiltshire. However, some are included that could well turn up in the county, so that we can look out for them . They are;

- *Wolffia arrhiza*, which is currently very local in south England and likely to extend its range with the warmer summers, and used to occur in the Upper Thames region
- *Lemna turionifera*, a central European plant which has spread east across Europe and is now with us (see notes) - not in Stace 's floras or Clement and Foster's *Alien Plants of the British Isles*, but keyed out in *Plant Crib 1998* by T and M Rich, p. 326
- *Rumex cristatus*, which is spreading from south-east England and already in Berkshire not far from the Wiltshire border

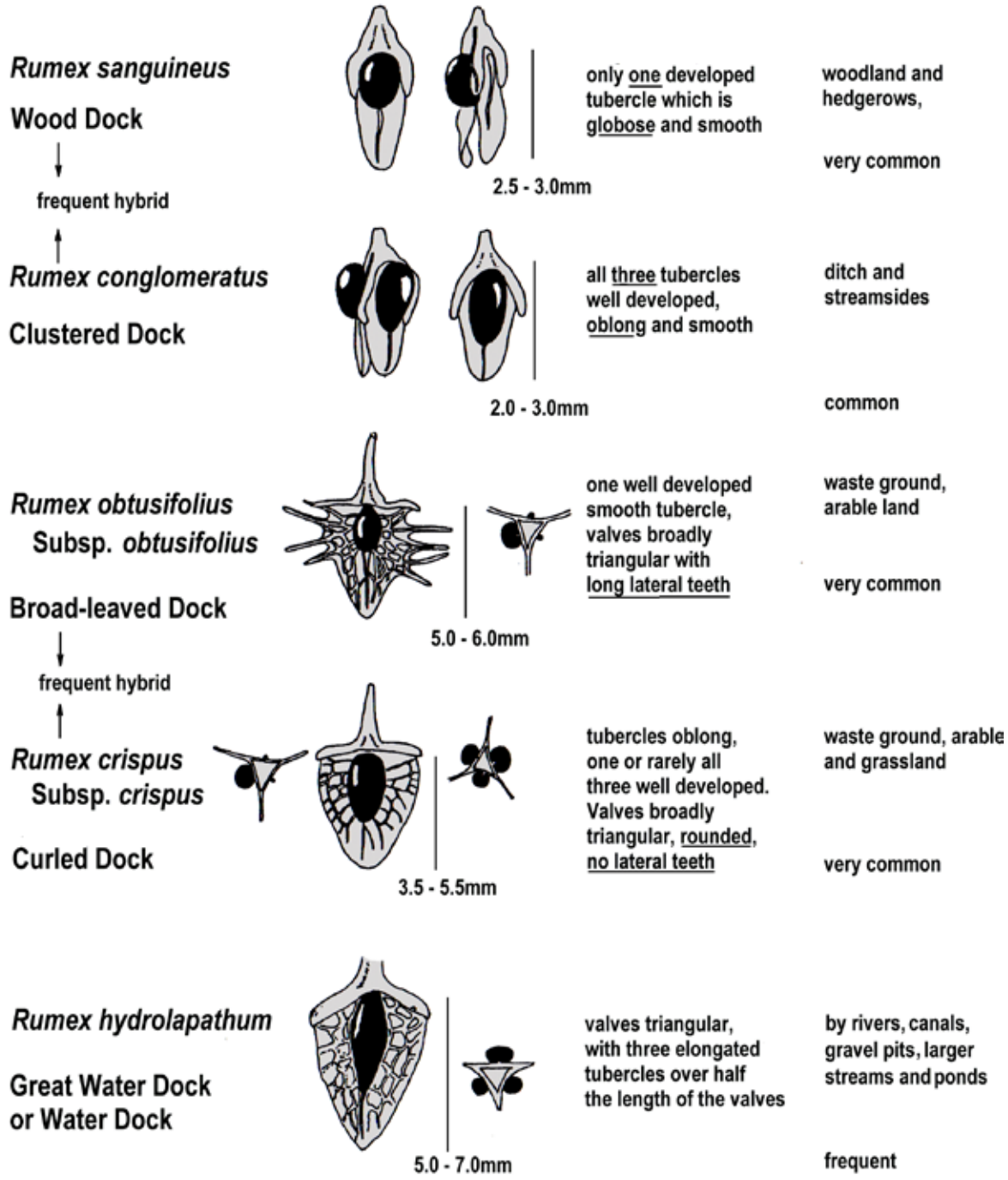
The habitat and frequency entries in the *Epilobium* key are based on Eastern England, but are mainly applicable to Wiltshire. It may help to bear the following points in mind:
parviflorum - probably mainly in wet places in Wiltshire
roseum and ***obscurum*** - Wiltshire distribution not known because of identification difficulties
ciliatum - not commonly recorded in Wiltshire but may have been overlooked
palustre - rare in Wiltshire

American Willowherb, showing glandular hairs with secreted spherical droplets at the ends which dry up when picked



Hoary Willowherb with spreading stigma lobes (above) and Marsh Willowherb with appressed stigma lobes (below)

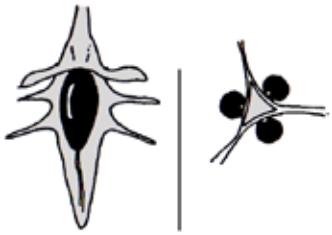
SOME COMMON SPECIES OF DOCKS INDENTIFIABLE FROM THEIR FRUITS



SOME LESS COMMON SPECIES OF DOCKS INDENTIFIABLE FROM THEIR FRUITS

Rumex palustris

Marsh Dock



3.0 - 4.0mm

valves acute, with bristle-like teeth, tubercles light-brown to reddish

ditches, pond sides, marshes that are under water over winter, thermophile

very rare in Wilts.

Rumex maritimus

Golden Dock

2.5 - 3.0mm

valves with fine slender teeth 2 - 3x the width of the valve, tubercles pale yellow

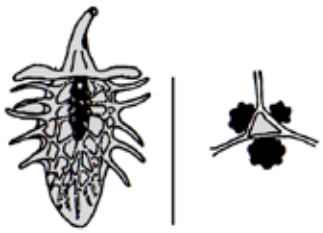
wet hollows, pool margins, pits, where water dries up in late spring, thermophile

very rare in Wilts.

Rumex pulcher

Subsp. pulcher

Fiddle Dock



c. 6.0mm

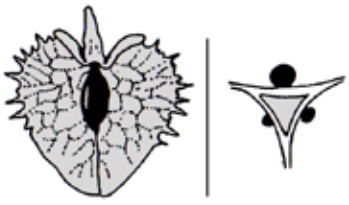
valves ovate-triangular to ovate-orbicular with prominant veins, tubercles unequal, warty when dry, teeth to half width of valve

greenish, semi-prostrate, easily overlooked, churchyards, village greens, hilly pastures

very rare but possibly overlooked in Wilts.

Rumex cristatus

Greek Dock



6.0 - 8.0mm

valves rounded-cordate with sharp teeth to 1mm. Usually one well developed and two undeveloped tubercles

waste ground, ditches, roadsides

huge, rapidly increasing alien, already in W. Berks. look out for in Wilts.

Some 27 species of docks have been recorded from Britain. These sketches have been redrawn from the BSBI Handbook which covers them all.

WILTSHIRE

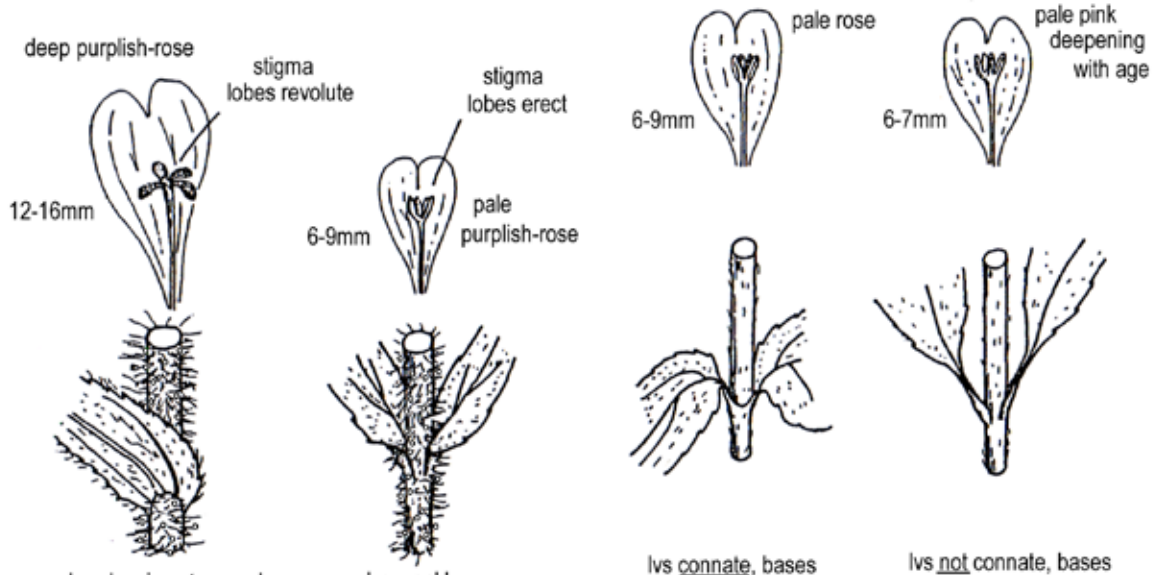
STIGMAS WITH 4-SPREADING LOBES

GROUP A

Both long-spreading non-glandular and shorter glandular hairs.

GROUP B

No glandular hairs, only crisped non-glandular hairs



lvs clasping stem and slightly decurrent

large plant to 6' or more

HIRSUTUM

Great

wet places, ditches, pond and lake margins, river and stream banks, occasional arable fields.

lvs weakly clasping stem

shorter, more slender plant

PARVIFLORUM

Hoary

ditches and damp ground, common in arable fields.

lvs connate, bases rounded, stalk to 3mm

MONTANUM

Broad-leaved

common in gardens and woods.

lvs not connate, bases tapered (cuneate) stalks to 4-8mm

LANCEOLATUM

Spear-leaved

very rare and sporadic, probably casual, waste ground, railway banks etc.

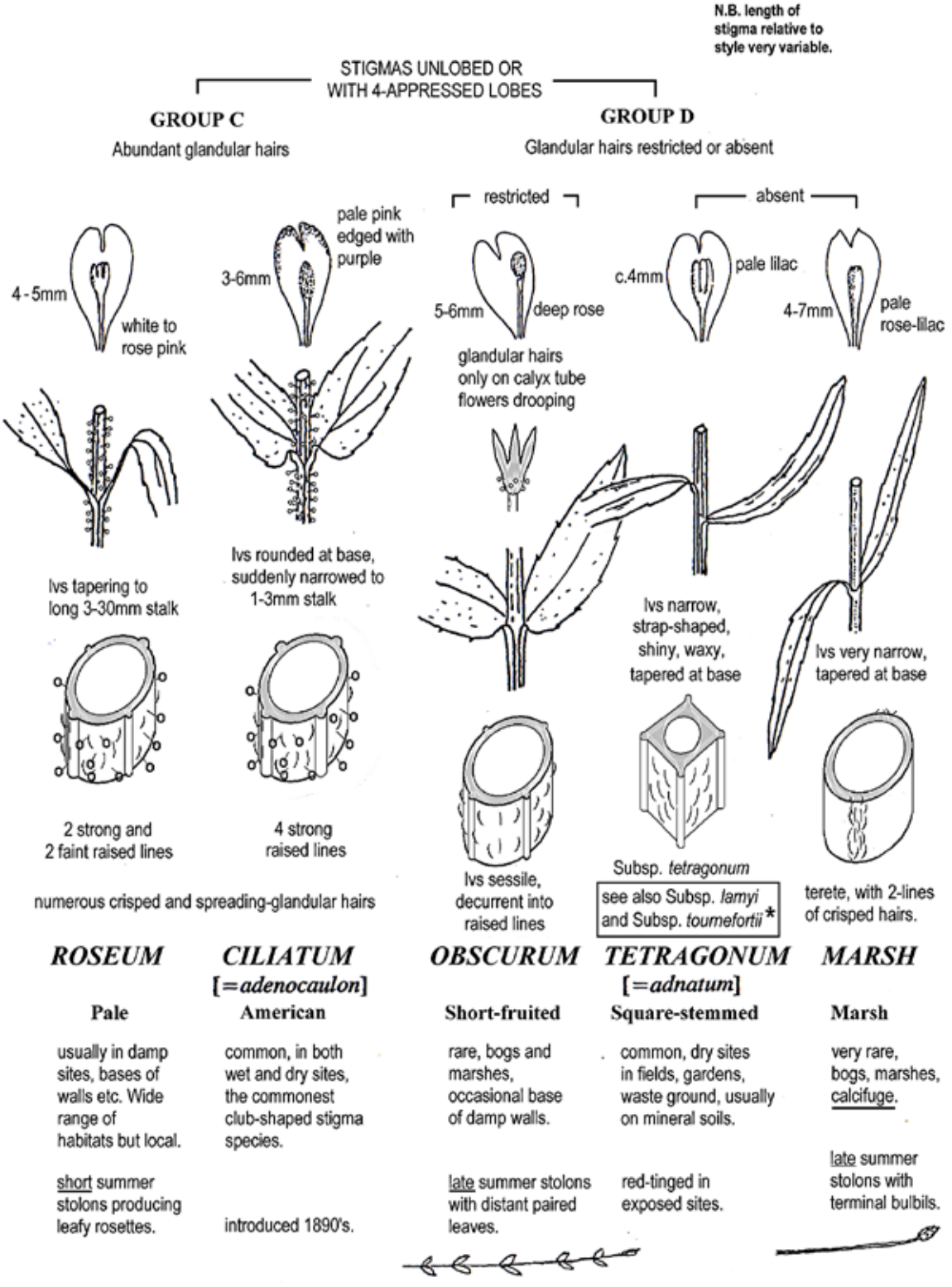
All our Willowherbs have the same chromosome number 2n=36 and all cross readily. All 81 possible hybrids can ocur. Due to maternal inheritance of chloroplast genes an A♀ x B♂ backcross is often different from an A♂ x B♀ Hybrids are common, variably fertile and backcross with parents. Have to look around for possible parents in vicinity and deduce parentage.

* *Epilobium tetragonum* Subsp. *lamyi* leaves wider, shortly petiolate, not decurrent down stem.

Epilobium tetragonum Subsp. *tournefortii* flowers very big, 8-13mm, petals 6-11.5mm. New alien in Cambs.

Caution: the glandular hairs secrete small globular watery droplets that dry up in hot weather or if you take a specimen home for I.D.

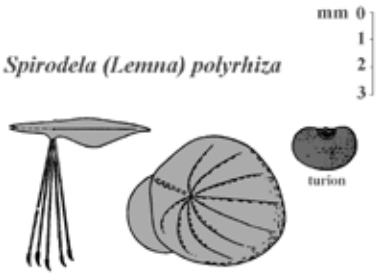
EPILOBIA


N.B. length of stigma relative to style very variable.
STIGMAS UNLOBED OR WITH 4-APPRESSED LOBES
GROUP C
Abundant glandular hairs
GROUP D
Glandular hairs restricted or absent
restricted
absent
4 - 5mm
white to rose pink
3-6mm
pale pink edged with purple
5-6mm
deep rose
c.4mm
pale lilac
4-7mm
pale rose-lilac
glandular hairs only on calyx tube
flowers drooping
lvs tapering to long 3-30mm stalk
lvs rounded at base, suddenly narrowed to 1-3mm stalk
lvs narrow, strap-shaped, shiny, waxy, tapered at base
lvs very narrow, tapered at base
2 strong and 2 faint raised lines
4 strong raised lines
lvs sessile, decurrent into raised lines
Subsp. tetragonum
see also Subsp. lamyi and Subsp. tournefortii *
terete, with 2-lines of crisped hairs.
numerous crisped and spreading-glandular hairs
ROSEUM
Pale
usually in damp sites, bases of walls etc. Wide range of habitats but local.
short summer stolons producing leafy rosettes.
CILIATUM [=adenocaulon]
American
common, in both wet and dry sites, the commonest club-shaped stigma species.
introduced 1890's.
OBSCURUM
Short-fruited
rare, bogs and marshes, occasional base of damp walls.
late summer stolons with distant paired leaves.
TETRAGONUM [=adnatum]
Square-stemmed
common, dry sites in fields, gardens, waste ground, usually on mineral soils.
red-tinged in exposed sites.
MARSH
Marsh
very rare, bogs, marshes, calcifuge.
late summer stolons with terminal bulbils.

LEMNACEAE

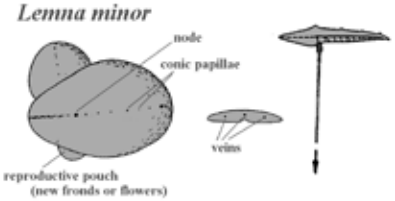
KJA revised 2008

Spirodela (Lemna) polyrhiza



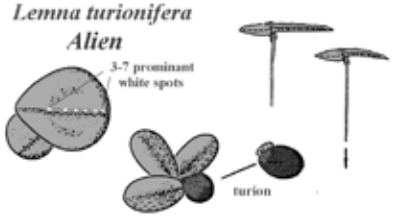
- roots 7-21 in number, veins 7-16
- reproduction vegetative, flowering rare, (recorded once in Somerset in U.K.)
- produces olive-brown reniform rootless turions that sink in the autumn to overwinter
- slow to recolonize after pond clearance, reliant on spread by birds and amphibians
- lowland, restricted distribution, not clear why
- likes gravel pit ponds with some eutrification

Lemna minor



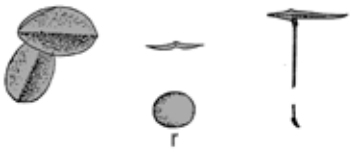
- single root to 15cm, root cap straight 3 veins widest apart below middle, turions absent, but some fronds may sink in Autumn
- deep green, may become reddish above, convex above, always some rounded fronds, produces very small form that overwinters on the surface, and can be confused with *L. minuta* (see also *L. turionifera*)
- formerly the commonest species

Lemna turionifera
Alien



- similar to *L. minor*, but: single root < 15cm, obovate, the 3 veins wider apart towards the apex, 3-7 prominant white spots along mid-line
- olive-green, often reddish below, particularly near the root insertion, always more red below than above (c.f. *L. minor*)
- produces distinct olive to brown rootless turions that sink in Autumn
- has been spreading eastwards across Europe and has just reached the U.K. with records from Lincs., Devon and Gwent.

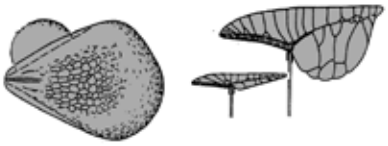
Lemna minuta
Alien



- single root to 1.5cm, 1 vein (often faint) only, extending no more than 2/3 distance between node and apex, turions absent
- pale green - somewhat translucent, fronds uniformly elongated, tented (doubly concave), one end usually pointed, rootcap curved
- withstands lower light levels than *L. minor*
- persists on surface becoming smaller and rounded (r) over winter
- new world species introduced c.1970, now the commonest species, overtops *L. minor*

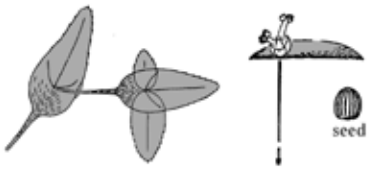
(L. valdiviana, expected sometime in the U.K. differs in its vein being at least 3/4 of the distance between the node and apex)

Lemna gibba



- like *L. minor* earlier in the year, except for cluster of larger cells centrally below, from May onwards develops bubbly expanded polystyrene-like bulge underneath making it almost spherical
- thermophilic, likes rivers that become more eutrophic as the season progresses (lower water levels). Occasional in ponds.
- likes high light intensities, may redden at the edges late on

Lemna trisulca



- unmistakeable, stalked leaf-like fronds
- often grows submerged at many overlapping levels through the water column
- restricted to still ponds with low nutrient levels
- can withstand very low light levels
- common in shaded ponds

Wolffia arrhiza

- minute, < 1mm, almost spherical, smallest known higher plant
- NO roots
- now very scarce, apparently gone from Thames valley, strongholds now in Somerset levels, Rye-Dungeness area of Sussex and East Kent.

Drawings based on Wolff, P & Landolt, E. *Frag. Flor. Geobot.* 39(2):439-451. 1994.

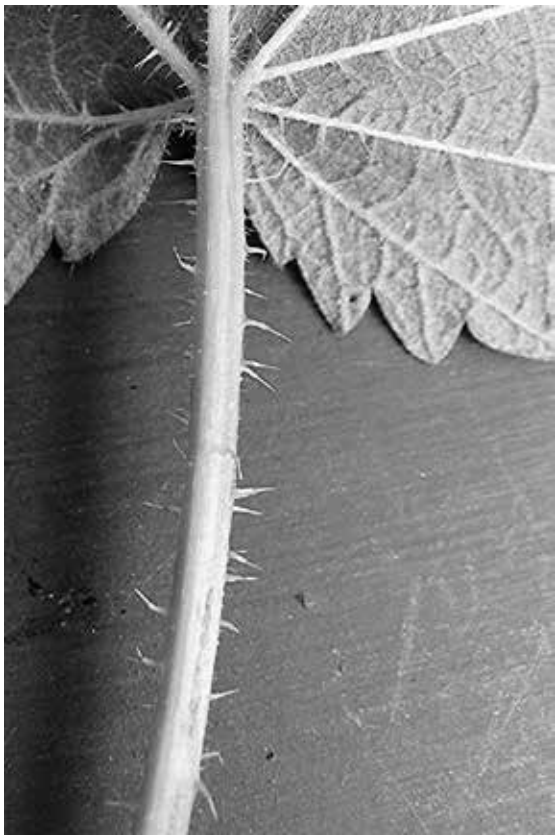
Wiltshire Botany 11, 2010, pages 20-22

HEALER, SUPER-FOOD AND FREE

In praise of the humble nettle *(Urtica dioica)*

Zoe Hawes

Nettle stings



Introducing nettles

There are many common plants in Wiltshire that have medicinal properties, some rooted in folklore and not yet scientifically validated, others shown to be effective by rigorous experimental methods. One of these is the Stinging Nettle *(Urtica dioica).* Below I describe some of the folk tales about it and recent studies that are shedding light on its many properties, often supporting the wisdom of old.

Traditionally, nettle was one of the first green foods available in the spring after a long winter and when stores of food were running out during the hungry spring months before the crops had grown.

It is a greedy plant, soaking up nutrients from the earth and is rich in many vitamins, minerals and trace elements including chlorophyll, calcium, vitamins C, K (from chlorophyll) and B, quercetin, magnesium, phosphorus, silicon, sulphur, chromium, zinc, potassium and manganese. So, the nettle is highly nutritious, a real super-food and one that grows prolifically in most locations and can easily be gathered for free.

The fresh, green tops are best harvested in the spring and early summer. Allow a patch to grow in a corner of the garden and harvest them continually for a crop that will grow until the first hard frost. They can also be wild harvested but ensure they are growing away from obvious pollutants. When picking a small amount, a firm grasp is often enough to prevent stinging; however, gloves are needed if you wish to be sure of not being stung.

Nettles make a delicious soup, can be cooked down as a vegetable, like spinach, or used in quiches, casseroles and omelettes. Gather and hang them to dry in a warm, airy space and store them, chopped in a paper bag or a dark jar to be used later in the season as a tea or added by the handful to stews, soups and casseroles. Once cooked, they also freeze well. The sting is neutralized by the heat of cooking but not by drying.

The amount of iron reported to be in nettles is 4.2mg per 100g (Pederson 1998). The iron content makes them an ideal food for anyone who is anaemic and the high levels of vitamin C aid the absorption of iron. If the low iron level is due to blood loss, nettles are the ideal choice as they have a reputation for reducing bleeding. During the American Civil War wounds were dressed with gauze soaked in an infusion to stop bleeding. Their high chlorophyll content supports this traditional use. Chlorophyll is a rich source of vitamin K, which is essential for blood clotting.

Nettle soup

Gather ½ a carrier bag of fresh nettle tops. Washing is optional -- if they are clean and 'relatively' bug-free why bother?

Peel, chop and sauté an onion and two medium-sized potatoes in a little olive oil. Add the nettles. Pour on vegetable or chicken stock, just cover the nettles. Bring to the boil and then simmer for 25 minutes or until the potatoes are soft. Blend, season to taste and serve with crusty bread.

Medical benefits

Such properties mean nettles are an excellent choice for daily use during pregnancy to prevent anaemia and reduce the risk of excessive blood loss during and after labour. Additionally, they were reputed to be a 'galactagogue' -- increasing the flow of breast milk.

Osteoporosis can also benefit from the rich source of nutrients in nettles, particularly the calcium, phosphorus, silicon and vitamin K. Silicon has been found to improve bone strength with calcium and vitamin D (Spector 2005). Phosphorus combines with calcium to make an essential constituent of bone. Many of these nutrients are also essential for healthy formation of strong hair, skin, nails, teeth and other connective tissues.

Nettles were always hailed as a cleansing, spring tonic and are still used by herbalists for their abilities to remove excess, irritating waste products from the body. They are able to dissolve uric acid, a by-product from protein breakdown that gets deposited in joints and causes inflammation that is experienced as excruciatingly painful gout.

Tonic

A really nice iron tonic, as recommended by herbalist Christopher Hedley, is to soak equal quantities of fresh nettle tops and organic apricots in good red wine with a little orange peel. Soak for two weeks shaking every day, strain and take 1-2 dessertspoons daily.

The sting was often used traditionally as a treatment for stiff joints, the skin over the affected joint being stung on a regular basis to 'draw out' the inflammation. This is supported by recent research proving a marked reduction in joint pain when the affected area is regularly exposed to nettle stings (Randall et al 2000). Investigation of its use internally has also found improvements in the symptoms of arthritis (Chrubasik et al 1997).

Nettles are utilized for their cleansing properties in skin disease, too. In the treatment of allergic skin conditions, like eczema, they have the added benefit of having anti-allergenic properties, probably due to their histamine content and anti-inflammatory properties (Chrubasik 2000).

They are also diuretic so they speed the removal of waste products via the urinary system. Their ability to help the body combat allergy and their availability as a food in the spring makes them an easy treatment that can be included in the diet of people with hay fever or allergic rhinitis. Ingesting them daily as an infusion or as a food six weeks before the hay fever season can help to reduce symptoms (Fischer 1997). Modern science seems to point to their ability to prevent the production of inflammation-producing immune cells in the body (Mittman 1990).

The latest area of research on nettle looks at the use of the root on inflammation of the prostate and benign prostatic enlargement (BHP). More than 20 studies show nettle root, sometimes in combination with other herbs, gives an improvement in the symptoms of prostatitis and BHP (Chrubasik 2007; Koch 2001).

References

Chrubasik J E et al (2007) Review of stinging nettle root extract efficacy for BPH, in: A com-prehensive review on the stinging nettle effect and efficacy profiles. Part II: *Urticae radix*. *Phytomed*. **14** (7-8): 568-579.

Chrubasik S et al. (1997) Evidence for anti-rheumatic effectiveness of Herba *Urticae dioica* in acute arthritis: A pilot study. *Phytomedicine* **1** (4): 105-108.

Ernst E and Chrubasik S (2000) Phyto-anti-inflammatories. A systematic review of randomized, placebo-controlled, double-blind trials. *Rheum Dis Clin North Am* **26** (1): 13-27.

Fischer C (1997) Nettles - an aid to the treatment of allergic rhinitis. *Eur Herbal Med* **3** (2): 34-35.

Koch E (2001) Extracts from fruits of saw palmetto (*Sabal serrulata*) and roots of stinging nettle (*Urtica dioica*): viable alternatives in the medical treatment of benign prostatic hyperplasia and associated lower urinary tracts symptoms. *Planta Med* **7** (6): 489-500.

Mittman P (1990) Randomized, double-blind study of freeze-dried *Urtica dioica* in the treatment of allergic rhinitis. *Planta Medica* **56**: 44-7.
Pederson M. (1998) *Nutritional Herbology: A Reference Guide to Herbs* (revised edn), Whitman, Utah, USA.
Randall C et al. (2000) Randomized controlled trial of nettle sting for treatment of base-of-thumb pain. *J Royal Soc Med* **93**: 305-9.
Spector T D (2005) *Effect on bone turnover and BMD of low dose oral silicon as an adjunct to calcium/vitamin D3 in a randomized, placebo controlled trial*. Presented at the American Society for Bone and Mineral Research (ASBMR) Conference in Nashville, Tennessee.

Nettle leaves and inflorescence

Nettle root tincture (potential use for prostate problems)

500g fresh nettle root, washed, dried and chopped; 1 litre vodka.

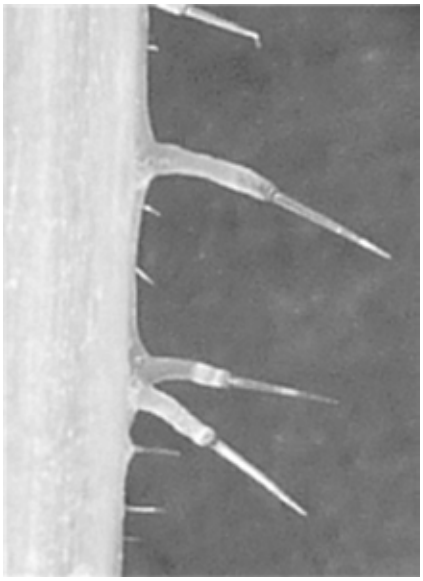
Put the nettle root in a large jar or wide-necked bottle. Pour the vodka over the top and shake well. Store in a dark place for two weeks, shaking the mixture daily. Strain and press through a jelly bag or cheese cloth. Bottle the resulting liquid and label. A standard dose of nettle root tincture is 5 mls, 3 x day in a little water.

There are also many different 'Prostate formulas' available commercially but it is advisable to consult with a qualified medical herbalist before treating prostatic symptoms as s/he will be able to address any underlying problems and formulate a prescription of herbs that is specific to you. To find a well-trained medical herbalist near you contact The National Institute of Medical Herbalists (www.nimh.org).

Nettle stings

"Tender handed stroke a nettle
And it stings you for your pains;
Grasp it like a man of mettle,
And as soft as silk it remains".
Aaron Hill (1685-1750)

A nettle sting is long and tapering with a broad rounded base, as shown in the photo. The liquid contents include histamine and acetylcholine, which are thought to cause the irritating burning sensation of a sting. These contents are under pressure. When a nettle is touched the brittle end breaks off obliquely, producing a sharp point which punctures the skin and releases the pressure, which then forces the contents into the wound. The base of the sting also contracts to add further force.



A bad sting can be relieved by the juice from a leaf of Ribwort Plantain (easily found in most gardens -- see inset photo -- and far more effective than the alleged benefits of dock leaves whose leaves are not in fact effective). Rub the leaf hard between your hands until the juice can be squeezed out and dropped onto the sting. Do not rub the sting as it will make the reaction worse.

For enquiries to Zoe Hawes

01761 439920
zoehawes@btinternet.com

WILTHIRE BOTANY 11
CORRECTION

Page 22: Picture of Ribwort Plantain for "Nettle stings" box

Wiltshire Botany 11, 2010, pages 23-24

GALANTHUS NIVALIS FORMA 'PLENIFLORUS' P.D.SELL

Jack Oliver

Double snowdrops

Normal and double snowdrops

Each January, thousands of snowdrops can be seen in clumps or masses in the upper Kennet Valley. Perhaps 50% are the double form 'Flore Pleno', now designated 'pleniflorus', very often seen far from gardens. Occasionally on steep banks, the normal type can be seen to have established seedlings in discrete descending lines below the parent clumps.

Double snowdrops are pictured and described in Presland (2009). Petals have partly or completely replaced the stamens (and usually the carpels) as shown in the photo on the next page, a process known as petalody. Despite the petalody, the double snowdrops appear to have naturalised as extensively in the Upper Kennet Valley as the basic species. One problem in studying these plants is that the conspicuous January clumps disappear beneath March/April vegetation when fruiting heads are maturing.

The investigation and its results

I marked 6 sites for normal snowdrop clumps and 10 for f. 'pleniflorus'. On the table, A-D and O were semi-shaded rights of way, E-G and P were woodland, H-L were roadsides by fields and an embankment, and M and N were on grass. At each site, I counted the number of clumps occurring, the approximate number of flowering stems, the type of plant occurring (i.e. normal or f. 'pleniflorus') and the closely approximate number of fruiting stems. The results for these sites are shown in the table on the next page.

No healthy subspherical or spherical fruiting capsules were formed in any f. 'pleniflorus' clump. The 4 deformed conical capsules, from over 2¼ thousand flower stems, contained no seed. This compares with 250 seed-filled capsules from just over 1600 flower stems of normal snowdrops, about 1 in 7 successful fruitings.

If some, most or all of f. 'pleniflorus' had long since been garden throwouts, they have survived and multiplied, often forming extensive masses. Badgers have clearly split and spread some aggregations of bulbs, but this does not explain the far distant outliers Bulbs from riverside masses (not studied here) can be dispersed downstream after floods. I've seen grey squirrels unearthing and re-burying crocus corms in new sites, and perhaps snowdrop bulbs too. Even so, the mystery remains as to why the f. 'pleniflorus' snowdrops seem to be spreading as vigorously as the normally seeding basic snowdrop species.

Fertility of normal and f. 'pleniflorus' snowdrops in part of the Upper Kennet Valley

N = normal; P = forma 'pleniflorus'
( )* = ill-formed seedless capsules

Site	Clumps	Flowering stems (approx.)	Type	Fruiting stems (closely approx)
A	7	400	P	0
B	6	300	N	20
C	7	400	N	100
D	8	408	N	60
E	5	350	P	0
F	2	250	P	(2)*
G	3	50	P	0
H	1	30	P	0
I	2	20	P	0
J	2	20	P	0
K	2	500	P	(2)*
L	4	300	N	45
M	17	600	P	0
N	1	10	N	2
O	10	200	N	25
P	3	50	P	0
Total N	**36**	**1610**	**N**	**250+**
Total P	**44**	**2270**	**P**	**(4)***

Flower from below

References

Presland J (2009) 'Double flowers'. In Presland J, Oliver J and Barber M; *Abnormalities in Plants*, pp. 16-21.

Woodland colony

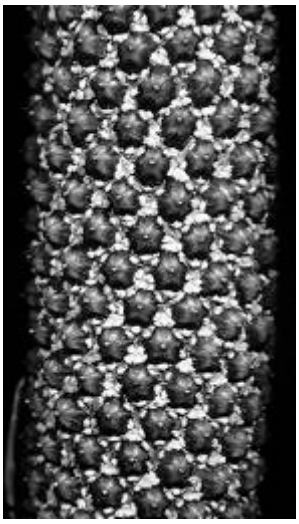
REEDY LOOK-ALIKES IN WILTSHIRE

A guide to identifying:

Common Reed (*Phragmites australis)*
Reed Canary-grass (*Phalaris arundinacea)*
Reed Sweet-grass (*Glyceria maxima)*
Sweet Flag (*Acorus calamus)*
Yellow Iris (*Iris pseudacorus)*
Bur-reeds *(Sparganium* species*)*
Bulrushes *(Typha* species*)*

Ken Adams

Sweet Flag with inflorescence and flowers



Problems with aquatic plants

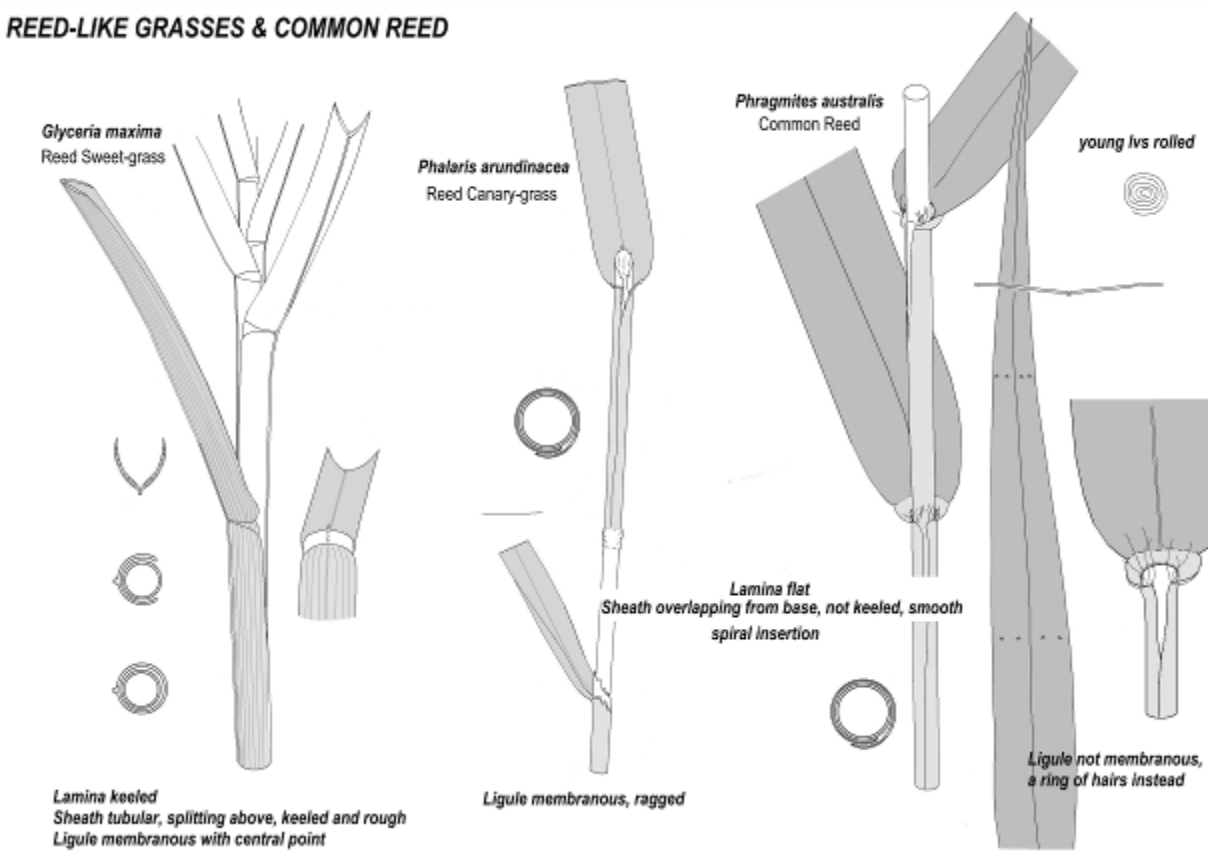
Once botanists have become familiar with their plants they tend to recognize them by subconscious pattern recognition. Unfortunately beginners often try and do the same with a picture-book Flora and come unstuck. Take the common aquarist throw-outs, *Elodea nuttallii* Nuttall's Waterweed (Now in just about every pond and river) and the less common and more ephemeral *Lagarosiphon majus* Curly Water-thyme. To the beginner they look very similar. To the trained eye however the *Elodea* clearly has its leaves arranged in whorls and the *Lagarosiphon* in spirals, so despite both having a confusing mass of curled leaves it is possible to be quite definitive.

When we look at plants in streams and rivers that to the uninitiated are just 'reeds', however, even the experienced botanist needs to look carefully to be sure of sorting then out. By 'reedy' plants I mean plants that have relatively wide leaves and are clearly not obviously fine grasses or sedges.

Reedy grasses

To start with there are three common grasses that fall into this category. The true reed *Phragmites*, our nearest grass to a bamboo in appearance, Reed Canary-grass *Phalaris arundinacea* – commonly mistaken for a true reed, and Reed Sweet-grass *Glyceria maxima*, a very different plant from our other three species of *Glyceria* which have narrow more obviously grass-like leaves. The experienced botanist will pick out the three reedy grasses as grasses straight away because they will see that their leaves are in two parts, - having both a sheath and a lamina or blade. *Phalaris* and *Phragmites* are the closest to each other in appearance, and even have somewhat similar stature and flower spikes. *Phalaris* and *Glyceria maxima* differ from *Phragmites* in having a membranous ligule, like most other grasses. *Phragmites* however keeps the water out of its sheath by another ruse. Instead of a membranous ligule it has a fringe of very short rigid hairs where the ligule should be, and tufts of long wispy hairs attached to the auricles. [Those who are happy botanising in the rain will know that the water runs down the waxy covering of grass leaves and is diverted from going down into the sheath where it could cause rotting, or fortuitous poisoning by broad-leaved herbicide, by the ligule - and grasses with large leaves also usually have ear-like 'auricles' or tufts of hairs on both sides from which drops of water fall away clear of the rest of the plant].

Phalaris and *Phragmites* differ from Reed Sweet-grass in having a sheath that arises from a spiral



insertion at the stem (culm) node so that the sheath itself has a free overlapping edge all the way down, whereas *G. maxima* has a closed tubular sheath arising from a circular insertion, although the sheath may be torn at the top when old. In *Phragmites*, the leaf lamina is initially rolled up like a carpet, and as successive laminas arise one within the other like Russian dolls, the swelling of the node induces tiny tucks in the lamina. Once unfurled the lamina has up to three rows of these tiny tucks – which traditionally we tell young children are the 'devil's tooth marks!!

Phalaris and *Glyceria maxima* can also be separated by the texture of the sheath and by their ligules. In *G. maxima* the sheath is very rough to the touch, and has a conspicuous keel down the back confluent with the midrib of the V-sectioned leaf. In *Phalaris* however the lamina is flat, and the sheath smooth. In *Phalaris* the ligule is usually somewhat flimsy and jagged whereas that of *G. maxima* is firm and has when fresh a characteristic apiculus in the centre.

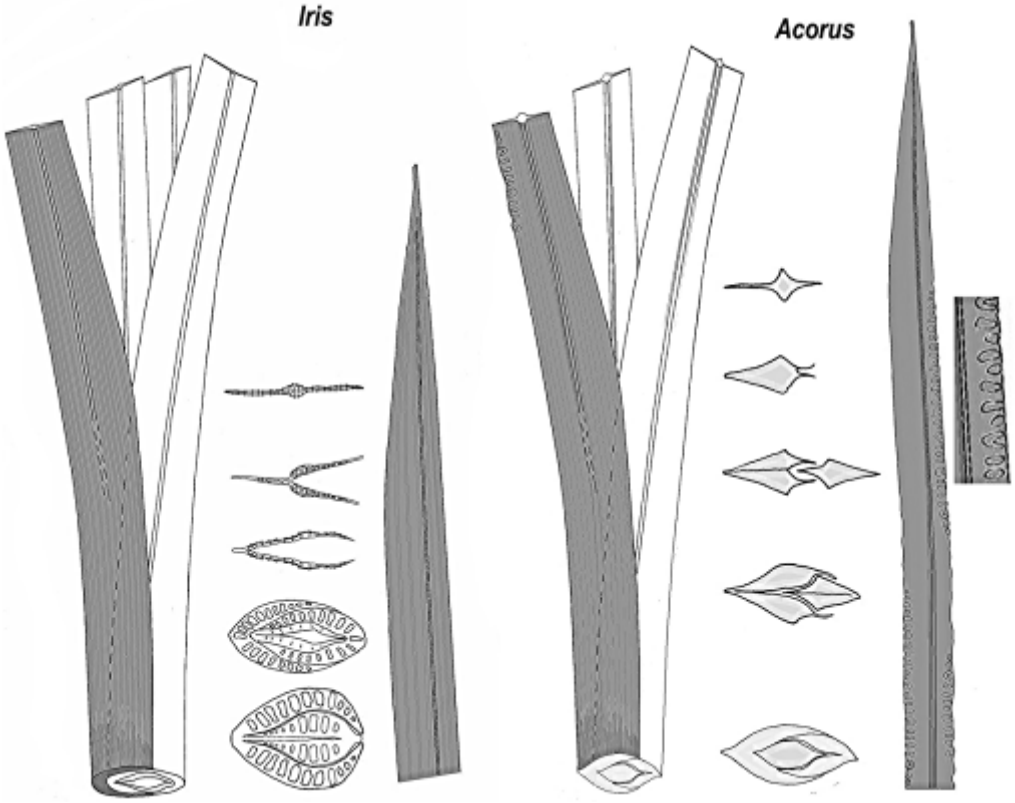
Reedy non-grasses

There are four common non-grass waterside plants that can be mistaken for reeds when they are not in flower. Two of them, have the colloquial name 'Flag' in common, although according to conventional Floras they are not even in the same family. The Sweet Flag *Acorus calamus* (sweet because when crushed the leaves smell of tangerine)

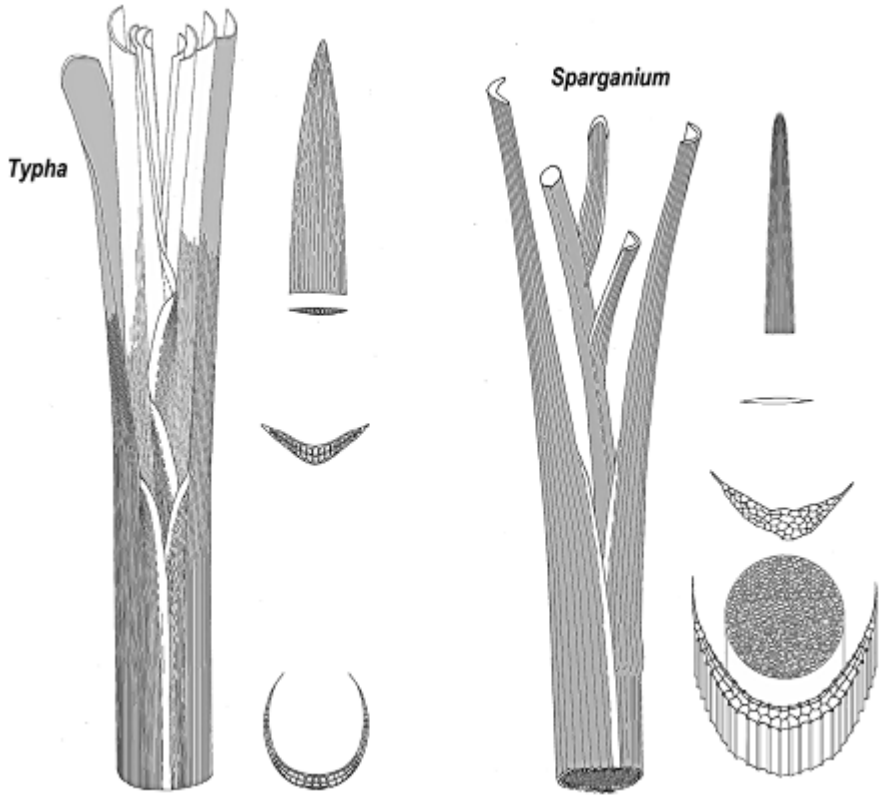
is in the Araceae, and the true Iris (mostly our native *I. pseudacorus* ('False-sweet flag') in the Iridaceae. Both have an extraordinary leaf structure that has presumably arisen by parallel evolution. At the base of the plant the leaves arise from interdigitated U-shaped sheathing bases, but as they ascend and diverge the sides of the U gradually fuse together so that at the point where the leaf blades diverge from each other the two halves merge to form a thin lamina from a sandwich of the two sides. The original midrib is now therefore along the outer edge, the apparent midrib up the centre of each face really being a pair of lateral veins lying back to back. The other characteristic for separating *Acorus* from *Iris* can be achieved at a distance through binoculars. In *Acorus* one or both edges of the upper part of the leaf are puckered with a row of saccate recesses due to the lamina in this region growing faster than the false midrib and the outer edge (see inset).

The other two 'reedy' non-grass genera I have depicted are *Typha* and *Sparganium*. *Typha* used to be called Reed Mace by the populace, a mace being ye old English for a knob on the end of a stick, the knob being sufficiently massive to smash in a human skull, if one felt so inclined. Unfortunately some ignorant artist, whose name escapes me, produced a

REEDY LOOK-ALIKES 1



REEDY LOOK-ALIKES 2



now famous painting of Moses in the Bulrushes clearly using Typha as his 'bulrush' – a name which all good botanists know should of course only be applied to *Shoenoplectus.* As most kids of the 1960's had this painting in their Sunday school the present population is convinced that *Typha* is the Bulrush,

and I see that several modern Floras have now adopted the name. Maybe Bulrush was an older name elsewhere before that, but it's certainly the reason the population east of the metropolis has this misconception. In North America *Typha* is known as Cattail, and they curse us for the alien invasive *T. angustifolia* which is ousting 'their' native *T. latifolia*. In any case, assuming the Moses story is anything but a myth the 'bulrushes' were probably actually *Papyrus*. Before that name brings back pangs of biblical nostalgia you may like to know that the Egyptians have all but exterminated it along the Nile. As far I am aware it now only occurs in one backwater on the east bank, - although it is now grown commercially down on the delta. When the 'mace' is not present, it is possible to identify *Typha* by its smoothly rounded-backed, slightly blue-green leaves that sheath around each other in opposite rows at the base, and which have a rounded scarious auricle at the point where they diverge as an initially channelled and then finally flat lamina. *Sparganium* the Bur-reed on the other hand, is a more yellowish-green in colour, and although it has narrow scarious auricles and a rounded sheathing base to its leaves, these are coarsely ridged like a stick of celery. Finally – before someone falls in attempting to retrieve a specimen of one of the above and wants to sue me for enticing them to look at reedy plants a bit more closely – I wish to cover myself by insisting that anyone so inclined must wear waders, be roped to a substantial nearby tree, have a companion and notify the police of the intention well in advance.

Branched Bur-reed (*Sparganium erectum)*

EDITORIAL NOTE

Wiltshire has more than one species each of *Typha* and *Sparganium. Typha latifolia* has leaves 8-24 mm wide, while *Typha angustifolia* has them 3-10 mm. The photos below offer a help in distinguishing *Sparganium erectum* from *Sparganium emersum*.

Unbranched Bur-reed *(Sparganium emersum)*

Wiltshire Botany 11, 2010, pages 29-35

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. It is hoped to make this a regular feature, depending on what publications have been located. Summaries of such publications will be most welcome.

In this issue we include information from two articles on trees (largely summarised by Joan Davies), one on the effect of climate change on Wiltshire fungi, one on the frequency of *Minuartia hybrida* on Salisbury Plain, a notice about John Ounsted's botanical library, notebooks and correspondence, an article on orange-trunked trees in Savernake Forest, a case study of the Wiltshire Fritillary meadows, a study of the flora of dry stone walls and a report of a field meeting at Clatford Arboretum.

St George's Mushroom

Spring fungi are fruiting earlier - Graham Mattock, Alan C Gange and Edward G Gange; British Wildlife, 18, 4, 2007, 267-272.

Records collated by Edward Gange and amassed by members of the Salisbury and District Natural History Society are presented. They cover an area of a 60km diameter circle centred on Salisbury and collected from 1950 onwards. The authors examined relations between the first fruiting date of two species and temperature and rainfall in the first three months of each year, and provide briefer data for two more. The species were:

Calocybe gambosa **(St George's Mushroom)**, an edible species growing in grassland or open woodland. The data show a gradual change to earlier fruiting from 1970 to 2006, reflecting a similar phenomenon across southern Britain. The overall change was from a first fruiting date of 17 May to 22 April. The higher the average March temperature, the earlier the fruiting, but there was no relationship with monthly rainfall.

Morchella esculenta **(Morel)**, an edible species growing in grassland or wood edges, shows a progression towards earlier fruiting, similar to that for *Calocybe*. The average date of first appearance has changed from 13 May to 3 April, again reflecting national trends. There is again a relationship with average February temperatures, but not with rainfall.

Mitrophora semilibera **(Semifree Morel)**, a poisonous woodland fungus, also shows earlier fruiting, but there were insufficient records for further analysis.

Gyromitra esculenta **(False Morel)**, a poisonous fungus of coniferous woods on acidic sandy soils, now first appears in February instead of April.

The results reflect a move towards earlier occurrence of life cycle events in living communities generally.

Morel

Semifree Morel

False Morel (Photo John Roberts)

It is associated with February and March temperatures becoming gradually higher. Recording groups claim that some of our autumnal fungi which sometimes produce fruit bodies in the summer are doing so less often now that summers are getting warmer and drier. Species of *Amanita*, *Russula* and *Boletus* are examples. Fungi that used to be halted by frosts in early November now continue to fruit well into December as winters come later and milder.

Large and special trees in the eastern part of Kennet District - Joan Davies and Jack Oliver; Wiltshire Archaeological and Natural History Magazine, 100, 2007, 42-64.

This is a study of the large and special trees in Marlborough and the surrounding area, including Savernake Forest. All trees of potential interest were measured to ascertain their girth (circumference) and height. As large trees form part of the landscape they were grouped and described under the following areas.

1. The Kennet and Froxfield Valleys
2. Marlborough Downs
3. Savernake Plateau
4. Pewsey Vale (the eastern part)

The article includes a table showing the most impressive trees found with the area numbers as above. In the table, shown on the next two pages:

* = Champion for Wiltshire
** = In the top 10 nationally
S = Of special interest
H = Of historic interest
Area numbers are as above
Girth was measured at 1.5m above the ground
Base measurements (given for some trees) were at 0.3m above the ground

Sweet Chestnut (Photo Jack Oliver)

Table of Species

Champion, near Champions and Special Trees in the East Kennet District
(This list does not include all of the trees mentioned in the article)

	Species	Name	Area	Location	GR at SU	Girth in cm	Year Measured
**	*Acer campestre*	Field Maple J 09457	3	Savernake Forest	2274 6605	375 400 at 1.8m	2000
*	*Acer cappadocicum*	Cappadocian Maple JP 1778	1	Marlborough College	186 685	290	2006
*	*Acer platanoides*	Norway Maple	1	Marlborough College	181 688	355	2006
*	*Acer pseudoplatanus*	Sycamore	3	Clench Common	181 649	555	2004
	Acer pseudoplatanus	Sycamore	1	Froxfield Churchyard	295 680	480 **Base 830**	2004
S	*Acer pseudoplatanus Mutant*	Sycamore, mutant	3	Lockeridge	150 675	93	2003
**	*Aesculus hippocastanum*	Horse Chestnut	3	Tottenham House Park	251 638	605 Base 880	2002
*	*Betula papyrifera*	Paper-bark Birch	4	Oare House	149 627	225	2006
	Carpinus betulus	Hornbeam	2	High Clear Down	233 766	470 at 0.6m	2000
	Carpinus betulus	Hornbeam	1	West of Froxfield	269 679	350 Base 840	2002
**	*Carpinus japonica*	Japanese Hornbeam	4	Oare House	148 627	107	2006
*	*Castanea sativa*	Great Grey Ride Chestnut J08144	3	Savernake Forest	2078 6729 Octant VII	850 975 at 0.3m	2001
**	*Castanea sativa*	Sweet Chestnut	4	Brimslade Park	209 632	1055 1130 at 0.3m	2005
S	*Castanea sativa*	Sweet Chestnut	3	Bedwyn Brail	282 623	Multiple	2005
*	*Catalpa bignonioides*	Catalpa	1	Marlborough	187 688	325	2006
**	*Fagus sylvatica*	Warren Farm Beech J 09231	3	Savernake Forest Fringe	249 656	705	2004
S	*Fagus sylvatica*	Beech with a rough bark J 08786	3	Savernake Forest	2254 6625	383	2001
H	*Fagus sylvatica purpurea*	Copper Beech, J 1790 'Tennyson Beech'	1	Marlborough College	186 686	386	2006
	Fagus sylvatica purpurea	Copper Beech	1	Marlborough	190 691	447	2006
**	*Ilex aquifolium*	Holly	4	Long Copse Brimslade	214 639	315 Base 460	2002
*	*Ilex aquifolium f heterophylla*	Holly variant	4	Oare House	153 631	182 Base 350	2006
*	*Platanus* x *acerifolia*	London Plane	1	Chilton Foliat	319 704	880	2006
**	*Populus x canadensis 'Regenerata'*	Railway Poplar, Female tree	1	Marlborough	187 683	680	2003
**	*Prunus avium*	Wild Cherry	3	Folly Farm, Bedwyn	430	273 624	2006
**	*Prunus cerasifera pissardii 'Nigra'*	Cherry Plum	1	Froxfield Churchyard	295 680	163	2004
*	*Pseudotsuga menziesii*	Douglas Fir JP 1982	3	Tottenham House	250 641	525 at 2m 575 at 1m	2000
**	*Pyrus communis*	Wild Pear	1	Harrow Cross Roads Froxfield	274 679	315	2004

*	*Quercus coccinea*	American Scarlet Oak	4	Oare House	154 630	235	2006
** x	*Quercus crenata Lucombeana*	Lucombe Oak	3	Tottenham House Park	252 639	618	2002
*	*Quercus petraea*	Old Paunchy J 09057	3	Savernake Forest	2085 6764	700 Base 1050	2001
	Quercus robur	Cathedral Oak J 09500	3	Savernake Forest	2061 6798	995	2002
H	*Quercus robur*	Stanley Baldwin Oak	4	Oare House	152 629	225	2006
S	*Quercus robur 'Cristata'*	Original Cluster Oak	3	Savernake Forest	217 653	190	1999
*	*Quercus robur 'Cristata'*	Cluster Oak	4	Burbage Churchyard	233 614	191	2002
S	*Quercus robur f. fastigiata*	Cypress or Poplar Oak	1	Marlborough	187 688	281	2006
** H	*Quercus* x *rosacea*	Big Belly Oak	3	Savernake Forest	2132 6578	1080 Base 1400	2002
*	*Salix alba*	White Willow	4	Oare House	154 629	580	2006
*	*Salix alba*	White Willow	4	Wolfhall	243 622	2nd trunk 730	2004
*	*Salix fragilis*	Crack Willow	1	Marlborough	182 685?	480	2003
*	*Sequoiadendron giganteum*	Wellingtonia SD 0831	3	Tottenham House	250 639	870	2000
S	*Sorbus aucuparia*	Suckering Rowan J08849	3	Savernake Forest	2215 6545	182 at 0.3m	2004
*	*Taxus baccata*	Yew	4	Alton Priors	108 621	875	2006
	Tilia x *europea*	Common Lime J01498	3	Cobham Frith	260 677	840 at 0.3m	2001
**	*Tilia cordata*	Small-leaved Lime	4	Wolfhall	242 621	530	2004
**	*Tilia* x *euchlora*	Caucasian Lime	4	Oare House	149 627	450	2006
**	*Tilia platyphyllos ssp cordifolia*	Broad leaved lime, small-leaved subspecies	3	Tottenham House Park	252 639	605	2004

Wild Cherry (Photo Joan Davies)

Wild Pear (Photo Joan Davies)

Savernake Forest Oaks - Jack Oliver and Joan Davies; Wiltshire Archaeological and Natural History Magazine, 94, 2001, 24-46.

In Savernake Forest we expected to find all or most of the oak trees to be the Pedunculate Oak. Instead, following detailed examination of the leaves and the stalks of leaves and acorns, our survey of the oaks in Savernake Forest found that the two native oak species were both common and regenerating naturally. The Pedunculate and Sessile Oaks occurred in roughly equal quantities, whether as veterans or as the much more numerous saplings. Neither species was as common as the hybrid between them *Quercus* x *rosacea*. Commonest of all were intermediate trees of all ages which appeared to be introgressed, hybrids back-crossed with either parent. These three (or five depending on definition) native oak taxa were widespread, making Savernake a mixed oak forest.

The named and unnamed ancient oaks of great girth and age had been managed at times by coppicing, pollarding or both, or left as maidens or specimen trees, such diversity being a fine attribute of this great forest. In the survey, over 170 large oaks were measured. The Oak with the largest girth found in the forest was the Big Belly Oak. This is a hybrid, *Quercus* x *rosacea*, with a girth of nearly 11 metres and a coppice base measuring 14 metres; it is very probably the oldest oak in the Forest. Parts of the coppice base could be a thousand years old. Of the 10 great oaks with girths above 7 metres, only the true Braydon Oak retains its full height and spread. The tallest oak in the forest is probably a Turkey Oak (*Q. cerris*) with a girth of 5.3 metres.

Big Belly Oak *(Q x rosacea) (*Photo Joan Davies)

Genetic aspects were considered as, even for expert specialists, oaks are known to be particularly difficult subjects for genetics and cytology. Tannin concentrations interfere with cell preparations, and the oak chromosomes are very small and homogeneous. Nearly all species of oak are diploid with 24 chromosomes. High degrees of sterility are reported when crosses are attempted between different species of oak, including the two native species. However the botanical literature contains references to the abundance of hybrids in natural oak populations. Hybrids of the indigenous British Oaks (*Q. robur* x *Q. petraea*) have been described for oak populations in Scotland, Ireland, Wales, NW, SW, SE and central England.

For identification the main features scrutinized for each of the big oaks were those that discriminate best (Stace 1997, Rich and Jermy 1998) between the two native oak species: petiole (leaf-stalk) lengths, peduncle (acorn stalk) lengths and pubescence (where available), leaf bases (two features) and pubescence or not on the underside of the leaves. Some attention was also given to the number of leaf lobes and the depth and regularity of the leaf-lobing. Details are given on the microscopy method (examined by binocular microscope at x30 magnification) of recording the length of hairs and on the measurement of the petioles and peduncles.

A section of the Oak taxa in Savernake Forest is given with a note of the percentage of each taxon in Savernake Forest. One section included observations on the original endemic mutant Savernake Cluster Oak (*Q. robur* var. *cristata*) which still survives and of the three non-native oak species noted, we found

more than 20 specimens of only one, the American Red Oak (*Q. rubra*).

Epiphytes are considered under the four headings of ferns, woody plants, herbaceous plants and grasses. These vascular plant epiphytes on the Savernake oaks were not altogether typical (even allowing for occasionals) of the lists reported from other oak-woods (compare Morris and Perring 1974, Rose 1974).

The final section is a discussion on how Savernake compares with other forests and the problems facing the Forest. The conclusions is that Savernake Forest is remarkable for its diversity and the number of remaining ancient oaks.

John Ounsted's botanical library, notebooks and correspondence - Simon Leach; BSBI News, 110, January 2009, 66.
John Ounsted was, until his recent death, a long-standing member of Wiltshire Botanical Society. His library, notebooks and correspondence have been passed to the BSBI. Included are records of quite a few scarce and rare taxa, illuminating and often humorous tales, species descriptions, population counts, lists of associated species, grid references and sketch maps. More information is available from Sinmon Leach (15 Trinity Street, Taunton TA1 3JG; simonleach@phonecoop.coop), who would also be interested in ideas for using the collection.

***Minuartia hybrida* on the Defence Training Estate (Salisbury Plain) - Sharon Pilkington; BSBI News, 104, January 2007, 4-5.**
Minuartia hybrida (Fine-leaved Sandwort) is a small annual of dry, open, calcareous ground. It is nationally scarce, but the Defence Training Estate on Salisbury Plain may represent one of the largest populations in the British Isles. It grows along the sides of tracks disturbed regularly by tracked vehicles. Recording by the author and others in 2006 updated sporadic earlier records and allowed an estimate of at least many tens of thousands of plants along roads and dirt tracks. Tanks and other military vehicles are probably the main agent for dispersing the seeds along them.

Orange-trunked trees in Savernake Forest - Jack Oliver; BSBI News, 104, January 2007, 28-29.
A variety of species of tree in Savernake Forest have large orange areas on their trunks. This is an alga, a species of *Trentepohlia*. It is a green alga, but the chlorophyll which normally gives plants their green colour is masked by an orange pigment. Under the microscope, it can be seen that the orange mass consists of a mesh of filaments. Under dry conditions, its colour changes to brown or grey.

The Wiltshire Fritillary meadows: a case study in habitat degradation - Philip J Horton and Richard G Jefferson; British Wildlife17, 3, 2006, 176-184.
In 1971 the Nature Conservancy designated seven North Wiltshire sties with Fritillary *(Fritillaria meleagris)* as Sites of Special Scientific Interest (SSSIs). This enabled the Nature Conservancy to influence how these area were managed, though the degree of protection was limited. Only three are still of high botanical importance. The authors provide a review of the situation.

The table summarises some of their findings. The meaning of SSSI has already been referred to, though it would require an essay to explain precisely what it means in practice. NNR stands for National Nature Reserve, which confers a higher status and level of protection than SSSI. SAC stands for Special Area of Conservation, which means it is given high priority in the UK Biodiversity Action Plan (BAP) of 1995, which confers a further layer of protection. "Denotified" means that a site's status as an SSSI has been withdrawn, usually because it is no longer of such biological importance.

Fritillary meadow	**Scientific interest**	**Status (mid-80s))**
Long Meadow, Ashton Keynes	Reduced by fertiliser, intensive	Denotified

SU 055931	grazing and drainage since 1976	
Clattinger Farm, Oaksey SU 012933	Maintained through voluntary effort of owner	SSSI; SAC
Coleshill Meadow, Coleshill SU 229937	Declined for unknown reasons	Denotified, but a population of fritillaries maintained by they owner (National Trust)
Inglesham Meadows, Upper Inglesham SU 213963	Reduced by fertilisers and work by Thames Water Authority	Denotified
North Meadow, Cricklade SU 095945	Maintained	Part NNR; part SSSI; SAC
Swill Brook, Oaksey ST 998930	Fertiliser and intensive grazing	Denotified
Upper Waterhay Meadows, Ashton Keynes SU 069938	Maintained in one field; reduced by fertiliser and intensive grazing in then other two9. Gravel extracted from these two later	One field SSSI; others denotified

The authors explain that most of the county's Fritillary meadows are classified as MG4 in the National Vegetation Classification (NVC). MG4 stands for *Alopecurus pratensis - Sanguisorba officinalis* (Meadow Foxtail - Great Burnet) grassland community, which consists of a mixture of plants with tall perennials such as Meadowsweet *(Filipendula ulmaria)*, Great Burnet *(Sanguisorba officinalis)* and Common Meadow-rue *(Thalictrum flavum)* and also includes a number of uncommon plants including Fritillary. This gives the Fritillary meadows a wider importance. The nature conservation value of this community is sustained by low-intensity hay-cutting followed by grazing, accompanied by absence of fertiliser application. It occurs where autumn or winter water tables are high and include surface flooding, though severe water-logging is harmful. Fritillary is particularly discouraged by spring grazing, picking or early mowing, which interfere with seed production. Application of fertilisers has been particularly harmful in the sites surveyed here, regarded as an adverse factor in four of the seven sites.

In Britain, Fritillary has been classified as "vulnerable" in the latest Red Data List for Great Britain. The number of sites with more than 100 plants is not more than 20. Wiltshire has about 30% of the existing sites and around 80% of the total population. Appropriate management of our sites is, therefore, of high importance.

The flora of limestone walls: dry stone versus mortared - John Presland; BSBI News, April 108, 2008, 7-11.

The original survey of the flora of dry stone walls in Winsley has already appeared in *Wiltshire Botany* **10**, 23-28. The article featured here gives the findings of a subsequent comparative survey of dry stone and mortared walls in Winsley. More than 40 species were found on the dry stone walls and approximately 50 species on the mortared walls.

In particular, the following plants were judged to be locally frequent on the mortared walls but were not noted at all in the dry stone wall survey:
Asplenium trichomanes (Maidenhair Spleen-wort)
Campanula portenschlagiana (Adria Bell-flower)
Cymbalaria muralis (Ivy-leaved Toadflax)
Lepraria incana (a lichen) - though it did occur on one non-retaining non-mortared wall in the mortared wall study area
Parietaria judaica (Pellitory-of-the-wall)
Pseudofumaria lutea (Yellow Corydalis)

Plants common on the dry stone walls but absent from the mortared ones were:
Geranium pyrenaicum (Hedgerow Cranesbill)
Orthotrichum anomalum (Anomalous Bristle-moss)
Sedum acre (Biting Stonecrop)
Particularly striking was the observation that mosses were surprisingly rare on the mortared walls, even *Homalothecium sericeum*, *Tortula muralis*, *Grimmia pulvinata*, *Schistidium apocarpum*, and *Bryum capillare*, all common on the tops of the dry stone walls. None of them occurred on more than three short stretches of these mortared walls.

Perhaps a clinching comparison emerges from listing all the species which were judged to be at least locally frequent on mortared walls, which amounts to 11, and then identifying the 11 species which were recorded at the greatest number of sites on the dry stone walls. These are shown in the table. There was no overlap at all, which is a strong argument for

regarding the two communities as different. Certainly, in Winsley, the two communities are markedly so. Comparison with the largely limestone dry stone walls in the Mendips shows a high level of agreement with the Winsley findings, so perhaps these differences are widespread.

Note: see also www.dry-stone-wall-flora.co.uk.

Table showing comparison of species on mortared and dry stone walls in Winsley

At least locally frequent on mortared	Top 11 number of sites on dry stone
Parietaria judaica	*Homalothecium sericeum*
Cymbalaria muralis	*Tortula mura*lis
Pseudofumaria lutea	*Grimmia pulvinata*
Centranthus ruber	*Bryum capillare*
Erysimum cheiri	*Geranium lucidum*
Asplenium trichomanes	*Schistidium apocarpum*
Asplenium ruta-muraria	*Sedum acre*
Ceterach officinarum	*Orthotrichum anomalum*
Phyllitis scolopendrium	*Saxifraga tridactylites*
Lepraria incana	*Porella platyphylla*
Campanula portenschlagiana	*Geranium pyrenaicum*

Field meeting report: Clatford Arboretum - Jack Oliver; BSBI News, 110, January 2009, 60-61.

Clatford Arboretum is the creation of Jack Oliver near Marlborough. A meeting on 27 July 2008 noted:

- 28 *Salix* taxa, including *S. fragilis* (Crack Will-ow), *S. alba* (White Willow), *S. x sericans* (Broad-leaved Osier), *S. viminalis* (Osier), *S. caprea* (Goat willow), *S. purpurea* (Purple Willow), *S. triandra* (Almond Willow), *S. alba caerulea* (Cricket-bat Willow), *S. babylonica* (the true Weeping Willow) and *S. x sepulchralis chrysocoma* (Golden Weeping Willow).
- 24 *Populus* taxa, including *P. x Canadensis* (Hybrid Black Poplar), *P. x canescens* (Grey Poplar), *P. x generosa* (Generous Poplar), *P. trichocarpa* 'Fritz Pauley' (Mount Baker Pop-lar), *Populus nigra* var. *betulifolia* (native Black Poplar) and *P. x Canadensis* 'Eugenii' (Carolina or Eugene's Poplar).
- *Tilia x europea* (lime).
- *Platanus x hispanica* (London Plane).
- Most endemic *Sorbus* species (Rowans and whitebeams).
- *Pterocarya stenoptera* (Chinese Wingnut, fern-leaf variant).
- Quercus robur 'cristata' (Cluster Oak, endemic to Savernake Forest).
- *x Cupressocyparis leylandii* (Leyland Cypress).
- *Prunus x fruticans* (a hybrid Sloe-Damson, endemic to Wiltshire).

PLANT RECORDS 2008

Explanatory notes

- The following is a selection from WBS records received in 2008. For new pre-2008 records, the year is inserted in brackets after the recorder. 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, only those new to their 10 km square 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
BGo - B Goater
BL - Barbara Last
DA - David Allen
DHu - D Hughes
DJW - Jeremy Wood
DNe - David Nesbitt
DWP - Dominic Price
EJC - Eric Clement
GA - Geoffrey Appleyard
HFG - Hampshire Flora Group
JBr - Jane Brown
JEO - Jack Oliver
JGo - J Goater
JGs - J Grearson
JN - Joy Newton
JO - John Ounsted
JP - John Presland
JPo - John Poland
JRM - John Moon
JTu - John Tucker
JW - Jean Wall
MHo - M Hodgkiss
MNb - Marion Nesbitt
MNo - M Noble
MWR - Martin Rand
MWi - M Wildish
PBi - P Billinghurst
PBu - Philip Budd
PD - Paul Darby
PMW - Pat Woodruffe
PSe - Pete Selby
PSk - Paul Skelton

Dwarf Mallow *(Malva neglecta)*

.

RAi - Richard Aisbitt
RDu - Rosemary Duckett
RL - Rob Large
RW - R Walls
SEd - Stephen Edwards
SFi - Sue Fitzpatrick
SHe - Sonia Heywood
SM - S Marshall
SPi - Sharon Pilkington
TKa - Tim Kaye
TM - Tony Mundell
WBS - Wiltshire Botanical Society (excursion)

SPTA stands for Salisbury Plain Training Area

Vc7

Alcea rosea; JEO; Manton; wall-road angles, garden escapes
Allium paradoxum; PD; Minety; Stonehill Wood, 6 beside track
Allium triquetrum; JEO; Manton; wall-road angles, spreading; 1st vc record
Barbarea intermedia; SPi; Castle Eaton; Manor Farm, margin of oilseed rape field
Blechnum spicant; RL (2007); Kington St Michael; Hey Wood; plant on edge of ride
Carex binervis; RL (2007); Kington St Michael; Hey Wood, scattered along ride
Carex viridula ssp. brachyrrhyncha; WBS; Minety; Clattinger Farm
Centaurium pulchellum; SHe; Tilshead; Tilshead Down, several on track
Cephalanthera damasonium; JN; Rockley; plant under beech
Chamaecyparis lawsoniana; JEO; Wroughton; car park, 2 seedlings
Cochlearia danica; SPi; Notton; A350, salt-spray zone on verge
Cotoneaster frigidus; JN; Axford; Hens Wood, large old tree
Cotoneaster horizontalis; JP; Winsley; wall-top, 2**;** Turleigh; wall-tops, several
Cotoneaster lucidus; JP; Winsley; one on wall-top
Cynoglossum officinale; JN; Cherhill; Cherhill Down
Doronicum pardalianches; JEO; Manton; verge, A4
Dryopteris affinis ssp. affinis; SPi; Chittoe; Spye Park, flushed or damp ground in woodland
Echinochloa crus-galli; JW; Malmesbury; garden, under bird feeder
Equisetum fluviatile; SPi; Marson Meysey; Eysey Manor Farm, near old canal
Erysimum cheiranthoides; RL (2007); Devizes; Rotherstone House, casual in vegetable bed
Euphorbia dulcis; JP; Bradford-on-Avon; one in wall-step angle; (2006)**;** wall-pavement angle; 1st recent county record
Foeniculum vulgare; TKa; Chippenham; self-sown in front garden
Fumaria muralis ssp. muralis; SPi/RDu; Bromham; market gardens, field edge, 2 places; 1st county record
Galeopsis bifida; SPi; Chittoe; Spye Park, damp ground
Galium uliginosum; SPi; Minety; Pike Corner SSSI
Glyceria notata; SPi; Chittoe; Spye Park, damp ground
Heracleum mantegazzianum; SPi; Chittoe; Spye Park, beside track
Hyoscyamus niger; JN; Cherhill; Cherhill Down
Juncus bulbosus; JEO; West Overton and Wroughton; seeded from introduced garden peat
Kickxia spuria; SPi; Castle Eaton; Manor Farm, frequent in margin of oilseed rape field
Leucanthemum x superbum (lacustre x maximum); JEO; Lockeridge; roadsides, wall-pavement angles, 30+
Linum bienne; SHe; Tilshead; Tilshead Down, numerous, scattered
Lonicera pileata; JEO; Marlborough; car park, escape from landscaping on to stonework
Malva neglecta; SPi/RDu; Bromham; market gardens, edge of leek crop
Medicago arabica; JTu; Chippenham; 4 places in grass
Myosotis laxa; SPi; Chittoe; Spye Park, woodland
Orchis ustulata; JN; Hinton Parva
Ornithogalum pyrenaicum; SPi; Iford; hundreds along verges
Papaver somniferum; JEO; Upper Minety; Swillbrook Bridge
Persicaria x pseudolapathum; JEO; Lockeridge; 1st county record
Plantago coronopus; SPi; Somerford Keynes; Cotswold Water Park, gravelly ground near lake
Polypodium interjectum; JP; Great Ashley; clump on wall-top
Potamogeton berchtoldii; TKa; Swindon; Stanton Park
Puccinellia distans; SPi; Cricklade; A419, patchily along verges
Rhinanthus minor ssp. calcareus; WBS; Castle Combe; West Yatton Down, chalk grassland
Rorippa microphylla; JEO/JN; Clatford; open field drain
Rosa rubiginosa; JN; Chilton Foliat; 5 in Hawthorn hedge
Rosa x toddiae (canina x micrantha); WBS; Castle Combe; West Yatton Down, one; 1st county record
Sagina maritima; SPi; Lacock; A350, in salt-spray zone on verge; 1st county record
Salix x calodendron (viminalis x caprea x cinerea); JEO/BSBI; Clatford; spontaneous; 1st county record
Salix x rubens; (alba x fragilis); JEO/BSBI; Clatford; 2+ trees, and intermediates; 1st vc record
Saxifraga tridactylites; SPi; Castle Eaton; church wall

.

Setaria viridis; SPi/RDu; Bromham; market garden, plentiful along track
Sisyrinchium bermudiana; JGs; Ashton Keynes; Millennium Green, one
Solanum physalifolium; SPi/RDu; Bromham; market gardens, field edge; 1st county record
Spergula arvensis; SPi; Lacock; A350, salt-spray zone on verge, small colony; 1st vc record
Spergularia marina; SPi; Stanton St Quintin; A350/M4 junction, bare areas close to road; 1st vc record
Thymus pulegioides; JN; Baydon; Hodds Hill, several
Tilia cordata; PD; Brinkworth; Somerford Farm, semi-mature tree in hedgerow
Trifolium hybridum ssp. hybridum; JN; Chilton Foliat; Briary Wood, track; 1st county record
Triglochin palustre; SPi; Minety; Pike Corner SSSI, very local in meadow
Ulex gallii; RL/SM (2007); Chittoe; Spye Park, scattered in heathland
Valerianella locusta; SPi; Bradford on Avon
Verbascum blattaria; RAi; Oaksey; Lower Moor Farm, gravelly imported soil
Verbascum phoeniceum; JEO; Lockeridge; 2 in meadow; 1st county record
Viscum album; PD; Purton Stoke; on lime tree

Vc8

Alnus cordata; JBr/WBS; Pewsey; Fordbrook area; 1st vc record
Bromus commutatus; RL/SM (2007); Semley; comm.on, frequent across 50+ ha
Callitriche platycarpa; SPi; Upper Woodford; River Avon, abundant
Carex humilis; MWR/EJC/RW/JPo/DA (2006); Martin; Martin Down
Catabrosa aquatica; RL; Berwick St James; River Till, good-sized stand at cattle access
Catapodium rigidum; SPi; Netheravon; SPTA, gravelly area
Cerastium pumilum; PSk; Tilshead; SPTA, disturbed ground
Cerastium semidecandrum; RL (2007); Ebbesbourne Wake; Cornicombe, 2 on anthill in rank MG1**;** PSk; Westbury; SPTA, Four Hundred Down
Cerinthe major; DWP (2006); Coombe Bissett; Pennings Farm, possibly var. 'Purpurascens', on track; 1st county record
Cirsium x medium (tuberosum x acaule); AA/SFi/PMW; Teffont Magna; Wylye and Church Dean Downs SSSI, several places, 127 in one, 30+ in another
Cochlearia danica; MWi (2005); Ludgershall; 2 at A338/A342 junction
Convallaria majalis; DHu (2007); Damerham; Ashridge Copse, wood edge
Cuscuta epithymum; AA/GA/SFi/DJW/PMW (2007-8); Broad Chalke; Knighton Downs SSSI, 6 places**;** RL/SM (2007); Hydon Hill Down, several places
X Dactylodenia st-quintinii (Gymnadenia conopsea x Dactylorhiza sp.); MHo; Corsley Heath; Cley Hill, one
Dactylorhiza praetermissa; A/GA/SFi/DJW/PMW; Broad Chalke; Knighton Downs SSSI, 4 places
Dactylorhiza x grandis (fuchsii x praetermissa); AA/GA/SFi/DJW/PMW (2007-8); Broad Chalke; Knighton Downs SSSI, 3 places, 71 in shortish turf in one. D. fuchsii also present in another
Danthonia decumbens; AA/GA/SFi/DJW/PMW (2007-8); Broad Chalke; Knighton Downs SSSI, 5 places, short turf**;** AA/SFi/PMW; Teffont Magna; Wylye and Church Dean Downs SSSI, 2 places, one locally abundant
Daphne laureola; WBS (2007-8); West Knoyle; 1 small bush in old woodland and dozens on hedgebank
Erica cinerea; WBS (2007-8); East Knoyle; acid grassland
Erodium cicutarium; JO/PSe (2000); East Martin; Talks Farm
Fritillaria meleagris; DHu (2007); Damerham; Ashridge Copse, open grassy glade
Fumaria officinalis ssp. wirtgenii; SPi; Figheldean; SPTA
Galeopsis angustifolia; HFG/WBS (2007); Whiteparish; Dean Hill Park, some with white flowers
Genista hispanica; PBi/BGo/JGo (2006); Martin; Drove End; 1st recent county record
Gentianella anglica; AA/GA/SFi/DJW/PMW (2007-8); Broad Chalke; Knighton Downs SSSI, 8 places, 5 with 120+**;** DNe/MNb/TM (2006); Martin; Martin Down, 11 plants beside track
Geranium phaeum; MWi (2000); Everleigh; Summer Down Farm
Glyceria declinata; SPi; Tidworth; Bourne Bottom, muddy rut
Glyceria notata; SPi; West Knoyle; small pond; Netheravon; SPTA
Helleborus viridis; DHu (2007); Damerham; Ashridge Copse, open oak woodland
Impatiens capensis; SEd; Pewsey; Kennet and Avon Canal
Isolepis setacea; SPi; Westwood; Nursery, one ? brought in with peat
Kickxia spuria; SPi; Imber; disturbed ground
Lepidium campestre; MWi (2005); Ludgershall; Blackmore Down, by tracks
Lepidium draba; MWi (2000); Tidworth; Pickpit Hill, by tank track
Linum bienne; SPi; Netheravon; SPTA, short turf; Well Bottom, frequent in chalky track
Luzula sylvatica; SPi; Bratton; one at foot of wall
Monotropa hypopitys; MWi; Tidworth; Sidbury Hill, 11 near track in woodland

.

Myosotis discolor; AA/GA/SFi/DJW/PMW (2007-8); Great Wishford; Ebsbury Down
Narcissus x medioluteus (tazetta x poeticus); MWi (2005); Ludgershall; Bulls Drove, single casual on track; 1st county record
Neottia nidus-avis; PBu (2007-8); Cobley; Vern-ditch Chase
Ophrys apifera; MWR/HFG (2007-8); Martin; Martin Down
Orchis morio; AA/GA/SFi/DJW/PMW (2007-8); Broade Chalke; Knighton Downs SSSI, 3 places
Ornithogalum pyrenaicum; SPi; Lockeridge; West Woods, many hundreds on road verge and in hedge
Plantago coronopus; SPi; Orcheston; SPTA, vehicle marshalling area, small population
Platanthera bifolia; AA/GA/SFi/DJW/PMW (2007-8); Great Wishford; Ebsbury Down SSSI, 4 places, one with 11+
Platanthera chlorantha; AA/GA/SFi/DJW/PMW; Great Wishford; Ebsbury Down SSSI; AA/GA/ SFi; Wylye; Grovely Wood, 3 places, 22 in one and 22 spikes by a ride
Polemonium caeruleum; MWi (2000)**;** Ludgershall; Collingbourne Wood
Pyrola minor; MWR/MNo (2007); Plaitford; Giles Lane sandpit, damp sandy soil under Scots Pine/ Silver Birch/Gorse/Bramble scrub
Ranunculus fluitans; RL/SM (2007); Semley; Semley Common, in drying ditch
Ranunculus penicillatus ssp. pseudofluitans; SPi; Upper Woodford; River Avon, abundant
Rhinanthus minor ssp. calcareus; SPi; Enford; SPTA, shell craters; Netheravon; SPTA, shallow scrape; Tidworth; SPTA Weather Hill
Rosa x toddiae (canina x micrantha); HFG/WBS (2007); Whiteparish; Dean Hill Park, one; 1st county record
Rosa micrantha; AA/GA/SFi/DJW/PMW (2007-8); Great Wishford; Ebsbury Down SSSI, 2 places; Broade Chalke; Knighton Downs SSSI, 2 places**;** AA/SFi/PMW; Teffont Magna; Wylye and Church Dean Downs SSSI
Rubus pyramidalis; BGo/JGo (2003); Martin; Drove End
Sagina nodosa; PSk (2007); Tilshead; SPTA, track
Salix purpurea; SPi; South Newton; River Wylye, common
Saxifraga granulata; AA/GA/SFi/DJW/PMW; Great Wishford; Ebsbury Down SSSI; 10; AA/GA/ SFi/DJW/PMW; (2007-8); Broade Chalke; Knighton Downs SSSI; AA/SFi/PMW (2007); 6 places, abundant in 3**;** AA/SFi/PMW; Teffont Magna; Wylye and Church Dean Downs SSSI, 2 places, one with 35; JRM (2007-8); Ludgershall; Collingbourne Woods, rough pasture
Sedum album; MWi (2005); Ludgershall; old railway line path
Sedum spurium; MWi (2000); Ludgershall; old railway line path; 1st vc record
Spergularia marina; BL (2007-8); Winterbourne Stoke; A303, Yarnbury Castle, lots at road edge
Spiranthes spiralis; RL/SM (2007); Tytherington; Littlecombe Bottom, scattered
Taxodium distichum; WBS; Pewsey; Scotchel Nature Reserve; 1st county record
Trifolium medium; AA/SFi/PMW; Teffont Magna; Wylye and Church Dean Downs SSSI, 2 places; (2007-8); Great Wishford; Ebsbury Down SSSI
Valerianella carinata; SPi; Lower Westwood; dozens in wall-pavement angles; JBr; Burbage
Verbascum phlomoides; JRM; Cholderton; 1st vc record
Veronica polita; MWR (2007); Downton; track
Viscum album; SPi; Dinton; many plants in a lime

Meadow Saxifrage *(Saxifraga granulata)*

.