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EDITORIAL

In this issue

We begin this issue with some history. Pat Woodruffe and Tim Rich write about the work of Barbara Welch from the 1920s to the 1950s. Barbara was a prolific recorder of Wiltshire plants. The work of such past recorders can help us understand the context of our recording work today. The article provides a description of the information available from Barbara's records. Hopefully, some detail regarding particular groups of species can be in later issues. Long-lived plants provide another link between the past and the present, and Jack Oliver's study of ancient trees in Wiltshire, of which the current article is only a small part, covers many species. In this issue we include his work on beeches, chestnuts and oaks. There should be much more in later issues.

There follows a collection of articles about the present. Rod Stern gives an account of the bryophyte flora of South Wiltshire published in 2001. Ted Gange describes the range and numbers of fungi in Bentley Wood, a huge area near to the Winterslows. As usual, extracts are provided from the WBS plant records, this time for 200 and 2001. These, however, are placed at the end of the journal, as usual.

Our final three articles have conservation as their focus, and thus have a strong emphasis on the future. Richard Aisbitt explores the effect of restoring the old coppice cycle on the survival of this plant in Clout's Wood near Swindon. Stuart Corbett describes conservation work at Porton Down in the East of the county and overlapping Hampshire. Jane Banks writes about the present numbers and distribution of Common Juniper in Wiltshire and explores the factors in its regeneration.

Feedback from readers

A new departure for the journal is the receipt of letters from a number of readers, which is one of a number of strands of evidence that there are some.

David Allen has written to correct and clarify features of the history of the BSBI referred to briefly in the article on botanical recording in Wiltshire in the last issue (No. 5). The "Botanical Exchange Club" which set up the system of vice-county recorders in 1937, was actually at that time called the "Botanical Society and Exchange Club". The Botanical Society of the British Isles (BSBI), which was described as formed in 1946, was essentially just a renaming of that earlier body. The system of referees for identifying plants in critical groups was not, as stated in the article, set up by the BSBI, but was initiated by the Botanical Society and Exchange Club in the 1930s, soon after the beginning of the system of vice-county recorders.

Fuller details of the history of these groups can be found in David's book *The Botanists*, published in 1976.

Another correspondent is Michael Smith, who, also in the last issue, argued that the surviving site of *Salvia pratensis* (Meadow Sage) at Tenantry Down is not the same as the 1924 record of Awdry above Little Cheverell. Michael reports that Tim Rich has sent him a copy of a paper he wrote on the current site as a document in *Plantlife's* dossier for its *Species Recovery Programme*. Tim's paper states that the field in which the plant now occurs was arable in the 1940s and has reverted to pasture, so is unlikely to be the site of Awdry's 1924 record - a conclusion similar to Michael's. Tim has asked us to acknowledge the help of Jack Pile in providing information for his work on this site.

Finally, John Ounsted has written with a prediction that *Eruca vesicaria* (Salad Rocket) would soon turn up in the wild in Wiltshire, though it was not in the crucifer keys published in the last two issues. The

prediction is already verified - unknown until recently to the author of the keys, it was found at Staverton near Trowbridge in 1994. Another absentee from the keys has also been found - *Cardamine impatiens* (Narrow-leaved Bittercress) at Damerham near Fordingbridge but just in Wiltshire. Fortunately, the keys can be amended to include these species without too much difficulty.

Next issue

Articles for the journal have been coming in more slowly than previously, so that there has been a longer gap than usual between issues. There is, however, no specific policy on publication dates - an issue appears when there is sufficient material. Articles for the next issue 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 the most helpful form in which to submit articles.

THE BARBARA WELCH HERBARIUM AND ARCHIVE

The Wiltshire component held at Cardiff

Pat Woodruffe and Tim Rich

Introduction

Following her death in 1986, the herbarium and botanical effects of Barbara Welch (née Gullick) 1903-1986 were acquired by the *National Museums and Galleries of Wales, Cardiff* in 1987. Amongst the effects of archival material was one box labelled as containing 'Wiltshire Information', the contents of which we report herewith. An excellent overview of Barbara Welch's life is given by Ann Hutchison in Gillam (1993), which enables much of her archive to be put into context.

The archives, which contain original material or have historical importance relating to Donald Grose's *Flora of Wiltshire* (1957) are briefly outlined below. In addition, we have sifted through and discarded about twice as much paperwork, which took the form of notes extracted from published sources, unintelligible notes, reprints, newspaper cuttings and agendas of meetings. It is evident that she was a hoarder and, like many of us, used the backs of envelopes and other scraps of paper, including cigarette boxes, to temporarily jot down seemingly important items of information. In addition to the Wiltshire archive, there are a further nine boxes containing unsorted correspondence, notes and lists relating to her botanical and geological interests in the county of Surrey where she spent the second half of her life.

Archive

Seven annotated maps:

Clarendon Park area - 6" OS map. Many annotations.
Alderbury - West Grimstead - 6" OS map. Many annotations.

Bentley Wood - 6" OS map. Few annotations.

Wilton - 6" OS map. Few annotations.

Three hand-drawn maps with miscellaneous annotations, showing locations of plants.

Correspondence and notebooks relating to Grose's *Flora of Wiltshire* (1957)

There are at least seventeen letters, either to or from J D Grose relating to work for his Wiltshire Flora, including the original request for her to write the geology chapter and a draft of its manuscript.

There are three notebooks containing data abstracted from numerous literature sources and herbaria, including *Devizes* and *Salisbury Museums*, which were subsequently included in the flora. This huge data collation exercise does not seem to be adequately acknowledged by Grose in his publication (consequently, for instance, Presland (2002) suggested it was done almost entirely by Grose and his wife May) but the correspondence shows how much he appreciated her meticulous style.

Miscellaneous correspondence and notes

There are a few additional letters and notes with some minor observations and a notebook which lists locations for selected species.

Incomplete draft manuscript of a Flora of Salisbury

There is an undated manuscript draft of a flora of the area around Salisbury. An annotation at the top implies it was to be a counterpart to Smith-Pearse's (1919) records of flowering plants of the Marlborough area. The monocotyledon section of the flora was not completed, possibly because Grose's flora superseded its compilation.

Materials held by Dave Green

It seems appropriate to include here the information held by Dave Green (until recently *BSBI* Recorder for VC7) who accompanied Mary Briggs (then Hon. Gen. Sec. of *BSBI*) to Barbara Welch's house in Cheltenham after her death. Dave Green still has in his possession four loose-leaf books and four other books detailing plant locations. The books chronicle the letters of Mrs. Welch and other botanists of her day concerning the locations of some of the rarest and most sought after plants nationwide. Within there are letters from Donald Grose and others, together with hand-sketched maps giving detailed instructions of sites, such as that of Marsh Helleborine (*Epipactis palustris*) at Morgans Hill.

Another set of communications is that between T H Green of Bath, Barbara Gullick (Welch) and Donald Grose which relate to the only recorded occurrence of Grass of Parnassus (*Parnassia palustris*) in North Wiltshire. Although originally believed to be near Oaksey, it would seem that the plants, when located, were 10 yards inside the Gloucestershire boundary. In fact, further correspondence suggests that an out-of-date map was used and that the county boundaries had changed. Dave Green visited the site in 1984 and found that it was now a gravel pit. His only recompense was to record Slender Spike-rush (*Eleocharis uniglumis*) and Parsley Water-dropwort (*Oenanthe lachenalli*) there.

Evidence of the meticulous records kept by Barbara Welch can be found when studying the correspondence which she had with E Nelmes of Kew regarding the sites of Dwarf Sedge (*Carex humilis*) in South Wiltshire. The letters are dated 1939, well before the publication of The Flora of Wiltshire in 1953. Interestingly, E Nelmes in his letter to Miss Gullick states "*Carex humilis*, in a living state, I have only seen at Clifton, where I collected specimens in 1936 and again last spring. Not only do I collect British *Carices* for exchange (mainly for foreign

species to enrich the Kew collection), but I consider the study of plants in the field quite as important as their examination in the herbarium."

Herbarium

The herbarium is composed of 2,545 specimens from many parts of Britain and, occasionally, from Europe (for example from Norway). Of these, 333 are from Wiltshire. The vast majority are from VC8 and about 34 from VC7. Two appear to be on the boundary of the two vice-counties. The specimens are predominantly collected by Barbara Welch (BW), often under her maiden name, but there are some specimens from other botanists, including J G Dony, J Smith, R C L Burgess, A H Trow and H G Goddard. Most of the specimens date from the 1928 to 1954 period.

The herbarium data were taken from the hand written registers, which list the details that occur on the actual sheets. Most appear to be named correctly, but it is possible that there are some misidentifications and transcription errors. The nomenclature used in this article has been updated to Stace (1997). Visitors are very welcome to consult the archive and herbarium if a visit is arranged in advance. Those specimens collected in Wiltshire are listed below together with their accession number. In the herbarium these numbers all have the prefix NMW.V87.59.

Anthoxanthum aristatum, Sandy Lane, BW, 1939, 1177
Adonis annua, Ashley Hill, BW, 1937, 150
Agrimonia odorata, Bedwyn Common, BW, 1937, 230
Agrostis capillaris, Gutch Common, Semley, BW, 1954, 2430-1
Agrostis gigantea, Gutch Common, Semley, BW, 1954, 2432
Agrostis setacea, Plaitford Common, BW, 1949, 1183
Agrostis stolonifera, Alderbury Common, BW, 1941, 1188; Lavington Sands, BW, 1941, 1190; Oyster's Coppice, Gutch C., BW, 1955, 2433
Aira caryophylla, Whaddon, BW, 1937, 1174
Alopecurus myosuroides, Odstock, BW, 1936, 1221
Amaranthus hybridus, Larkhill, R. Burgess, 1939, 47
Ambrosia psilostachya, Broughton Common N Wilts, BW, 1936, 2339
Anagallis minima, Alderbury Common, BW, 1934, 638
Anchusa officinalis, Larkhill, BW, 1941, 697-8
Anemone nemorosa, Clarendon, BW, 1937, 148
Arenaria serpyllifolia, Breamore, Downton, BW, 1937, 56
Arenaria serpyllifolia ssp. *leptoclados*, Bulford/Amesbury, BW, 1941, 62; Cocky Down, Salisbury, BW, 1941, 59; Nr. Stonehenge, BW, 1941, 60; Salisbury, Mrs. Bull, 1937, 63
Arrhenatherum elatius var. *bulbosum*, W. Plaitford Church, BW, 1949, 1946
Asarum europaeum, Redlynch, BW, 1928, 16; Redlynch, BW, 1950, 17
Astragalus danicus, Bulford, BW, 1941, 299; Milstron Down, BW, 1941, 298
Blysmus compressus, Chilton Foliat, BW, 1936, 1290
Briza media, Pepperbox Hill, BW, 1937, 1101

- Bromus carinatus*, Fisherton, Salisbury, BW, 1948, 1134
Bromus hordeaceus, Larkhill, BW, 1948, 1122
Bromus lepidus, Alderbury, BW, 1951, 1127
Calamagrostis epigeios, Catcomb Wood, BW, 1939, 1199
Callitriche obtusangula, W Plaitford Church, BW, 1949, 1888
Camelina sativa, Salisbury, BW, 1931, 183
Campanula hederacea, Gutch Common, BW, 1933, 841
Campanula patula, Rudgham's Copse, Alderbury, BW, 1936, 1658
Carex binervis, Salisbury, BW, 1931, 1483
Carex caryophyllea, Earldoms, BW, 1937, 1554; Little Langford, BW, 1937, 1555
Carex divulsa, N West Wellow, BW, 1949, 1366; N/Salisbury, BW, 1936, 1367; Tisbury-Wardour, BW, 1950, 1364; Whiteparish, BW, 1949, 1365
Carex divulsa ssp. leersii, N/Salisbury, BW, 1936, 1371
Carex echinata, Alderbury Common, BW, 1931, 1395; Alderbury Common, BW, 1936, 1396; Gutch Common, Semley, BW, 1954, 2461;
Carex flacca, Farley, BW, 1934, 1466; Pepperbox Hill, BW, 1937, 1462
Carex hirta, West Grimstead, BW, 1933, 1970
Carex humilis, Great Yews, BW, 1933, 1550; Hadden Hill, Wishford, BW, 1941, 1544; Homington Down, BW, 1950, 1548; Homington Down, BW, 1941, 1549; Lamb Down, Codford, BW, 1937, 1553; Larkhill, BW, 1941, 1546; Little Langford, BW, 1937, 1552; Little Toyd Down, BW, 1941, 1545; Salisbury, BW, 1941, 1547; Steeple Langford, BW, 1941, 1543; Yarnbury, BW, 1941, 1541, 1542
Carex laevigata, Spye Park, BW, 1947, 1477; Whiteparish, BW, 1949, 1475
Carex muricata subsp. Lamprocarpa, N West Wellow, BW, 1945, 1357; Whiteparish, BW, 1949, 1356
Carex nigra, Fisherton Meadows nr. Wyllye, BW, 1940, 1996
Carex ovalis, Gutch Common, Semley, BW 1954, 2459-60
Carex pallescens, Alderbury, BW, 1933, 1535; Church Copse, Farley, BW, 1936, 1536; Colerne Park, BW, 1937, 1537
Carex panicea, Marston Maisey, BW, 1939, 2009; Salisbury, BW, 1934, 1467
Carex pendula, Maiden Bradley, BW, 1937, 1447
Carex riparia, Salisbury, BW, 1939, 1421
Carex spicata, Odstock, BW, 1936, 1344; The Bake, Wyllye, BW, 1928, 1345; West Grimstead, BW, 1947, 1338; West Harnham, BW, 1941, 1346; Whiteparish, BW, 1949, 1347
Carex strigosa, Chittoe, SW Calne, BW, 1947, 1460
Carex sylvatica, West Grimstead, BW, 1936, 1451
Carex vesicaria, Bradon Pond, BW, 1939, 1435-6
Carex viridula ssp. brachyrrhyncha, Bulford, BW, 1941, 1516
Carex viridula ssp. oedocarpa, Gutch Common, Semley, BW, 1954, 2490; Plaitford Common, BW, 1949, 1530; Whiteparish Common, BW, 1949, 1531
Carthamus tinctorius, Roman Road, Salisbury, G Vincent, 1930, 867
Catabrosa aquatica, West Harnham, BW, 1936, 1097
Catapodium rigidum, N Bulford, BW, 1941, 1931
Centaurea nigra spp nemoralis, Gutch Common, Semley, BW, 1954, 2345
Centaurea pulchellum, Clarendon Woods, BW, 1936, 651; Clarendon Woods, BW, 1936, 650
Cerastium diffusum, Alton Priors, BW, 1941, 86
Cerastium fontanum, Alton Priors, BW, 1941, 1609; Laverstock Down, BW, 1941, 75
Cerastium glomeratum, Alton Priors, BW, 1941, 82; Grovely Hill, Wilton, BW, 1941, 81
Cirsium tuberosum, Avebury, BW, 1933, 1661
Cynodon dactylon, Salisbury, BW, 1934, 1231
Cynosurus cristatus, Salisbury, BW, 1917, 1091
Danthonia decumbens, Pepperbox Hill, BW, 1937, 1227
Deschampsia flexuosa, Lower Semley Hill, BW, 1935, 1172
Digitaria sanguinalis, Fisherton, Salisbury, BW, 1933, 1248
Diplotaxis muralis, Salisbury, BW, 1946, 191
Drosera anglica, West Grimstead, BW, 1937, 196; West Grimstead, BW, 1936, 197
Drosera rotundifolia, Plaitford Common, BW, 1949, 195
Duchesnia indica, Landford, BW, 1945, 258
Echinocloa crus-gallii, Bromham, BW, 1937, 1246
Eleocharis multicaulis, Plaitford Common, BW, 1949, 1315; West Grimstead, BW, 1941, 1313-4
Eleocharis palustris, Teffont Magna, BW, 1928, 1311
Epilobium montanum, Gutch Common, BW, 1954, 2216; Whiteparish Common, BW, 1949, 574
Epilobium obscurum, Gutch Common, BW, 1954, 2223
Epilobium parviflorum, Crane Bridge, Salisbury, BW, 1937, 572
Epilobium roseum, Crane Bridge, Salisbury, BW, 1937, 579; De Vaux Gate, Salisbury, BW, 1937, 580
Erophila glabrescens, nr. Clarendon Palace, Salisb, BW, 1950, 1786
Erophila sp., nr. Yarnbury, BW, 1941, 1671
Erophila verna, Wilton Park, Wilton, BW, 1952, 2122
Eryngium campestre, nr. Colerne, Wilts, BW, 1937, 598
Euphorbia cyparissus, Larkhill ranges, Mrs Fiennes, 1937, 494
Euphorbia cyparissus, Whitsbury Parish, BW, 1941, 493
Euphorbia esula, Larkhill Church, BW, 1936, 1633, 1635
Euphorbia virgata var. esulifolia, Larkhill, J.D. Grose, 1937, 2195
Euphrasia nemorosa, Chilmark Quarries, BW, 1934, 1904
Festuca arundinacea, Larkhill, BW, 1948, 1033; West Harnham, BW, 1941, 1035
Festuca pratensis, Bulford Lido, BW, 1941, 1031
Gagea lutea, Downton, BW, 1938, 924; ;Downton, BW, 1950, 92; Monkton Coombe, Limpley Stoke, BW, 1931, 925
Galium palustre, SW Marlborough, BW, 1947, 670
Galium uliginosum, Alderbury Common, BW, 1936, 666
Gentianella campestris, Grimstead, BW, 1946, 657
Geranium phaeum, Overton Heath, SW Marlboro, BW, 1936, 1819
Geranium pusillum, Lavington Sands, BW, 1941, 474-6
Geranium rotundifolium, Bromham, BW, 1939, 471
Geum x intermedium, Salisbury, BW, 1937, 236; West Grimstead, BW, 1937, 237; West Grimstead, BW, 1936, 238
Helianthemum nummularium, nr. Salisbury, BW, 1937, 565
Hesperis matronalis, Larkhill, BW, 1941, 173
Hieracium sabaudum, Alderbury Common, BW, 1936, 872
Holcus lanatus, Alderbury Common, BW, 1939, 1178
Holcus mollis, Alderbury Common, BW, 1939, 1180; Gutch Common, Semley, BW, 1954, 2427
Hypericum androsaemum, West Grimstead, BW, 1928, 543
Isolepis setacea, Alderbury Common, BW, 1935, 1955; Whiteparish, BW, 1949, 1280
Juncus acutiflorus, Clarendon Lake, BW, 1936, 1009; Gutch Common, Semley, BW, 1954, 2369-73
Juncus bufonius, Gutch Common, Semley, BW, 1954, 2365-6

- Juncus compressus*, West Harnham, BW, 1934, 980
Juncus conglomerates, Clarendon Lake, BW, 1936, 967
Juncus effusus, Gutch Common, Semley, BW, 1954, 2364; West Grimstead, BW, 1936, 966
Juncus inflexus, Clarendon Lake, BW, 1936, 963
Juncus tenuis, Alderbury Common, BW, 1936, 992
Koeleria macrantha, Pepperbox Hill, BW, 1937, 1947
Lathyrus nissolia, Larkhill, BW, 1941, 346
Lathyrus tuberosus, Salisbury, HG Goddard, 1918, 2172
Leontodon autumnalis, Gutch Common, Semley, BW, 1954, 2347
Limosella aquatica, Broughton Common, BW, 1936, 780
Linaria origanifolia, Salisbury, BW, 1934, 786
Luzula forsteri, Earldoms, BW, 1937, 1028; Landford, BW, 1934, 1027
Luzula multiflora, Alderbury Common, BW, 1934, 1013; West Grimstead, BW, 1947, 1012
Luzula pilosa, Alderbury, BW, 1934, 1018; Alderbury, BW, 1941, 1020-2; Langley Wood, BW, 1934, 1024; Lower Semley Hill, BW, 1935, 1023; Whiteparish Common, BW, 1949, 1019, 1924
Lysimachia ciliata, Bemerton Rectory, BW, 1928, 634
Lythrum portula, Alderbury Common, BW, 1937, 570
Mentha arvensis, Chilmark Common, BW, 1941, 700
Mentha x piperata, Bedwyn, BW, 1936, 1896; Slaughtford, Biddestone, BW, 1950, 761
Mentha x verticillata, Hunton Bridge? Salisbury, BW, 1937, 1895
Milium effusum, Dinton, BW, 1928, 1225
Muscari racemosum, Salisbury, Mrs. Farquharson, 1949, 932
Myosotis arvensis, Amesbury, BW, 1941, 699
Myosotis caespitosa, N. West Wellow, Hants, BW, 1949, 708
Myosotis scorpioides, N. Downton, BW, 1937, 1652; Petersfinger, BW, 1937, 709
Myosotis secunda, Stourton, BW, 1937, 705-6
Odontites verna, N Downton, BW, 1937, 815; Salisbury, BW, 1937, 816
Ophrys insectifera, Colerne Park, BW, 1937, 1600
Orobanche rapum-genistae, N. Alderbury, BW, 1939, 823
Pedicularis palustris, Gutch Common, BW, 1954, 2310
Poa pratensis, Netherhampton, BW, 1941, 1070
Polygala calcarea, Harewarren, Tidworth, BW, 1941, 532; Laverstock Down, BW, 1941, 534; N Alton Priors, BW, 1947, 531
Polygala serpyllifolia, Plaitford Common, BW, 1949, 528; Wardour, Tisbury, BW, 1950, 529
Polygala vulgaris, Alton Priors, BW, 1941, 1826; Earldoms, BW, 1949, 500; West Grimstead, BW, 1941, 496
Polygala vulgaris agg., Beacon Hill, Bulford, BW, 1941, 515; Laverstock Down, BW, 1941, 516; nr. Cherhill, BW, 1947, 520; Walkers Hill, BW, 1947, 519
Polygonatum multiflorum, Colerne Park, BW, 1937, 943; nr. Slaughtford, BW, 1937, 944-5; Pepperbox Hill, Salisbury, Marjorie Cross, 1942, 942
Populus tremula, Whiteparish, Earldoms, BW, 1939, 13
Potamogeton pectinatus, Bemerton, BW, 1928, 1917; Bemerton, BW, 1958, 2356; Boyton, Codford, BW, 1947, 908;
Potamogeton perfoliatus, Bulford, Salisbury, BW, 1937, 888
Potamogeton polygonifolius, Alderbury Common, BW, 1939, 878; Plaitford Common, BW, 1949, 879
Potentilla anglica, Catcomb Wood, Swindon, BW, 1939, 252; West Grimstead, BW, 1941, 1801
Potentilla erecta spp *erecta*, Whiteparish Common, BW, 1936, 1798
Potentilla inclinata, Fisherton Rec. Ground Salisb, BW, 1937, 1796
Potentilla norvegica, Bradford on Avon, BW, 1936, 244
Potentilla recta, Westbury, BW, 1932, 246
Potentilla x suberecta, Semley, BW, 1954, 2151
Primula veris x polyantha, SW Alderbury, Clarendon P, BW, 1937, 1875
Prunus cerasus, VC 7/8, Wansdyke, BW, 1936, 284
Prunus domestica ssp. *insititia*, VC 7/8, Wansdyke, BW, 1936, 283
Prunus spinosa, Race Plain Salisbury, BW, 1941, 281
Pyrola minor, Fonthill Terraces, BW, 1934, 610; Fonthill Terraces, BW, 1937, 611; Westbury, BW, 1939, 613
Ranunculus aquatilis, N Vernditch Chase, BW, 1934, 1771; S of Burcombe, W Wilton, BW, 1941, 1769; West Grimstead, BW, 1936, 1617
Ranunculus hederaceus, Stourton, BW, 1937, 152; Sutton Mandeville, BW, 1934, 151
Ranunculus omiophyllus, Landford Common, BW, 1934, 155; Plaitford Common, BW, 1949, 154
Ranunculus penicillatus spp *pseudofluitans*, Teffont Magna, BW, 1948, 1768
Ranunculus pseudofluitans, Teffont Magna, BW, 1949, 1616
Ranunculus trichophyllus, Little Durnford, BW, 1934, 161; Little Langford, BW, 1937, 163; West Grimstead, BW, 1936, 162; Whaddon, BW, 1936, 1772
Rhynchospora fusca, VC 8/11, Burley Lawn/Plaitford Common, BW, 1933/49, 1326
Rumex sanguinea var *viridus*, Oyster's Coppice, Gutch Common, BW, 1954, 2065
Salvia horminioides, Erlestoke, Devizes, BW, 1925, 771
Salvia, West Langington, BW, 1932/3, 770
Samolus valerandi, nr. Clyffe Pipard, BW, 1937, 596
Sanguisorba minor spp *muricata*, Figsbury Rings, BW, 1941, 1794; Larkhill, BW, 1941, 1795
Saponaria officinalis, Stapleford, Miss Mundy, 1928, 141
Schoenoplectus lacustris, Salisbury, BW, 1928, 1275
Scirpus sylvaticus, Maiden Bradley, BW, 1937, 2441; Stourton, BW, 1937, 2442
Scrophularia umbrosa, Shalbourne, BW, 1936, 785
Scutellaria minor, Alderbury Heath, HG Goddard, 1920, 2263
Sedum reflexum, Tilshead, BW, 1941, 200; West Wellow, BW, 1949, 201
Silene dichotoma, Winterbourne Earls, BW, 1929, 137
Thlaspi perfoliatum, Oaksey Halts, N Wilts, BW, 1936, 185
Thymus pulegioides, Clarendon Wood, BW, 1936, 1894
Trichophorum caespitosum, Plaitford Common, BW, 1949, 1284
Trifolium dubium, Alderbury, BW, 1937, 416; West Grimstead, BW, 1941, 414; Whiteparish Common, BW, 1949, 415
Trifolium fragiferum, Salisbury, HG Goddard, 1923, 2182
Trifolium incarnatum, Bromham, BW, 1937, 435
Trifolium medium, Alderbury, HG Goddard, 1920, 2187; Milstron Down. Bulford, BW, 1941, 436
Trifolium repens, Salisbury, HG Goddard, 1919, 2179
Ulex minor, Earldoms, Whiteparish, BW, 1939, 291; nr. Bedwyn, BW, 1937, 290
Valerianella carinata, Tisbury, BW, 1950, 836
Valerianella dentata, Clarendon Wood, BW, 1936, 838
Valerianella locusta, Harnham Hill, BW, 1954, 2318
Verbascum phlomoides, Salisbury, BW, 1944, 2279
Verbascum virgatum, Salisbury, BW, 1937, 2273

Veronica agrestis, Bromham, BW, 1937, 798
Veronica filiformis, Larkhill, BW, 1941, 802
Veronica officinalis, Earldoms, Whiteparish, BW, 1949, 793
Vicia arvensis, Salisbury, BW, 1945, 310
Viola anglica, Alderbury parish, BW, 1936, 1641
Viola arvensis, E Clarendon Wood, Farley, BW, 1936, 1848; S Biggs Copse, Farley, BW, 1936, 1847; W Rudgham's Copse Alderbury, BW, 1936, 1851
Viola hirta, Clarendon, BW, 1937, 550, 552; Wilsford Down, BW, 1941, 548; Winterbourne Stoke/Wilton, BW, 1941, 551
Viola lactea, Landford Common, BW, 1934, 557
Viola odorata, Winterbourne Stoke, BW, 1941, 544
Viola odorata var. *imberis*, Clarendon Wood, BW, 1950, 546
Viola odorata var. *sulfurea*, Salisbury, BW, 1941, 547
Viola palustris, Stourton, BW, 1937, 559
Viola reichenbachiana, above Stanford's Bog, West Grimstead, BW, 1937, 1837; Clarendon Park, BW, 1937, 553; Cocky Down, Salisbury, BW, 1941, 1831; Ivychurch Copse, Alderbury, BW, 1941, 1830, 1835-6; Nightwood-Hunt's Copse Clarendon, BW, 1937, 1832-4
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GREAT GIRTH TREES IN WILTSHIRE: FAGACEAE

Their size, seedlings and spread

Jack Oliver

Introduction

The *Tree Register of the British Isles (TROBI)* has been collecting and collating records of big trees of the British Isles over the past 10 years, and has started to produce county lists. There has been a bias towards measuring large conspicuous trees, especially conifers such as Wellingtonia (*Sequoiadendron giganteum*) on private estates and in collections of exotic trees, rather than producing records for native trees. For instance the December 99 *TROBI* print-out for Wiltshire had almost three pages (88 records) of large specimens of Douglas Fir (*Pseudotsuga menziesii*), Coast Redwood (*Sequoia sempervirens*) and Wellingtonia. By contrast there was not one record of a native Willow. Within one genus, *Prunus*, there were over 30 records for Japanese cherries, and other exotic *Prunus* species and cultivars; but only two for a naturalized *Prunus*, and just three for native *Prunus* species.

For the past 5 years, I and other members of the WBS have been collecting records of tree girths, and redressing the balance in favour of a better representation of our native trees. I have also made concomitant notes on seedlings, saplings and suckers as an interest in the capacities of different species to reproduce themselves naturally, whether or not exotic in origin. Another bias has developed - over-representation of records from the Marlborough vicinity. This paper is therefore a challenge. The tables and associated text show the greatest girth Wiltshire specimens known to me. Find bigger specimens in other parts of the County if you can, and provide records of successful seeding and reproduction by less usual tree species. The tables include number codes on various national lists, but these are difficult to interpret, and readers are invited to contact Jack Oliver for any clarification needed - as well as detailed information on the locations of trees included.

Measurements and recording problems.

The *English Nature Venerable Tree Initiative* forms had requested girth measurements at 1.3m (4 ft 4in) from the ground, but most other tree organizations, including *TROBI*, recommend 1.5m (5ft) as the national (and international) standard measurement. This standardization makes for easier comparisons. Problems arise when big trees are misshapen, nodular, have dense stem sprouts (as in the Common Hybrid Limes (*Tilia x europaea*)), grow on very steep slopes, or fork at or below 1.5m (5ft). Additional measures should be taken in these cases, such as below the nodules, inside the stem sprouts (if possible), or at 30 cm (1ft) if all else fails. However ancient coppices may also be of interest, so the 1ft

Table 1. *Castanea sativa*, Sweet (Spanish) Chestnut

Site	Girth (cms at height in brackets)	Year	Comments and Special Features
1) Brimslade Park SU 209.632	935 (5ft)	2000	Known to have been planted before 1770.
2) Stourhead House, 3rd from S, S Drive ST 777.344	910 (5 ft), 890 (4½ ft) 770 (1 ft)	2003	Splayed boughs above 7 ft. Trunk nodular. Old pollard?
3) Savernake Forest “The Great Grey Rd Chestnut” Octant VII SU 206.673	850 (5ft). 790 (3ft) 975 (1ft)	2001	Squat trunk; awkward shape for comparisons. See text.
4) Stourhead, Six Wells Bottom alley ST 770.343	814 (5 ft)	2003	Ancient pollard? Nodular.
5) Sandridge Park House	754 (5ft)	1979	Still extant in 1999 TROBI record.
6) Stourhead House, 2nd from S, S Drive ST 777.344	742 (5ft)	2003	Ancient coppice and pollard.
7) Stourhead House, woods S of obelisk ST 772.343	709 (5ft)	2003	Huge tree. Trifurcate above 8 ft.
8) Brimslade Park SU 209.632	705 (5 ft) Basal girth - 960 (1ft)	2000	Known to have been planted before 1770.
9) Stourhead House, S Drive, 4th from S and nearest to house ST 777.344	660 (5 ft)	2003	Ancient coppice and pollard.
10) Savernake Forest Octant III SU 246.660	610 (5 ft) Coppice - 970 (1ft)	2001	Coppice level 100cm high, probably over 300 years old.
11) Savernake Forest Octant IV SU 226.660	595 (5 ft) Coppice - 950 (1ft)	2001	Base probably well over 300 years old.
12) Savernake Forest Octant VII SU 205.674	370 (5 ft) Coppice - 1080 (1ft)	2001	Base estimated as well over 300 years old.

measurement might be of special importance in its own right.

The main tree genera in the *Fagaceae* represented here are *Fagus* (Beeches), *Castanea* (Chestnuts) and *Quercus* (Oaks). I am not aware of any big *Lithocarpus* specimens in Wiltshire. Some of the less common Oak species have not yet reached a good size, and the same goes for recently introduced *Nothofagus* trees (Southern Beeches).

Sweet (Spanish) Chestnuts (*Castanea sativa*)

The top part of Table 1 shows the top 9 Wiltshire Chestnut trees sequenced by the girths measured at 5ft. The bottom 3 (Nos. 10-12) are included because of large basal girth sizes.

Savernake Forest has many fine Chestnut trees with beautifully spiralled straight vertical trunks, as well as a number of trees with large ancient coppice rings. Contrary to the statement in the most recent Wiltshire Flora (Gillam 1993), not all Sweet Chestnuts have

been planted (by man), at least not all in recent years. I have seen natural seedlings progressing to saplings in Spye Park and in Savernake Forest, although only a small proportion of trees seem to produce healthy seedlings around them. These parent trees are not necessarily the largest or oldest Chestnuts. In Wiltshire, Sweet Chestnuts do not survive on chalk, and thrive best in acid conditions.

On Table 1, No. 4, the Great Grey Road Chestnut is a massive tree, but rather low forking. This means that the trunk measure at 3ft (790cm) is more realistic than the one at 5ft (850cm).

North of the A4, but still in Savernake Forest, a Chestnut has fallen to ground level, but has survived. New vertical stems arise from the old trunk for over 15 metres. In Bedwyn Brail an even bigger Sweet Chestnut (at SU 281.622) has undergone a similar process. In this case, 3 once-vertical trunks (which seem to derive from one neglected ancient coppice) appear to have split outwards to lie horizontally along the ground. They have retained sufficient rooting to

Table 2. *Fagus sylvatica*, Beech

Site	Girth in cms at 5 ft	Year	Comments and Special Features
1) Savernake Forest “The Warren Farm Great Beech”, SU 249.656	703	2002	The largest-girth and finest Beech retaining its full canopy in the British Isles.
2) Wilton Brail (No. 63,) SU 271.629	695	2003	Senescent, but full canopy
3) Savernake Forest, SU 248.656	660	2000	Huge limb avulsed in Spring 2000.
4) Savernake Forest, SU 207.670	634	2000	Fine tree, full canopy. Strongly fluted trunk.
5) Wilton Brail (No. 47), SU 275.626	623	2003	Presenescent
6) Savernake Forest, SU 248.678	605	2000	Fine tree, full canopy.
7) Savernake Forest, SU 241.659	600	2000	Fine tree, full canopy.
8) Savernake Forest, SU 200.674	600	2000	Very fine tree with parallel trunks above 15ft, which rejoin at 30ft.
9) Wilton Brail (No. 50), SU 275.625	600	2003	Presenescent
10) Savernake Forest, SU 207.673	590	2000	Previously pollarded, but fine new limbs above the old pollard nodules. Huge raised “Mangrove-like” roots all around base.
11-14) Savernake Forest - different areas (4 more Savernake Beeches with girths between 565 and 580)	565-580	2000	(2 fine trees, 1 senescent, 1 top-heavy ex- pollard, 1 with raised roots, 2 with deeply fluted trunks)
15) Savernake Forest, SU 218.661	565	2000	Fine wide-spreading tree with deeply fluted (almost buttressed) trunk.
16) Marden-Hilcott roadside, SU 094.586	560	2001	Fine wide-spreading tree.
17) Stourhead, E. of lake, ST 773.343	550	1999	Fine wide-spreading tree.

remain viable and vigorous. An original vertical at the hub of these radiations divides at 5ft, and has a girth of 460cm at 2.5 ft. However the 3 horizontal trunks, the fully grounded lengths 24, 24 and 20 metres, have produced 3 lines of new verticals all from the one ancestral tree. As these enlarge, this will become an increasingly impressive tree, a likely record holder if considered according to total bulk of living timber.

Beeches (*Fagus sylvatica*)

Table 2 shows the top specimens for this species. Most of these are from Savernake Forest or Wilton Brail, which is part of the extent of the ancient Savernake Forest. The “Great Beech of Savernake” (north of the A4) shown on tinted Victorian picture postcards, blew down in 2000. However it was not quite as big as No. 1 on Table 2. As the table shows, few records have been received for comparably large beeches from elsewhere in Wiltshire. In fact, there were numerous further Savernake Beeches at or around the same size as No. 17 so that more large Savernake Beeches could have been included between Nos. 15 and 17. Many of the great Savernake Beeches are nearing the end of their lives, but there are younger trees to challenge records in future.

Another characteristic of the Savernake Beeches is the prevalence of the two distinct forms, although intermediates are also common. Both are well represented on the table. The familiar wide-spreading form is less common in Savernake Forest than the tall and graceful narrow-angle-branching type (Oliver 2000, 2003). Management undoubtedly is very important in encouraging the latter type, but the wide-spreading type can quite often be seen in dense parts of the Forest. Likewise the narrow-angle form is also quite often to be seen in open areas as maiden (un-managed) trees. No. 8 on Table 2 is not the only tree with vertical sub-parallel trunks or branches which can coalesce and rejoin above 15 feet; I have seen 12 such Savernake Beeches. It would seem that genetic propensities are at least as important as management techniques in the creation of these two main forms, and the extremes of each.

Another type of Savernake Beech has been created by past pollarding. These trees often show massive (“top-heavy”) expansion of their trunks from 6-10 feet, with huge rounded nodules at and above the old pollarding levels. Occasionally masses of burrs are also to be found in association with the nodules.

Beech can regenerate well on chalk in Wiltshire. Within Savernake Forest, Beech regeneration also

Table 3: Further Beech taxa

Types and Sites	Girth in cms at 5ft	Year	Comments & Special Features
<i>Fagus sylvatica f. purpurea</i> (Copper Beech)			
1) Highfield, Trowbridge	405	1976	Wiltshire Champion to date for Copper Beech.
2) Stourhead (NT) (No 678)	404	2003	Fine spreading tree. Rapid recent growth.
3) Roundway Park, SU 007.626	398	2003	Fine spreading tree.
4) Marlborough College, College Fields (No. 1637)	379	2002	Fine spreading tree. Presenescent.
5) Marlborough College, Barton Hill House (No. 997)	375	2002	Fine spreading tree.
6) Marlborough College, "The Tennyson Beech" (No. 1790)	373	2002	Alfred Lord Tennyson composed some his most famous works beneath this tree.
7) Stourhead (NT), E edge of lake	370	2003	Fine spreading tree. Rapid recent growth.
8) Marlborough College, Barton Hill House (No. 998)	350	2002	Fine spreading tree.
9) Marlborough College, Summerfield (No 593)	339	2002	Fine spreading tree.
10) Marlborough College, W of Chapel (No. 1810c)	(495)	2002	Huge nodules at 5ft. 325 cms at 3ft.
<i>Fagus sylvatica 'Purpurea Tricolour'</i>			
11) Stourhead	232	1992	National champion for this cultivar (TROBI).
<i>Fagus sylvatica 'Pendula'</i>			
12) Corsham Court	229	1989	From the TROBI records.
13) Oare House (No. 113)	207	2003	
<i>Fagus sylvatica 'Asplenifolia'</i>			
14) Roundway Park, Devizes SU 007.626	305	2003	3 types of foliage on the same fine spreading tree (chimaera).
15) Cambridge Works, Malmesbury	245	1974	From the TROBI records.
16) Stourhead (No. 625)	219	2003	5% of seedlings come true to parental type
17) Longleat (Pl. Walk)	210	1971	From the TROBI records.
<i>Nothofagus antarctica</i>			
18) Home Covert, Devizes	129	2003	Gnarled, slanted tree.
19) Broadleas Garden, Devizes	85	1987	From the TROBI records.
<i>Nothofagus obliqua</i>			
20) Bowood	248	1984	From the TROBI records.
<i>Nothofagus nervosa</i>			
21) Savernake Forest Arboretum	60	2000	Largest of a group of 4.
<i>Nothofagus dombeyi</i>			
22. Home Covert, Devizes	80	2003	Evergreen.

occurs; but less vigorously than in the more recently introduced Hornbeam (*Carpinus betulus*), wherever these 2 species are in proximity.

Further Beech taxa

Table 3 reflects the absence, so far, of records of *Fagus* species other than *F. sylvatica*; and apart from one Bowood tree, the few *Nothofagus* (Southern Beech) returns are for young small trees. Thus the table shows the larger specimens of *F. sylvatica f. purpurea* and some of the Beech cultivars. One type not included on the table is the Oak-barked Beech of

Savernake Forest (Oliver 2000 and 2003). This distinctive tree, so far with no latinized name, is to be found south of "Eight Walks" at the east edge of "12-O'Clock Drive" (Tag 08786, map ref. SU2254.6625). The girth was a substantial 383cm in 2000. Another similar tree occurs north of the A4 road, but smaller and damaged. Other Beech variants and cultivars with smaller girths are not included.

The Copper Beeches vary from deep coppery-purple to weakly tinged. It is the latter type which is to be found in some quantity in the south-central part of Savernake Forest. Marlborough College has a mix-

Table 4: English (Pedunculate) Oak (*Quercus robur*)

Name, Site, Map Reference	Girth in cms at 5ft	Year	Comments and Special Features
1) Spye Park. ST 954.670	1074	1999	Ancient Pollard. Wiltshire champion.
2) Cathedral Oak" (Savernake Forest) SU 205.680	995	2000	Ancient Pollard (also called "Monarch Oak" and "Millenial Oak").
3) Stilton Stourton.	986 (at 4ft)	1982	From TROBI records.
4) "Duke's Vaunt" (Savernake Forest) SU 238.665*	888	2000	Senescent, split almost into 2 halves. Badly damaged in 1880, but, still, in 1900, the largest oak in Savernake Forest (which it is no longer). Possibly originating from mediaeval times.
5) Corsham Court (TROBI No. 86661)	883	1980	From TROBI records.
6) Clarendon Park	829	1976	From TROBI records.
7) R. Kennet, near Ramsbury SU 289.712	800	2001	The largest of several big oaks in this locality, fine tree, buttressed base.
8) Corsham Court (TROBI No. 56142)	789	1989	From TROBI records.
9) Corsham Court (TROBI No. 86664)	785	1989	From TROBI records.
10) Corsham Court (TROBI No. 86660)	773	1965	From TROBI records. Bole 900cm.
11) "Charter Oak", Chippenham ST 917.729	770	2003	Hollow. Boundary of the old Pewsham Forest. Fine spreading tree.
12) Spye Park ST 955.670*	745	1999	Ancient coppice and ?pollard.
13) Stourhead Gardens (No. 231) ST 772.342	730	1999	Lakeside. Stourhead's oldest tree, apart from some ancient sweet chestnuts (see Table 1).
14) West Lodge, near Ramsbury SU 289.711	725	2000	Fine spreading tree. Lower trunk strongly buttressed.
15) "Braydon Oak"(Savernake Forest) SU 217.670*	710	2000	Fine tree. Probably the tallest native oak in Savernake Forest.
16) Longleat (TROBI No. 86322)	701	1906	From TROBI records. Bole 1200cm.
17) "St Katherine's Oak", Savernake Forest SU 251.649	650	2000	A splendid tall and spreading Oak.
18) "King John Oak", Clarendon Park	631	1976	From TROBI records.

ture of deep coppery-purple and less strongly tinged trees. Seedlings and/or more extensive natural regenerations of Copper Beeches have been noted near Ludgershall (Oliver 1996), in the south of Savernake Forest, and in Great Ridge Wood north of Tisbury (Gillam 1993). The Stourhead Head Gardener said that 5% of the *Fagus sylvatica* 'Asplenifolia' seedlings come true, like the parental type.

English (Pedunculate) Oak (*Quercus robur*)

Table 4 shows the greatest girth specimens of English Oak. There was some doubt as to whether specimens

marked * were the pure species, since they showed some features of *Q. x rosacea*.

Early coppicing and subsequent pollarding prolong the lives of Oaks. Also upper trunks or big limbs can be broken by gales or weight of snow, or damaged by lightning. Oak Die-back Disease can stunt peripheral branches without killing the tree. Most of the greatest-girth Oaks shown on Table 4 (and Table 5) have been subjected to some of the preceding. Great-girth Oaks may be magnificent, but those with the greatest girths of all are frequently squat, irregular and misshapen. More detail on biology, history and current status of the Savernake Oaks is given in Oliver & Davies (2001).

Table 5: Further native Oak taxa

Name, Site, Tag-code, Map reference.	Girth in cms at 5ft.	Year	Comments and Special Features
1) <i>Quercus x rosacea</i> "Big Belly" Oak/"Decanter" Oak. Savernake Forest (06924), SU 2132.6577	1115	2000	Ancient coppice base (1400cm at 1ft) and ancient pollard. Probably dating from mediaeval times. Chosen as one of the 50 Great British Trees (Davies 2003).
2) <i>Quercus x rosacea</i> "King of Limbs". Savernake Forest (09246), SU 242.660	1015	2000	Completely hollow (and once burnt out) trunk. Huge spreading branches.
3) <i>Quercus x rosacea</i> "The Mapped Oak". Savernake Forest (08947), SU 211.682	740	2000	Ancient pollard. On the Ordnance Survey maps, defining the boundary between Savernake and Mildenhall parishes.
4) <i>Quercus petraea</i> "Old Paunchy". Savernake Forest (09057), SU 208.675	735	2000	Huge ancient coppice-base, 5ft high, and (at 1ft) 1075cm in girth.
5) <i>Quercus x rosacea</i> Unnamed. Savernake Forest (09070), SU 209.676	735	2000	Ancient coppice, at 1ft 900cm.
6) <i>Quercus x rosacea</i> Unnamed. Savernake Forest (08977), SU 211.667	740 (at 4ft)	2000	Ancient coppice, at 1ft 980cm.
7) <i>Quercus x rosacea</i> "The Slingsby Oak". Savernake Forest (08830), SU 224.654	710	2000	Main trunk fractured in 2002, at about 10ft.
8) <i>Quercus petraea</i> "The Long Harry Oak". Savernake Forest (09117), SU 213.673	700	2000	Ancient coppice, at 1ft 850cm.
9) <i>Quercus x rosacea</i> Unnamed. Savernake Forest (06926), SU 212.657	700	2000	Trunk angled at 40°. 3 main branches lost in gales.
10) <i>Quercus x rosacea</i> Unnamed. Savernake Forest (08069), SU 212.673	695	2000	Very fine tree.
11) <i>Quercus petraea</i> Unnamed. Savernake Forest (09095), SU 211.674	680	2000	Massive tree, nodular trunk.
12) 12) <i>Quercus robur</i> 'Cristata' Unnamed. Burbage Churchyard, SU 233.614	190	2001	Presumed to be the Champion Cluster Oak in the British Isles, or anywhere else.
13) <i>Quercus robur</i> 'Cristata' The Ancestral Savernake Cluster Oak (08866), SU 16.653	186	2001	The original mutant tree.
14) <i>Quercus robur</i> 'Cristata' Unnamed. Savernake Forest Arboretum (SFA64), SU 220.669	97	2001	The largest of the Savernake Forest Arboretum Cluster Oaks.

Further native Oak taxa

Of the 3 taxa listed on Table 5, only one is considered in the recent Wiltshire Flora (Gillam 1993). The same considerations apply as in the preceding section. Coppicing over many decades in far distant centuries, followed by pollarding in the Tudor or Stuart eras onwards has caused the trunk of No. 1, the Big Belly Oak, to form a pyramidal shape.

All 3 taxa in Table 5 regenerate naturally, although most 1st generation Cluster Oak seedlings are very slow-growing, thus reducing their chances of long-term survival. However, the hybrids with either *Q. petraea* or normal *Q. robur*, or with *Q. frainetto* (Hungarian Oak) all grow well (Oliver, Davies and Titchen 2003). Some of the Savernake Arboretum Cluster Oaks are hybrids (see Table 5, No. 14).

Further Oak taxa

Table 6 covers mostly non-native Oaks, although some species eg. *Quercus cerris*, *Quercus ilex* and *Quercus rubra* are starting to naturalise in the British Isles. Nos.6, 7 and 27 originated in Britain but do not regenerate reliably. With the exception of *Q. cerris*, *Q. ilex* and *Q. rubra*, the Oak species and hybrids listed are uncommon or rare in this county.

The tallest oaks on this table are *Quercus cerris* (Turkey Oak), *Q. rubra/borealis* (American Red Oak), and *Q. x crenata*, the Lucombe Oak. The Turkey Oak can grow to over 38m, and No. 3 on Table 6 may well be the tallest oak in Savernake Forest. I have seen two sites in Wiltshire where Turkey Oak regenerates extensively; but there may be more, and the occasional seedling can be found elsewhere. By 1993 it was recorded in 22 Wiltshire

Table 6: Further Oak taxa

Species/Taxon	Site	Girth in cms at 5ft	Year	Comments and Special Features
1) <i>Quercus canariensis</i>	Stourhead	66	1984	From 2003 TROBI print-out.
2) <i>Quercus castaneifolia</i>	Longleat	349	1971	From 2003 TROBI print-out.
3) <i>Quercus cerris</i>	Savernake Forest (SU 225.655)	531	1999	Very tall. Strongly buttressed base.
4) <i>Quercus cerris</i>	Stourhead (No. 502)	435	2003	Fine tree.
5) <i>Quercus coccinea</i>	Oare House	233	2003	Fine tree in the Pine avenue.
6) <i>Quercus x crenata</i> <i>'Lucombeana'</i>	Tottenham Park (SU 252.639)	618	2000	"Type B". Ancient graft at 1.5 ft.
7) <i>Quercus x crenata</i> <i>'Lucombeana'</i>	Bowood	324	1975	From 2003 TROBI print-out.
8) <i>Quercus faginea</i>	Broad Hinton House	173	1979	National Champion.
9) <i>Quercus frainetto</i>	Pinkney Park	396	2002	From 2003 TROBI print-out.
10) <i>Quercus ilex</i>	Wilton House	547	1910	From 1998 TROBI print-out.
11) <i>Quercus ilex</i>	Tottenham House (SU 248.640)	313	2000	Fine tree.
12) <i>Quercus ilex</i>	Roundway Park (SU 007.626)	290	2003	In a densely wooded area
13) <i>Quercus x ludoviciana</i>	Oare House Arboretum	125	2003	
14) <i>Quercus macranthera</i>	Oare House Arboretum	191	2003	
15) <i>Quercus palustris</i>	Corsham Court	339	1989	National Champion.
16) <i>Quercus phellos</i>	Oare House Arboretum	154	2003	From 2003 TROBI print-out.
17) <i>Quercus pubescens</i>	Broad Hinton House	201	1979	From 2003 TROBI print-out.
18) <i>Quercus robur</i> <i>f.fastigiata</i>	Marlborough (SU 187.688)	280	2002	An exceptionally fine tree.
19) <i>Quercus robur</i> <i>f.fastigiata</i>	Rood Aston	204	1981	From 2003 TROBI print-out.
20) <i>Quercus robur</i> <i>'Concordia'</i>	Wilton House	170	1992	From 2003 TROBI print-out.
21) <i>Quercus rubra</i>	Bowood	368	1984	From 2003 TROBI print-out.
22) <i>Quercus rubra</i>	Tottenham House (SU 252.642)	355	2000	Basal circumference 550cm at 1 ft.
23) <i>Quercus rubra</i>	Stourhead (No. 532)	312	2003	S of pinetum
24) <i>Quercus x schochiana</i>	Oare House	72	1981	From 2003 TROBI print-out.
25) <i>Quercus shumardii</i>	Oare House	63	1984	From 2003 TROBI print-out.
26) <i>Quercus trojana</i>	Broad Hinton House	176	1979	From 2003 TROBI print-out.
27) <i>Quercus x turneri</i> <i>'Pseudoturneri'</i>	Oare House Arboretum	114 (at 3 ft)	2003	

1km squares (Gillam 1993). The most recent Wiltshire Flora (Gillam 1993) mentions 10 records of *Q. ilex* (Evergreen Oak) and one of *Q. rubra* (Red Oak) in Appendix 1, which implies trees planted by man and no natural regeneration. However, since 2001 the Tottenham Park Red Oaks have just begun to produce acorns. Some of the many Savernake Forest Red Oaks are approaching the stage of acorn production, so there well may be natural regeneration of this species in decades to come.

Discussion and Conclusions

For Spanish Chestnuts (Table 1), it would be useful to know of further examples of self-regeneration within Wiltshire, possibly indicating climatic warming. Fifteen of the 17 greatest-girth Beeches

(Table 2) were from Savernake Forest including Wilton Brail (part of the ancient Savernake Forest). Are there so few great Beeches elsewhere in the County? Similarly it is hard to believe that Marlborough College has half of the largest Copper Beeches in Wiltshire (Table 3). On the same table, it is obvious that other *Fagus* and *Nothofagus* species (and hybrids and cultivars) are under-recorded. More girth records on these groups, and observations on self-regeneration, would be welcome.

English Oaks (Table 4) are well observed. However, are all large Durmast and Hybrid Native Oaks (Table 5) really confined to Savernake Forest? Finally I am certain that there is scope for submission of many new girth records for other Oak taxa, whether included on Table 6 or not. The 1993 Wiltshire Flora

only gave 3 Oak species as self-regenerating. My observations would indicate that this is too conservative and limiting. More *Quercus* species, hybrids, forms, variants and cultivars produce acorns. These can progress naturally to saplings. More records on such examples of self-regeneration should be collected before the next Wiltshire Flora is due.

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THE BRYOLOGY OF SOUTH WILTSHIRE

Rod Stern

Background and methodology

In a previous article (Stern 1999), I indicated that I hoped to publish an atlas of South Wiltshire mosses and liverworts within two years. A bryophyte flora of South Wiltshire was published in the *Journal of Bryology* in 2001 (Stern 2001); this includes 249 distribution maps of all taxa except the commonest and the rarest.

The area covered is the Watsonian vice-county 8 South Wiltshire, with the northern boundary following the Kennet and Avon Canal. The boundaries with Somerset, Berkshire and Hampshire are somewhat different from those of the present administrative county, the most important being in the south-east where a significant area is now in Hampshire.

There are bryophyte floras for the adjoining counties including that of J A Paton (1961) and J Appleyard (1969). Jean Paton also did some survey work in the south-west of vc.8 when she lived in Southampton and the late Joan Appleyard recorded in the north and west of the vice-county for the *British Bryological Society's* national *Atlas* project (Hill, Preston & Smith 1991-94). Dr Francis Rose and the late E C Wallace made several visits to Wiltshire between 1950 and the mid-1990's and some other bryologists contributed a few records. The *British Bryological Society (BBS)* visited vc.8 briefly in 1956 and 1959, and held its week-long Spring Meeting in Salisbury in 1989. It became clear that much of the vice-county was under-recorded, and late in 1991, I embarked on a systematic survey based on 10km squares with the intention of publishing a Flora using all available records from 1950 onwards.

The decision to use 10km squares was made for several reasons; for example, some of the existing information was on a 10km square basis without details of localities; also a large part of the vice-county is on relatively uniform chalk with extensive area of arable land and agriculturally improved grassland. Perhaps the most important reason was that I hoped to complete the survey within a few years, which would have been impossible using 5 or 2 km squares. In the event, this survey took somewhat longer because of other commitments and was not completed until 1999. Most of the work was done by me, but at times I was accompanied by others, particularly by the late Ray Harding and, in later stages, by Roger Veall.

Records were put on a *BBS* record card for a "site", which might comprise a single block of woodland, an area of chalk grassland or a single churchyard. Sometimes a site would consist of a village with adjoining fields, or a group of neighbouring

churchyards or a stretch of river with adjoining meadows and woodland. The total number of sites was 313, and nearly all of the 210 churchyards were inspected.

The total number of taxa recorded in vc.8 (including pre 1991 records) is 375 (296 mosses, 77 liverworts and 2 hornworts), only four of which have not been seen since 1950.

The Flora

In the Flora, the sequence of taxa and nomenclature follows Blockeel, & Long (1998). For each taxon, the following information is given:-

- Details of first record, including the 10km square, name of location and recorder's initials. (This may be the only record).
- Details of the habitats where the taxon is found, with the general abundance (rare, occasional, frequent, common, very common).
- Details of the locality for a taxon that is in 12 localities or fewer, including 10 km square and name of locality (all localities are given for Sphagnum species because they are generally scarce in the vice-county), date of the record and initials of the recorder (except mine from 1991 to 1999) and, for a few species, the Herbarium where I have seen a specimen (BM, NMW or DZS).
- With some exceptions, a distribution map. No map is included for a taxon that is in two or less 10km squares or for a taxon which is in all squares except 3 or less.
- If a taxon has been found with capsules, it is noted as c.fr.

The following are some examples:

- *Nowellia curvifolia* (Map 9) above Newtown, Cranborne Chase ECW 1976 (DZS). Decaying timber (fallen trees and branches), mainly in ancient woodlands, rare. 74 High Wood (Longleat Estate), 83 Bidcombe Wood, 84 High Wood (Longleat Estate), 22 Langley Wood FR 1984, 24 Cholderton Rare Breeds Farm (on fallen pine)
- *Tritomaria exsectiformis* 21 peaty bank, Hamptworth Common RS 1995
- *Atrichum undulatum* (Map 54) 12 Alderbury JS 1891. Common on the ground in woods and scrub. Commonly c.fr.
- *Tortula muralis* 12 West Harnham JS 1891. Stone and brick walls, concrete blocks, bridges and calcareous rock outcrops, very common. Usually c.fr. All squares except 32.

The maps show at a glance the general distribution of the species. A page of them is shown opposite by way of illustration. Some include open circles, which represent pre-1950 records. There are significant gaps on the chalk for many liverworts and all Sphagna, which grow on moist and/or acid soils. Almost missing from the chalk are species growing on old trees in ancient woodlands such as *Frullania tamarisci* and *Zygodon rupestris*.

A few maps could be regarded as misleading. For example *Leucodon sciurioides* occurs in most 10 km squares, but is certainly not common, so a note to this effect is given in the account for the species.

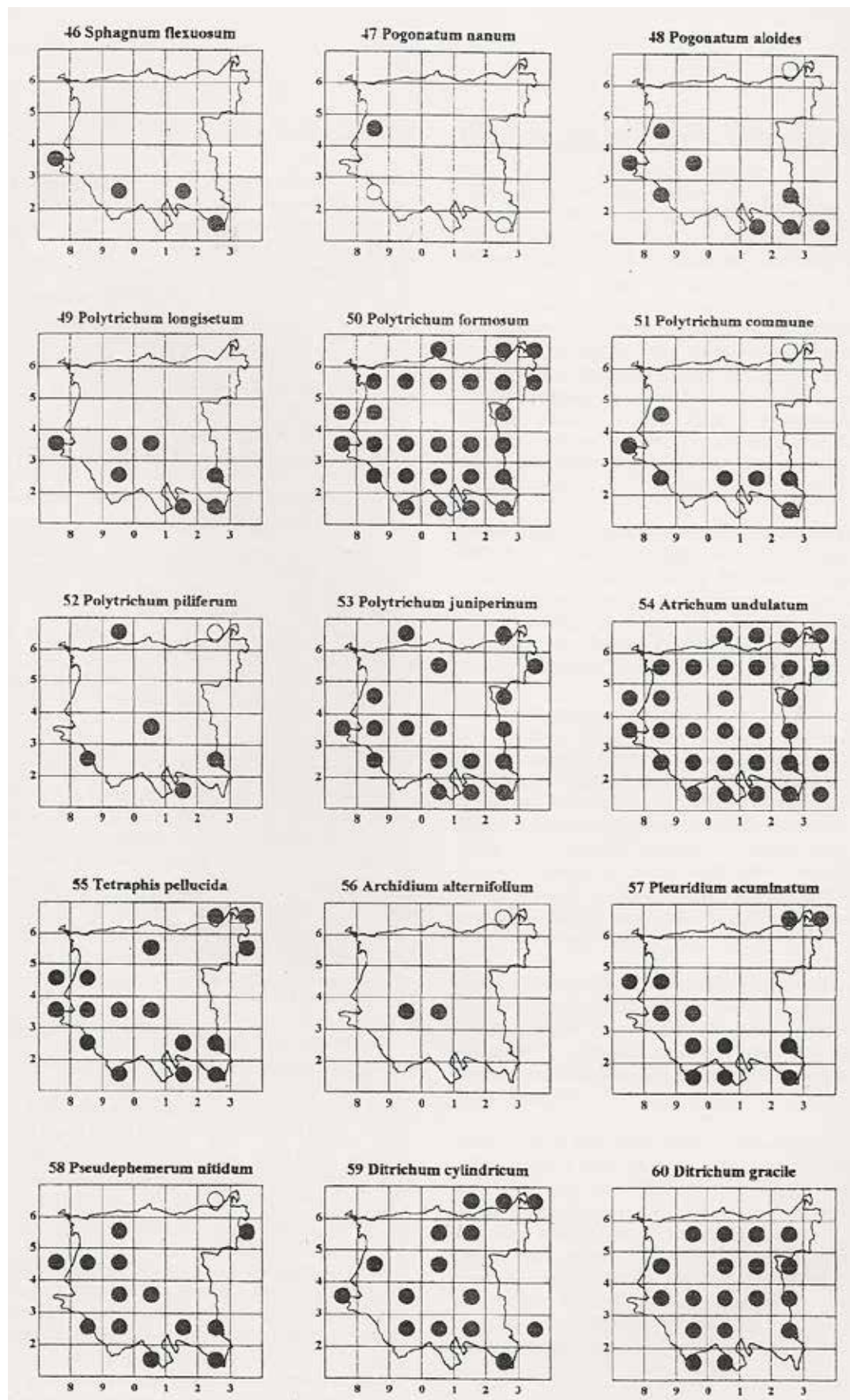
Only Latin names have been used in the flora. English names are available (Edwards 1997), but most of them are not in general use at present. Some are rather cumbersome, such as Long-beaked Water Feather-moss for *Rhynchostegium riparoides* and Forcipated Pincerwort for *Cephalozia connivens*. They are not normally used in scientific publications such as the *Journal of Bryology*.

Although the Flora is the result of fairly intensive recording over a number of years, there are other bryophytes which should be found. I hope that others may be encouraged to go out and see what additions can be made with new species and localities.

Reprints of the Flora have been deposited in the reference libraries in Trowbridge and Salisbury, where photocopies can be obtained (usually through your local library as well). Also I have a limited number of reprints which are available at a cost of £1 to cover postage and packing.

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THE SURVIVAL OF ORNITHOGALUM PYRENAICUM IN A COPPICED WOODLAND

Richard Aisbitt

Introduction

Spiked Star-of-Bethlehem (*Ornithogalum pyrenaicum* L.), locally known as Bath Asparagus, grows abundantly in Clouts Wood near Wroughton (SU138794). This ancient coppiced wood on chalk subsoil straddles the northern scarp slope of the Marlborough Downs. It was made a *Site of Special Scientific Interest* in 1951 and became a nature reserve in 1982. The wood has a varied composition, but the study area contains mainly Hazel (*Corylus avellana*) and Ash (*Fraxinus excelsior*) stools with occasional standard Oak (*Quercus robur*) and Maple (*Acer campestre*) trees. Dog's Mercury (*Mercurialis perennis*) and Bluebell (*Hyacinthoides non-scripta*) were the main plants associated with Bath Asparagus in the ground flora. The type of vegetation fits NVC W8, *Fraxinus excelsior*-*Acer campestre*-*Mercurialis perennis* woodland.

Clouts Wood was no longer being coppiced when it became a nature reserve. Ring counts showed that the ash stools were last cut in 1956 or 1957, indicating that the coppice had not been cut for at least 25 years. *O. pyrenaicum* was growing in deep shade, with only about one per cent of daylight penetrating to ground level. The *Wiltshire Trust for Nature Conservation* started a 14-year coppice rotation in 1983.

The purpose of this study was to discover the effect of re-establishing the coppice cycle on the survival of *O. pyrenaicum*.

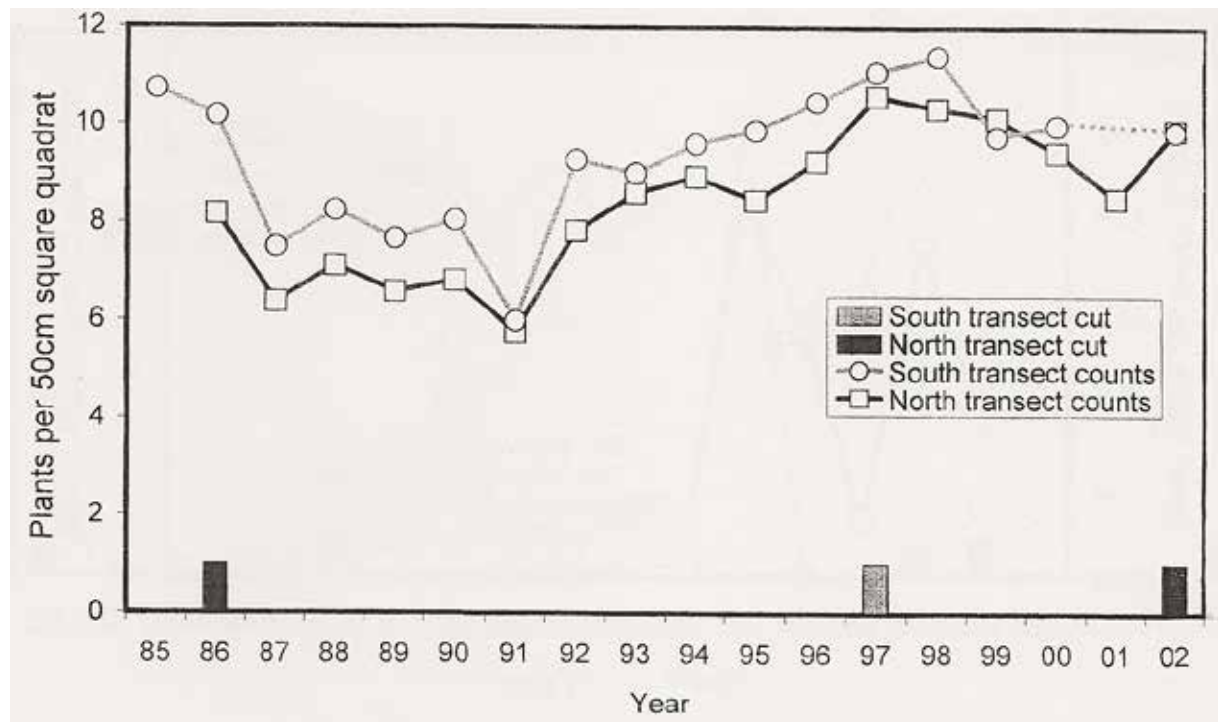
Existing Knowledge

Hill and Price (2000) made a detailed study of the biology and ecology of Spiked Star-of-Bethlehem. This plant evades rather than tolerates shade in woodland by producing its leaves as early as January, before deciduous trees are in leaf. Its leaves wither in May, when some plants produce flower buds. The flower stalks then elongate, producing a scape of flowers which open between late May and early July. Only a proportion of the flowers develop into green, seed bearing capsules, as the upper flowers often fail to develop. The whole scape may also wither without apparent reason or may be eaten by slugs or deer.

Reproduction from seed is probably important, as Bath Asparagus populations can include up to 50% seedlings and young plants. Plants usually produce one extra leaf each year and can flower at the 5-leaf stage, but may live much longer than five years.

Plants occur as individuals or as small groups. It is not clear whether these groups are produced by seeding or by vegetative reproduction. However, as bulbs do occasionally produce small bulbils, veget-

Figure 1: Counts of *Ornithogalum pyrenaicum* plants in Hazel/Ash coppice



ative reproduction is possible and could be important in maintaining the population in conditions which reduce or prevent seeding.

Rose (2002) studied the pattern of distribution of Spiked Star-of-Bethlehem and associated plants. His results suggest that Dog's Mercury may compete with Spiked Star-of-Bethlehem, possibly by shading out its seedlings. There was no evidence of competition with Bluebells.

Studies of two plants with similar biology and lifestyle have been made: the Wild Daffodil (*Narcissus pseudonarcissus*) (Barkham 1992) and the Bluebell (*Hyacinthoides non-scripta*) (Grabham and Packham, 1983)

Methods

Two areas of coppiced woodland were marked out for the study, one north, and one south of a track through the study area. The north area was coppiced by conservation volunteers in 1986 but the south area was not due to be cut for several years. Plants were counted along 20m transect lines marked with vertical iron pipes hammered level with the ground. 0.5m square quadrats were placed along one side of each line, making two continuous 20m x 0.5m belt transects (i.e. 40 quadrats covering 10m² for each

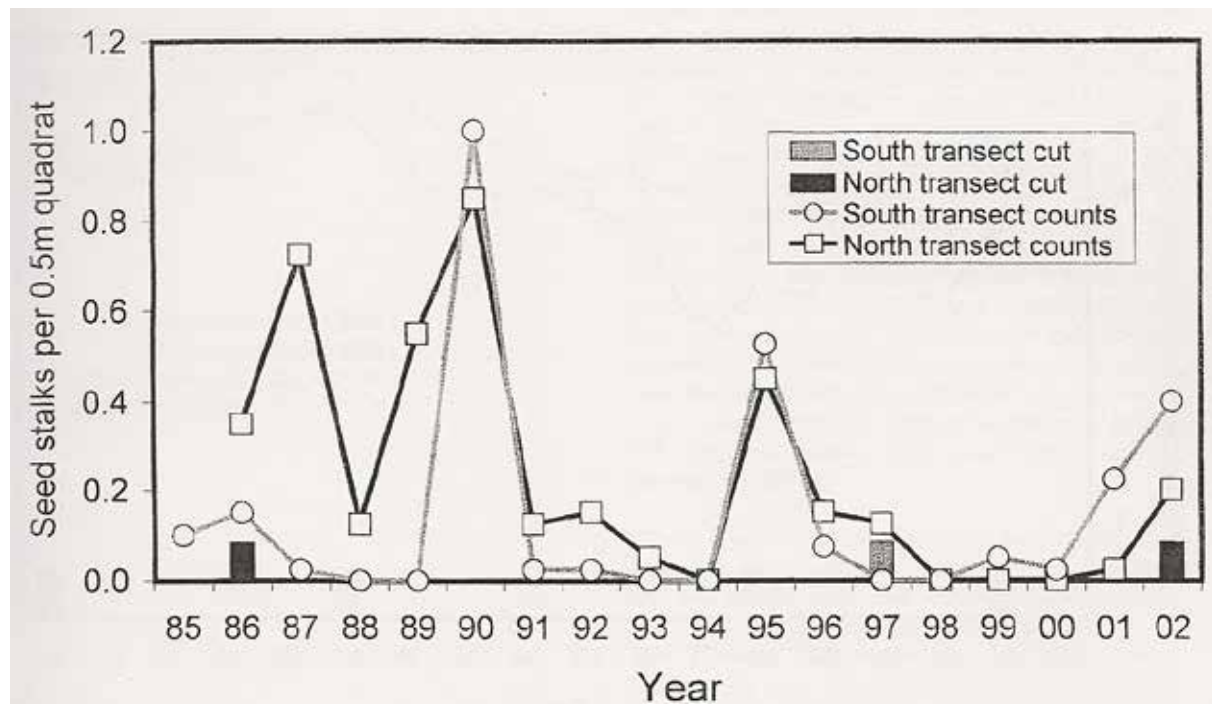
transect). This method was chosen because it made it easy to record the same locations each year and it minimised damage from trampling.

Whenever possible, three measurements were made each year in order to measure the survival of *O. pyrenaicum* plants and their success in setting seed. These were:

- the number of plants per quadrat;
- the number of flower stalks surviving to bear seedpods;
- and the number of seed pods on each seed stalk.

Leaves of *O. pyrenaicum* emerge in January or even December. The number of plants within each quadrat was counted in late March or early April, when all plants should have produced leaves. Most other plants still show little growth at this time and it is easy make counts of *O. pyrenaicum*. Later in the year, counting becomes more difficult because other plants grow taller and the leaves of *O. pyrenaicum* wither away. The Bluebell (*Hyacinthoides non-scripta*) also produces leaves early in the year, but has wider, shiny, dark green leaves which distinguish it from the narrow, blue-green leaves of *O. pyrenaicum*.

The plants often grow close together in clumps. Each rosette of leaves in a clump was counted as one plant.

Figure 2: Counts of seed stalks of *Ornithogalum pyrenaicum*

Seed-bearing stalks, which grow up to 1m high, were counted within each quadrat in early August. The number of seedpods (capsules about 8mm across) on each stalk was recorded at the same time. When there were very few or no seed stalks within the study area, stalks within 3m of a transect were included in the pod count. Non-parametric statistical methods as described in Campbell (1967) were used to test differences between samples. The Mann-Whitney U test was used for unpaired values and the Wilcoxon signed rank test was used for paired values.

Results

Figure 1 shows the numbers of plants recorded. The vertical bars show when the two study areas were coppiced. This was before counting started in the north transect, but the heavily shaded south transect was not cut until 1997. Tufted Hair-grass (*Deschampsia cespitosa*) became dominant whilst the Hazel stools in the north transect were re-growing. This grass grew up to two metres high, but disappeared as the hazel canopy closed (50% cover in 1992; 100% cover in 1998). Similarly, coppicing the south transect in 1997 was followed by tall herb growth, mainly Stinging Nettle (*Urtica dioica*).

It might be expected that changes in light level and competition from other herbaceous plants would affect the numbers of *O. pyrenaicum*. Figure 1 shows

changes in the number of plants from year to year. These changes are often statistically significant. However, the changes in both transects are very similar and suggest that they are not caused by coppicing, but by some other change in conditions.

The fall in numbers in 1991 may not be genuine since the count was delayed until June, when *O. pyrenaicum* plants were dying down and were harder to see amongst other plants. Similarly, the epidemic of Foot and Mouth Disease in 2001 delayed the count and this was abandoned for the south transect.

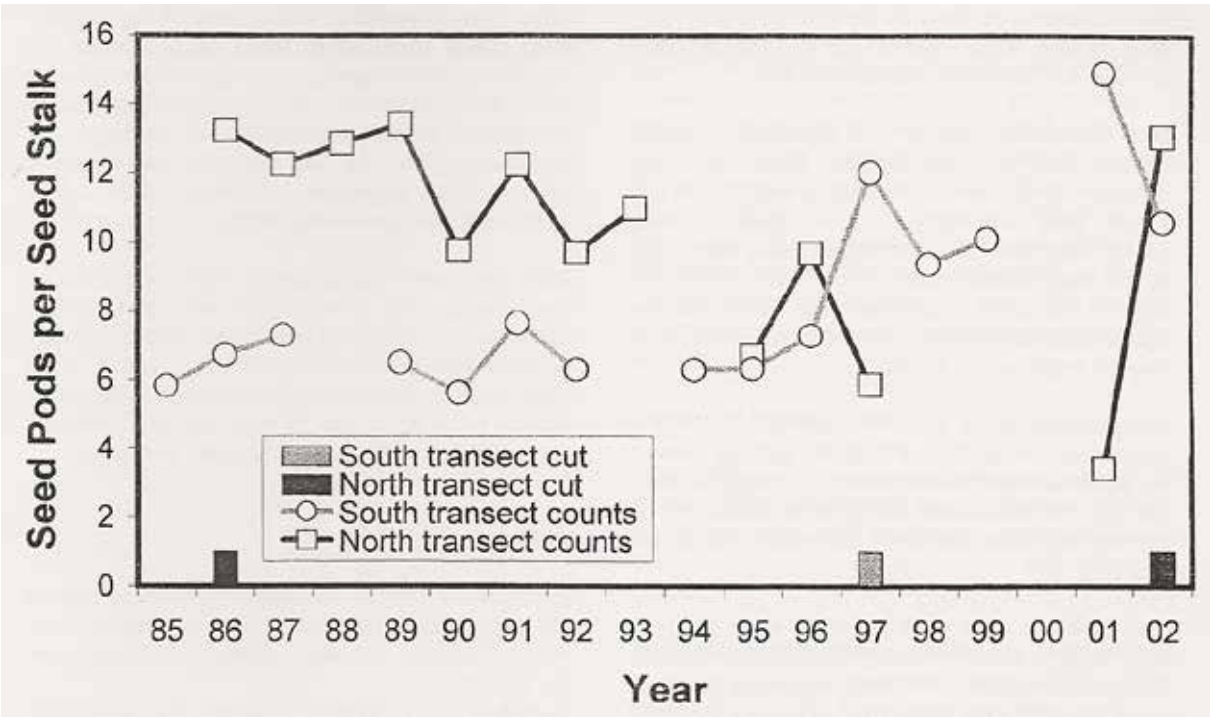
The production of seed stalks varied greatly from year to year. There was some coincidence of 'good years' in the two areas, as shown in Figure 2.

The number of seed stalks was greater after coppicing (north transect) from 1986 to 1989, but only the differences for 1987 ($P < 0.1\%$) and 1989 ($P < 1\%$) were statistically significant. Coppicing the south transect in 1997 was not followed by a statistically significant increase in the number of seed stalks.

Figure 3 shows the average number of seedpods on each seed stalk. Gaps in the sequence show years when there was no seed produced.

Coppiced areas produced more seedpods. This can be seen by comparing the coppiced north transect and

Figure 3: Seed pods per seed stalk



the un-coppiced south transect between 1986 and 1992. All the differences are statistically significant. Also, the number of seedpods per stalk increases when an area is coppiced. The increases from 1996 to 1997 for the south transect and from 2001 to 2002 for the north transect show this. Both were statistically significant ($P < 0.1\%$). The differences are summarised in Table 1.

Discussion

Table 1 showed changes in the number of plants over an 18-year period along the two transects. These changes were very similar in both transects. During the earlier part of this period the south transect was in heavy shade from overgrown coppice, but the north transect had an open canopy and a strong growth of shade-intolerant plants. It appears that neither increased light nor competition from other plants affected the number of Bath Asparagus plants.

Profuse flowering often follows coppicing and sometimes results in a greater number of stalks bearing seedpods. However, flower stalks often disappear or fail to produce seed and so the difference can be less than might be expected. The success in producing seed varies considerably from year to year. 'Good' and 'bad' years often coincide for the coppiced and un-coppiced areas. It appears that coppicing is only one of the factors which decide how much seed is produced. Environmental condi-

tions and predation by animals may also be important.

Table 1: Statistical comparisons

Comparison	Increase	Probability of the increase occurring by chance
1986, south to north	from 6.7 to 13.2	5%
1987, south to north	from 7.3 to 12.4	< 0.1%
1989, south to north	from 6.5 to 13.4	<< 0.1%
1990, south to north	from 5.7 to 9.8	< 1%
1991, south to north	from 7.7 to 12.2	< 5%
1992, south to north	from 6.3 to 9.7	<< 0.1%
South, 1996 to 1997	from 7.3 to 12.0	<< 0.1%
North, 2001 to 2002	from 3.4 to 13.1	<< 0.1%

Inflorescences often turn yellow and collapse, particularly in densely shaded areas. They also fail when molluscs eat through the stalks. I have often seen flower stalks severed at an oblique angle suggestive of browsing, possibly by deer.

Deer need to be excluded from regenerating coppice because they eat young Ash and Hazel shoots and this can kill the stools. Excluding deer would also benefit Bath Asparagus, a point made by Rose (2002). We have used 2.5m high fencing made from square plastic mesh to keep deer out. This is effective against Roe Deer *Capreolus capreolus*, but not against Muntjac *Muntiacus reevesi*, which can push through small gaps in the fence.

Many flowers at the top of the inflorescence fail to open or do not produce a capsule, perhaps because the plant has insufficient resources to support them. Changes in the number of capsules which fail to develop will affect how much seed each inflorescence produces.

Seed stalks in open areas produced more seedpods than those in shade. Since this can be seen in the summer immediately following coppicing, it is unlikely to result from more food being stored during the previous year. The stalk and the seedpods are the only remaining green parts of the plant during the summer and so photosynthesis in these parts may allow more seeds to develop.

Conclusions

There is no evidence that restoring a coppice cycle to woodland where Bath Asparagus is growing either increases or decreases the number of plants over the timescale of this study. It does appear to increase the quantity of seed produced, both by increasing the

number of plants which succeed in producing seed and by increasing the quantity of seed from each plant. The competition during coppice regeneration from plants intolerant to shade might threaten the survival of Bath Asparagus, but appeared to have no effect during this study. However, browsing by deer can prevent coppice regeneration and would prolong this competition. As deer may also eat the flower stalks of Bath Asparagus, it is important to exclude them from the regenerating coppice.

Bath Asparagus can survive in dense woodland by photosynthesising in winter and early spring before the leaves of deciduous trees have opened. It may produce little seed in these conditions and it is not clear whether vegetative propagation is sufficient to replace bulbs which die. It may be wise to open the canopy periodically to encourage seed production.

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CONSERVATION AT PORTON DOWN

Stuart Corbett

The following is an outline of a talk given to the *Wiltshire Botanical Society* on 15 February 2003. The *Defence Science and Technology Laboratory (Dstl)* Porton Down is an agency of the *Ministry of Defence*. It has a purely defensive role in the provision of protective measures for the UK's military forces and civilians against chemical and biological warfare. Porton Down lies south of Salisbury Plain and north-east of Salisbury, in the county of Wiltshire. It is hoped that this article will provide some information about the reasons for the development of Porton Down into the special place it is today and the ways in which it is being maintained for the benefit of wildlife.

History of Porton Down

Descriptions of the land use history and ecology of Porton Down have helped to explain how and why the flora, fauna and landscape present here have become important in a national and European context.

Archaeological evidence indicates that Neolithic man was very active in the area and, after clearance of the post-glacial forests, agricultural land use ensued with arable cropping probably taking place near settlements with livestock grazing grassland further away. Evidence of the activities of prehistoric man abound at Porton Down including the presence of one of the largest flint mines in Britain, burial sites such as barrows and a network of linear earthworks.

In more recent times it is likely that large areas of Porton Down were cultivated during the Middle Ages, until the Black Death reduced the need for food production from such marginal arable land. From this point until the beginning of the 18th century it is probable that most of the land reverted to grassland. Arable cropping was then undertaken over most of Porton Down at varying levels of intensity depending on the economic climate of the times until the end of the 19th century. The repeal of the Corn Laws and importation of cheap American grain forced the abandonment of much marginal arable land at this time and almost all of Porton Down had reverted to grass by 1914.

The agricultural systems used during the periods when crops were grown probably involved growing crops until the soil became exhausted followed by grazing with livestock which increased its fertility until cropping was again possible. In this way a repository of seed was retained in the soil which, when arable cropping was abandoned, allowed reversion to downland of such high quality that many observers are convinced of its virgin downland state.

In 1916 Porton Down was purchased by the Ministry of Defence. Agricultural use of the land was almost entirely abandoned and so, to a degree, the landscape was frozen in the appearance of much of Wessex at that time. The tremendous advances in agriculture achieved during the 20th century did not take place over the majority of Porton Down, except around its perimeter. Satellite images clearly show how Porton Down now sits as an island in a sea of agriculturally improved land.

Conservation of habitats

A report produced by the *Institute of Terrestrial Ecology* in 1976 (Wells et al 1976) led to the belief that Porton Down's wildlife should be safeguarded for the future. The ranges at Porton Down comprise 2750 hectares (7000 acres) of chalk grassland and in 1977 1194 ha were designated as a *Site of Special Scientific Interest (SSSI)*. A further 325 ha were designated on 11 July 2000.

SSSI's, together with other specially protected areas, are part of a national network of sites which are designated by *English Nature*, with the objective of maintaining the sites in a favourable condition. The condition of the wildlife on SSSIs is assessed by *English Nature*. A wildlife feature (habitat or species) on a site will be recorded as favourable or recovering when set criteria are met which ensure that the feature will be sustained in the long term. By 2001 almost 60% of the area of SSSIs nationally were either already favourable or were well on the way to recovery. However, there were considerable differences in the condition of different habitats. Unfortunately, lowland calcareous grasslands, such as those found on Porton Down, have amongst the lowest percentage area in a favourable or recovering condition (38%). Only upland calcareous grasslands and upland heathlands have lower percentages, principally due to overgrazing by livestock.

Major reasons for some areas of Porton Down being considered to be in an unfavourable condition are unwanted scrub encroachment and the development of high quality chalk grassland into more rank types of grassland.

As previously discussed, chalk downland owes its existence to grazing livestock, mainly sheep. Removal of such livestock would normally be expected to result in the gradual deterioration of the chalk grassland and its associated flora and fauna. After almost 100 years without grazing livestock one might expect the vegetation on the site to comprise ageing scrub and young woodland. Over the majority of the site this is patently not so. Something is acting as a substitute for sheep. This animal is the rabbit that occurs in huge numbers at Porton Down.

Rabbits crop the vegetation very closely, leading to a similar sward to that produced by sheep. At the end of the 19th century very high levels of rabbit grazing occurred at the same time as the grasslands were establishing themselves after the abandonment of arable cropping. This high level of grazing persisted until the introduction of myxomatosis in the 1950's which decimated rabbit populations, reducing numbers nationally by 99%.

The effect at Porton Down was a major reduction in the amount of grazing taking place. This led to areas of grassland becoming rank and scrub started to invade the grassland. However, these effects were not seen over all of the range. Some areas retained sufficient numbers of rabbits, or soil conditions were too poor for substantially increased grass or scrub growth, enabling the typical downland to survive until rabbit populations were able to recover.

Over recent decades regular management by grazing and the subsequent preservation of the downland landscape has not been taking place. Periods during which grazing pressure was lower has enabled the establishment and development of areas of rank grassland and scrubby growth. Scrub species are generally able to colonise grassland suprisingly quickly when newly germinated plants are not grazed off. However, if scrub clearance takes place in good time then the effects are also suprisingly immediate as can be seen in the photographs opposite.

However, not all scrub growth is considered to be a bad thing. The common scrub species at Porton Down, such as Hawthorn and Dogwood, provide food, shelter and nesting sites for many animals such as birds. Limited amounts of scrub, therefore, increase the biodiversity of the site. There is also one species of shrub that is a special feature of Porton Down. This is the Juniper that occurs here in greater numbers than anywhere else in southern England. An estimate was made, in the 1970s that 18,000 Juniper bushes occurred on the Porton Down ranges. The present figure is likely to be substantially less than this. The maintenance of a substantial population is particularly important as the species has associated with it a specialist invertebrate fauna some of which cannot survive unless it remains large. The Juniper at Porton Down is undergoing severe decreases in its population, a situation occurring throughout Europe. There are two main age groups of Juniper. The oldest established during the period when arable cultivation ceased. These bushes are now reaching the end of their life. The younger age group established during the 1950's and 60's when myxomatosis reduced rabbit populations and, therefore, they were not subjected to grazing. With the increase in rabbit numbers the Juniper population has been unable to regenerate further, leading to a

population dominated by two age classes (Ward 1982).

Area prior to scrub clearance



Same area just after scrub clearance



Unfavourable conditions do not arise only from lack of grazing. The use of unsuitable methods of land management or usage can also result in damage to the SSSI. A good example of this is tree planting. Certain areas of the site, mainly on the higher points, were planted with trees, very often Beech, during Victorian times. Scots Pine were also planted in various places. In more recent years some large blocks of conifers were planted directly into good quality chalk downland.

The mature beech trees suffered badly in the storm of 1987. Thereafter, there was perceived to be a need to plant more trees to counteract these losses. Unfortunately this led to the current situation where there are straight ranks of young trees in plastic shelters growing in chalk grassland. However, not all of the trees are growing in chalk grassland having been directly planted by man. Scots Pine produce a lot of viable seed which will germinate and grow on grassland and some areas of Porton Down are now invaded by this species.

Conservation of animal species

The chalk downland has many characteristic species of animal associated with it. Its decline in area and quality has led to a similar decline in some of these species.

One of the animals with a deservedly high profile in conservation circles is the Stone Curlew. This rare bird is a summer visitor to the Wessex downlands and the brecklands of East Anglia. Its population had declined from between 1000 and 2000 pairs in the late 1930's to about 160 pairs in 1992. The habitat it selects for breeding is very short open grassland which is well grazed and often stony. At Porton Down rabbits play an essential role in providing the close grazed open conditions for breeding and feeding. The fall in the population of Stone Curlew is clearly closely related to the decline in the amount and quality of chalk grassland in Wessex and breckland grass heaths in East Anglia (Arnold 1999).

Porton Down is probably the best butterfly site in the UK. 45 species, or 80% of the national total, have been recorded here. One of the species most closely associated with good quality chalk grassland is the Silver-spotted Skipper. In the early part of the 20th century this species was present over much of the chalk downland of southern England. Its required habitat is characterised by short vegetation with high percentages of bare ground and the larval host plant, Sheep's Fescue, adjacent to each other.

The demise of the rabbit, due to myxomatosis, and the subsequent reduction in the quality of chalk grasslands, together with the destruction of these grasslands for agricultural purposes, led to a dramatic decline in populations of Silver-spotted Skipper nationwide. By 1974 the butterfly had almost disappeared from Porton Down, persisting in one small colony, the only one left in Wiltshire. It is no exaggeration to say that the species was on the verge of extinction in the UK at this time.

Since 1982 the increase in the rabbit population coupled with better conservation management have increased population sizes at sites such as Porton Down. In fact, Porton Down has the largest population in the UK, supporting over 50% of the national population. However, continued good management is vital because most populations remain small and good sites, such as Porton Down, may act as pool from which colonisation of other areas might take place (Davies et al 2001).

The Stone Curlew and Silver-spotted Skipper butterfly are good examples of the effects brought about by changing habitat conditions. Both are highly visible and comparatively well known. It is certain that similar situations have arisen amongst a host of other species, many of which are difficult to monitor or are only considered by a limited number of people.

New conservation initiatives

Much conservation work has been undertaken by the MOD at Salisbury Plain Training Area (SPTA) and Porton Down in recent years. This has been supplemented by voluntary work by members of organisations such as the *Porton Down Conservation Group*.

In order to begin to address the problems resulting from a historical neglect of suitable management and the consequent assessment of areas of SSSIs as being in an unfavourable condition, a partnership was formed to apply to the European Commission for funding of a major wildlife restoration project. The partnership was headed by *English Nature* and also includes *Head Quarters Army Training Estate*, *Defence Estates*, *Defence Science and Technology Laboratory (Dstl)*, *Royal Society for the Protection of Birds (RSPB)*, *Butterfly Conservation* and the *Centre for Ecology and Hydrology (CEH)*. After 18 months development and planning on 5 July 2001 *English Nature* were informed that the application had been successful. Funding was secured from the *European Commission (EC) LIFE-Nature Fund*. The project title is 'Improving the management of Salisbury Plain Natura 2000 sites'. The EC will contribute 50% of the total project cost of £2,130,000 over four years. The other 50% is matched funding from the other partners.

The main actions of the project are designed to address the reasons for the historical lack of grazing, inappropriate management and land use. The main practical conservation work involves remedial actions to restore the sites to favourable conservation status. It will focus on conservation management across the sites for chalk grassland, Juniper, Stone Curlew and Marsh Fritillary butterfly, though, of course the individual actions will benefit a host of other species.

Actions to benefit chalk grassland

The major threat to chalk grassland is encroachment by scrub. It is planned to remove 200 hectares of scrub from Salisbury Plain and 12 hectares from Porton Down to benefit chalk grassland. Scrub regrowth will be topped and chemically treated on 80 hectares at Salisbury Plain and Porton Down.

A heavy duty flail has been purchased at Porton. This machine has been very busy and has topped about 25 hectares of dogwood regrowth on the ranges. This regrowth was as a result of inadequate chemical treatment after initial scrub clearance some years ago. The dogwood will regrow during the next year or two and it will then be treated chemically using another new purchase, a weedwiper. This machine wipes herbicide onto the leaves of the plants from rotating brushes. An initial trial on a small area this past autumn showed promising results.

Afforestation is also a significant threat. 100 hectares of broadleaved and 40 hectares of coniferous plantation will be cleared on Salisbury Plain. 40 hectares of self sown pine will be removed from Porton Down.

Historical abandonment of grazing has led to the decline in extent and quality of species rich chalk grassland. 5990 hectares of Salisbury Plain are out of bounds to grazing because they are designated live firing areas. However, grazing is to be restored to 3663 hectares which have not been grazed for at least the last 50 years. This will be achieved using a combination of licenced grazing and the employment of a herdsman who will manage animals in a traditional way, moving the animals over unfenced areas during the day and returning them to fenced areas for the night. It is also planned that limited grazing by livestock will be introduced at Porton Down though the limited areas available make this more difficult.

Actions to benefit Juniper

Scrub encroachment which threatens Juniper stands is to be removed. 20 hectares on Salisbury Plain and 32 hectares at Porton Down will be cleared.

One of the major tasks within the *LIFE Project Juniper* actions is to research the rejuvenation of this species so that a viable population will exist in the long term on the site. There are lots of thoughts about Juniper, its seed viability, conditions required for successful germination and establishment etc. but very little has been proved to enable firm actions to be put in place. It was considered that it might be sensible to carry out some of the more basic research which might enable more targeted work in the future.

One of the questions to be answered was: is the seed viable and in what conditions will it germinate? To try to begin to answer this a small replicated trial has been established in which 10000 Juniper berries have been sown in different ground conditions. The treatments of the ground were to remove the vegetation and topsoil, to remove vegetation using a

herbicide or to leave it untreated. Two rows of berries were sown in each of the 16 plots, one buried at 2 cms deep and the other left on the surface. This was sown in April 2002 and, if anything is to happen it should be in April and May 2003. The results from this trial will also answer another question. It is often said that the seed of Juniper requires passage through the gut of a bird in order to germinate. This will have large implications if it were true, as it would be almost impossible to know where new populations will arise. We would have to mount a 'toilet watch' on flocks of fieldfares which, after gorging on Juniper berries, would then fly off to deposit seed in other areas which could then become new Juniper colonies. This question, together with another one, may have been answered by another piece of work taking place. It is often said that Juniper will not grow near parent plants. In order to test this a number of cages were placed, last spring, beneath mature female bushes where the soil surface was littered with berries. Late last summer we examined one of these cages and found our first 'baby' at Porton Down. The joy with which this new arrival was greeted was out of proportion with its true importance but we enjoyed ourselves, naming it Jennifer. Two more have since been found under different parent plants so it appears that they will germinate under the parents and, maybe, these seeds had not passed through the gut of a bird. Admittedly, it is unlikely that these new plants, growing in such close proximity to the parent, will establish.

In September 2002 a Juniper Study Day was held at Porton Down which about 30 people, all involved with Juniper, attended to discuss the problems of Juniper decline and to put forward ideas about its rejuvenation. Two days before holding this event we checked an area in order to ascertain where and when we were going to flail off some young scrub. As we walked through we noticed a small Juniper bush, and another, and another. We abandoned the idea of flailing this area and, instead, decided to carry out a Juniper survey. In all we found 168 plants, all between 3 and 10 years old. This was very exciting as it showed us that the story of Juniper not rejuvenating was not quite correct. The grassy vegetation in the area in which the young Juniper were found was longer than in the surrounding area. This indicates that, for some reason, the rabbit grazing pressure was, at some point, lowered and had remained lower. The reason for this on some of the area is difficult to determine but in some areas there is a definite correlation between proximity to tracks and the presence of young Juniper. It appears that there is just sufficient traffic on these tracks to deter rabbits to some extent and this has given the Juniper the opportunity to establish. If this theory is correct we have the worrying hypothesis that, in order to safeguard the future of Juniper we may need to build

lots of roads through the chalk downland of Porton Down. Another aspect of interest was the fact that the young Juniper found were in an area which contained mature bushes and it was likely that they were the progeny of these. So another bit of the jigsaw seems to have been put in place, young Juniper do grow near mature bushes and it may be that, in the correct circumstances, we may be able to establish mixed age groups of Juniper on the site. A lot more has yet to be found out about this species and its growth but I feel that we are establishing a good base from which to carry out successful planning for the continuance of this species.

Actions to benefit Stone Curlew

In order to provide suitable breeding habitat and reduce the harbourage of mammalian and avian predators 16 hectares at Porton Down are to be cleared of scrub. This process began in the winter of 2001. A sign of the benefits which derived from the scrub clearance was shown the following summer when Stone Curlew were seen in areas which would not have been used by them in the previous year. More scrub has been cleared this winter on an area frequently used by nesting Stone Curlew and this summer we will have the opportunity to assess whether there is any increase in the number of pairs using the area.

Scrub clearance is taking place on the downland but 5 special semi-permanent breeding plots have also been established on farmland around its perimeter. These are known to be very successful and comprise bare ground created by cultivation and maintained as open ground during the breeding season.

This action is facilitated by the employment of an *RSPB Stone Curlew Project* officer.

Actions to benefit Marsh Fritillary butterflies

The range of the Marsh Fritillary butterfly has declined by 62% during this century and is continuing to decline by 10% per decade. The declines are occurring throughout its European range. Salisbury Plain supports the largest populations occurring on chalk downland in Britain. There is also a small population of this butterfly at Porton Down. Only a few adults are seen in a good year and it is surprising that the species continues to linger here. Last August *Butterfly Conservation* carried out a survey of the site for the larvae that live inside webbing on the foodplant, Devils-bit Scabious. A single web was found in an area of the site where the adults are usually seen so the species appears to live and breed at Porton at very low levels but is probably at great risk of extinction.

Promoting the *LIFE* project

The local community and the wider public will be encouraged to take an active role in helping to protect and improve the wildlife value of the sites involved in the *LIFE* project. Promotion of the project and its aims to the general public will include a single day event in Salisbury during July 2003 involving the military and conservationists.

The public will also be informed by the production of newsletters, a poster to be distributed in the local community (eg to schools), the displaying of relevant conservation information on boards at the sites and by carrying out an attitude survey at the start and end of the project to assess changes in the understanding of issues affecting SPTA.

The *LIFE* project is funding the production of display panels to be used at the *Porton Down Conservation Centre*, which is currently being modernised by *Dstl*. A new booklet, produced by *Dstl*, about the natural history and archaeology of Porton Down is well on the way to publication and will be available to visitors. The lessons of the *LIFE* project will be used to promote more favourable management of similar sites throughout the *European Community*. This will be done by producing technical leaflets, the holding of a seminar and exchange visits.

Potentially the widest audience will be achieved by the provision of a WEB site page. Access to information relating to the project, including summary reports and links to partners Web sites, will be available. It is hoped that innovative use of a web-cam will be able to provide video footage of breeding Stone Curlew to Internet users. The web cam has been the most exciting and frustrating aspect of my work over the past year. We are now 90% of the way to a successful conclusion and it is hoped that we will be in a position to have the Stone Curlew on the *World-wide Web* this coming season.

Concluding remarks

This article was written in an attempt to provide some background to the reasons why Porton Down is special and to explain some of the work being done to ensure that it remains that way. The historical and current land use of Porton Down has resulted in landscapes and wildlife almost unique within the UK. These facts, and the recognition of their value to present and future generations has been appreciated for many years by those with any knowledge of these areas. It is now realised that management by man is necessary to maintain the habitats for which Porton Down is famous.

The successful request for funding from the *European Commission*, together with equivalent funding from the project partners, has resulted in the opportunity to begin to undertake these operations. The four years of the *LIFE* project must be seen as a priming mechanism for the very long-term correct management of such important places.

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***JUNIPERUS COMMUNIS* IN WILTSHIRE – 1972 TO 2002**

Jane Banks

Overview

As part of a regional survey (started in 2002) to update records of Common Juniper (*Juniperus communis* ssp. *communis*) in several counties in southern England, I started surveying sites in Wiltshire where juniper had previously been recorded. The survey results will also help develop conservation work with regard to juniper being part of *Plantlife* and *English Nature's Species Recovery Programme* (King 1999). The sites surveyed were drawn from the massive amount of data collected by Lena Ward in the late 1960's and early 1970's (Ward 1972). It was also acknowledged by her that there may be new, previously unrecorded sites that would come to light. I shall not endeavour to begin to summarise Lena's work here, but some of the data arising from her study are important to compare with the results obtained in 2002, even though the present survey is, as yet, incomplete. This will be followed by a study of factors involved in regeneration of the species. Finally, future work to be undertaken is outlined.

Status in Wiltshire – 1972 and 2002

In 1972 it was noted that although Wiltshire was the southern England stronghold, population numbers appeared to be declining, with many juniper stands very even aged. The main causes of decline then were attributed to a more intensive use of land in several ways: decreases in grazing, succession, afforestation, expansion of urban areas and so on. Another significant result of the survey was the obvious lack of natural regeneration of the juniper – mostly seeds appeared not to be germinating, or where they did, regeneration was not lasting. With this in mind, in 1972 the prospects for juniper were pessimistic.

So, the 2002 survey set out to quantify populations of juniper, and to consequently give some assessment as to their viability for the future, and hence aid any conservation initiatives that could be implemented. The methodology employed by the survey is relatively comprehensive, and includes features such as population condition (age structure, health etc), any obvious damage through grazing and debarking for instance, habitat, and any management regimes present. During the summer of 2002, I was able to survey approximately one third of the sites recorded in the 1972 survey as having juniper present, and am hoping to complete the work by the end of 2003.

As in 1972, Wiltshire remains the highest populated county, with two large colonies at Beacon Hill, near Amesbury (20,000 bushes) and the Porton Ranges (10,000 bushes). Both of these sites, however, are populated by even aged stands of juniper, with no lasting regeneration. These sites were surveyed

separately, as were the military sites, but of the sites surveyed so far, the results are summarised briefly here.

Table 1 shows a comparison of the numbers of juniper bushes in total found so far during 2002, with the number found at the *same* sites in the 1972 data – this represents a decline in the number of bushes to less than 40% of the population numbers 30 years ago. My thanks to Lena Ward for summarising these results.

Table 1: Current summary of results of 2002 survey

	1972	2002
Total Bushes	2068	812
Colony Mean	115	45

Table 2 shows fairly clearly the shift in age classes during the last 30 years from a generally more viable total population (more sites with seedlings, young and mature bushes) to a moribund declining total population in 2003.

Table 2: Age groups present in colony (number of sites)

Age Group	1972	2002
Seedlings	3	1
Young	11	4
Mature	5	5
Old	1	8
Ill	1	4
Dead	0	4

It is important to note here that these figures may need to be corrected, as during the survey period (July and August) many of these sites were dense with other vegetation, sometimes impenetrable, so some bushes may have been missed. However, this kind of habitat, exacerbated by neglect, is obviously not conducive to juniper survival (juniper is very sensitive to competition) or particularly germination of seed and successful establishment.

The number of sites that have become extinct since 1972 is shown in Table 3, classed on the basis of previous population size. Lena Ward considered sites of 100 bushes or more to be most important ecologically, but obviously colony size (and sex ratios of bushes) is also going to be significant factor in the viability of populations.

It is of concern to note here that, of the sites in the '>100' category, three of these had populations between 400 and 600 bushes. It is also worth reiterat-

Table 3: Numbers of sites now extinct

Original population size	1–10 bushes	11–100 bushes	>100 bushes
1972 sites now extinct	4	2	7

ing that a more accurate count of several of these sites will be carried out before the summer of 2003, with, hopefully, less worrying results.

From the sites I have surveyed, the apparent reasons for decline are:

- Agricultural improvement, including areas for game birds (7 sites)
- Neglect/succession to dense scrub and woodland (7 sites)
- Miscellaneous, including housing development, caravan site, natural mortality in non-regenerating sites etc

Once the survey is completed a fuller estimate of population numbers can be expected, but these figures really confirm what was anticipated from the 1972 results.

All is not bad news however! In two places, road embankments (a habitat that Lena Ward has termed 'scree') on the A36 and A30, both just outside Salisbury, there is successful seedling establishment and apparent lasting regeneration. These two sites have become 'new juniper sites' in the context of the 2002 survey, although the A36 site may have been previously recorded, as part of the Pepperbox Hill colony. Furthermore, they are possibly two of the very few regenerating sites now in the south of England.

Factors in regeneration

In 2001 I carried out a research project which involved examining factors that effect the natural regeneration of common juniper. This research formed part of a Master's degree in Integrated Environmental Sciences at the University of Southampton (Banks 2001). As the foot and mouth outbreak restricted the number of sites I could study, I chose two road embankments where juniper was actively regenerating (thanks go to Lena Ward for suggesting this option!). The two sites were different in terms of aspect, number of juniper bushes, proximity to other colonies and so on, but they both showed some degree of natural regeneration, and despite being unmanaged, consisted of large areas of exposed ground with little evidence of grazing pressure.

It seemed logical to try to identify factors that had a positive effect on regeneration, so degree of slope,

distance from parent bush and percentage cover of other vegetation were measured for each seedling, or in some cases for groups of seedlings where there were too many to record individually. The number of seedlings in each age class (based on an approximate grouping where size was used to infer the age of the seedling) were also recorded; from that data it was possible to calculate transition probabilities (for a seedling successfully moving from one age class to the next) in what were possibly ideal environments.

Results of the A30 and A36 surveys

Tables 4-6 summarise the findings of my research on the A36 and A30 embankments.

Table 4: Numbers of seedlings on different degrees of slope, A36 and A30

Slope°	Total numbers of seedlings	
	A36	A30
0-5	0	0
6-10	3	0
11-15	2	0
16-20	18	3
21-25	31	29
26-30	37	87
31-35	29	39
36-40	3	34
41-45	1	29
>45	0	0

Table 5. Numbers of seedlings found on different percentages of bare ground

% bare ground	Total numbers of seedlings	
	A36	A30
0-10	28	14
11-20	4	7
21-30	3	4
31-40	0	9
41-50	20	42
51-60	0	26
61-70	7	4
71-80	27	9
81-90	18	82
91-100	16	14

The results showed that, in terms of slope, 25° to 30° appeared to be the steepness at which most seedlings survived, and when the presence of other vegetation was examined, it seemed that highest numbers of seedlings were found on the ground with higher amounts of bare ground. However, this was a general observation and there were certainly many cases where this was not so, and in fact, the number of seedlings in very dense vegetation under the parent bush, was very high in several instances (particularly on the A36 site).

Table 6. Numbers of seedlings at different distances from the parent bush

Distance from parent (cms)	Total numbers of seedlings	
	A36	A30
0-25	31	12
26-50	27	22
51-75	24	21
76-100	15	56
101-125	9	26
126-150	7	35
151-175	1	2
176-200	3	4
>200	5	60

The two sites showed very different results when the distances of seedlings from the parent was studied. One site appeared to have greater number of seedlings very close to the parent (in vegetation as mentioned above) whilst the other showed the opposite effect with the highest number of seedlings being found over two metres away from the parent.

The age-class data was used to construct a simple model of a seedling’s chance of surviving through into the next class. The full calculations can be seen in my report, but briefly, it appeared that under these extreme, although almost ideal, conditions the probability of a germinating seed reaching 5 years old is 0.09 (9%), which is lower than other research estimates have show for other sites (Ward 1972; Kollman and Grubb 1999). A limited amount of data was used for this analysis, and transition probabilities would be a useful focus for further work.

Another noticeable factor on these sites was the lack of rabbits, and hence grazing, which may well have contributed to the successful establishment of these seedlings. This factor has been collaborated by some extensive work being carried out on the Porton

Ranges as part of the EU LIFE Project into juniper regeneration, where Stuart Corbett, the conservation officer, has found seedlings surviving where rabbits are excluded (Corbett 2002).

Future work

So, although the overall trend is not good, and sites are becoming extinct relatively fast, we do know that juniper can regenerate (although it is still not clear why seed germination rates are low too), and there is certainly much to be optimistic about. The LIFE project on the Porton Ranges will continue for the next two or three years, and I hope to set up permanent plots on the two embankments to monitor seedling survival even more closely.

Plantlife is also planning a single species survey of juniper nationwide from the autumn onwards, so although declining *Juniperus communis* certainly is not forgotten!

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PLANT RECORDS

2001

2002

UPDATES 1993-2000

Explanatory notes

- Y The following is a selection from the records of Wiltshire Botanical Society for 2001 and 2002, together with updates from earlier years. Records of common species and updates of the 1993 Wiltshire Flora are not included unless there is some special reason.
- Y An asterisk indicates that the species is not native to Wiltshire.
- Y Where a record is identified as being a new 10 km square record, this refers to the period since the flora mapping in the 1980s and 1990s for the 1993 Wiltshire Flora and recorded there. No earlier records of this kind are available locally.
- Y For new county and vice-county records, 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, but had been recorded before this period.
- Y Where a recording square is partly in Wiltshire and partly outside, any comment on the status of a record in that square applies only to the part within Wiltshire.
- Y Recorders are identified by initials as follows:

AD - Tony Dale	JP - John Presland
AH - A Hutchison	MS - Michael Sleight
AM - Ailsa McKee	JNo - John Notman
AS - A Summers	JRM - John Moon
AT - Ann Tanner	JTU - John Tucker
BG - B Gillam	PD - Paul Darby
BL - Barbara Last	PM - Piers Mobsby
CBG - Cambridge	PP - Phillipa Parks
Botany Group U3A	PMW - Pat Woodruffe
(excursion)	PRS - Phillipa Sneyd
DOG - D Graiff	PS - Pete Selby
DJW - D J Wood	PTe - Philip Terry
EG - Edward Gange	PTh - Penny Theobald
ER - Eileen Rollo	RV - Roger Veall
GY - G Yerrington	SEd - Stephen Edwards
HE - Henry Edwards	TP - Ted Penn
IG - I J Gray	VH - Val Hopkinson
JH - J Hodgkinson	WBS - Wiltshire
JEO - Jack Oliver	Botanical Society
JN - Joy Newton	(excursion)
JO - John Ounstead	

Vc 7 records for 2001

Aira praecox - JN/DG, near Great Bedwyn, Tottenham House, in gravel.

Amaranthus retroflexus * - JN, Marlborough, 2 plants on waste ground by new Waitrose car park.

Antirrhinum majus * - JEO, near Great Bedwyn, Tottenham House, many of all colours, self-perpetuating for at least 4 years.

Arrhenatherum elatius ssp. bulbosum - JEO, Clatford, A4 roadside, verges and meadows. Not separately recorded in Flora, so 1st 10km square record.

Asplenium adiantum-nigrum - PD, Waterhay, two plants in cracks and crevices on old limestone bridge.

Cardamine bulbifera - JEO, Roundway, N of Devizes, Home Covert, spread over 4 or 5 acres of woodland and valley.

Carex strigosa - PD, Foxham, Catcomb Wood, on wet and partly shaded ride. 1st 10 km square record

Centaurea montana * - E of Lockeridge, roadside.

Chrysanthemum segetum - IG, Pewsey, N of Jones' Mill, roadside, canal path and field edge.

Cochlearia danica * - JN, Marlborough, near Waitrose car park extension, in imported gravel. 1st 10 km square record.

Conyza Canadensis * - JP, Winsley, disturbed ground, 2 sites, both 1st 10 km square records; Melksham, car park.

Cornus sericea * - JEO, S of Marlborough, several plants spreading by stolons and layering.

Coronopus didymus * - JN, Marlborough, along edge of new flower beds in Waitrose car park, abundant.

Cotoneaster bullatus * - JEO, West Overton, roadside, several stems from rodent-holes. 1st 10 km square record.

Dryopteris affinis - JEO, Savernake Forest, path near Thornhill Pond.

Epipactis purpurata - PD, Foxham, Catcomb Wood, only one plant seen in full flower.

Erigeron karvinskianus * - JEO, Devizes, car park, wall-tarmac angles, extensive spread, some on wall tops. 1st 10 km square record.

Euphorbia lathyris - JP, Bradford-on-Avon, waste ground, ?abandoned garden. 1st 10 km square record. JEO, E of Alton Priors, by new track, 3 plants

Geranium x oxonianum (G. endressii x G. versicolor) * - JEO, Alton Priors, by new track, several clumps. 1st 10 km square record; Lockeridge, roadside.

Heracleum sphondylium ssp. sphondylium var. angustifolium - AD, near Marlborough, West Wood. 1st 10km square record.

Hieracium acuminatum - JN, Cherhill, track to Cherhill Down. 1st vc record.

Hyoscyamus niger - JN, Marlborough, 1 plant in waste ground disturbed by building works. 1st 10 km square record.

Impatiens parviflora * - JP, Devizes, cemetery. Confirmation that it's still there.

Lactuca serriola * - JP, Winsley, disturbed ground, reservoir.

Lactuca serriola * - JP, Winsley, roadside.

Lactuca serriola * - JP, Melksham, car park.

Lamiastrum galeobdolon ssp. argentatum * - JEO, Roundway, N of Devizes, Home Covert, spreading patches. 1st 10 km square record.

Lathraea clandestina * - JEO, Roundway, N of Devizes, Home Covert, widely spread over 2 acres or more; Clatford, N of River Kennet, on Osier, Crack Willows and Salix x dasyclados.

Lemna minuta * - JEO, Malmesbury, River Avon at N of Avon Mills, much commoner than L. minor.

Leycesteria formosa * - JEO, Devizes, car park, wall-tarmac angles. 1st county record.

Linaria purpurea * - JP, Winsley, path side; JEO, Lockeridge, road, cracks and pavement.

Lolium perenne - JEO, E of Alton Priors, by new track and SE of Lockeridge, field, aberrant plants with branched inflorescences. Photocopies available.

Mentha x villosa (M. spicata x M. suaveolens) * - JEO, E of Alton Priors, by new track, 2 clumps. 1st 10 km square record.

Mimulus luteus * - DG, nr Marlborough, Tottenham House.

Mimulus moschatus * - JN/DG, near Great Bedwyn, Tottenham House, WBS meeting, in wet, grassy patch. 1st 10 km square record,

Montia fontana - JN/DG, near Great Bedwyn, Tottenham House, prolific in gravel. 1st 10 km square record'

Oenothera fallax * - JP, Winsley, path edge. No means of confirmation for this genus, but clearly identified from Stace and, if correct, 1st county record.

Oenothera glazioviana * - JP, Bradford-on-Avon, roadside.

Pilosella aurantiaca ssp. carpathicola * - JEO, E of Alton Priors, by new track, 2 stoloniferous clumps. Confirmation needed but, if correct, 1st recent vc record.

Platanthera chlorantha - JN, Somerford Common, 224 flowering, many non-flowering overlooked, possibly the largest number in one site in Wiltshire.

Potamogeton crispus - JEO, Malmesbury, River Avon at N of Avon Mills, in small quantities.

Prunella vulgaris - JEO, near Great Bedwyn, tracks N of Tottenham House, pink and white forms.

Prunus lusitanica * - JEO, near Great Bedwyn, Tottenham House, neglected area, suckering, layering and seeding over several hectares.

Quercus cerris - JEO, SE of Swindon, near A4259 and Coate area, scattered individuals, varied ages. 1st 10 km square record. Near Great Bedwyn, house and grounds of Tottenham Park, occasional seedlings and saplings.

Raphanus raphanistrum ssp. raphanistrum * - JEO, Clatford/Manton, Lexbury Farm, white, yellow and a single lilac-mauve flowered plants.

Rorippa sylvestris - JN, Ramsbury, by pond in WWT reserve, 2 plants. 1st 10 km square record.

Solidago canadensis agg. * - JP, Bradford-on-Avon, waste ground, abandoned garden. 1st 10km square record.

Sorbus intermedia sens. str. * - JEO, E of Marlborough.

Spiranthes spiralis - IG, Oare, 4 on short grazed turf.

Thlaspi arvense * - IG, Pewsey, roadside, bird-seeded.

Trifolium fragiferum - JN, Ramsbury, road verge, leaves only. 1st 10 km square record.

Vulpia bromoides - JN/DG, near Great Bedwyn, Tottenham House, WBS meeting, in gravel. 1st 10 km square record.

Vc 8 records for 2001

Ambrosia artemisiifolia * - BL, Berwick St James; PTh, Laverstock. 1st and 2nd recent county records.

Asplenium adiantum-nigrum - JRM, Ludgershall, 50 plants, on car park wall.

Blechnum spicant - JEO, NE of Bedwyn, woodland.

Borago pygmaea * - AD, Stratford Sub Castle. 1st County record.

Calluna vulgaris - PM, near Bowerchalke, Middleton down, several clumps. 1st 10km square record.

Cyperus longus * - DG, Netherhampton, riverside and ditch. 1st 10km square record.

Geranium macrorrhizum var. "alba" * - JP, near Maiden Bradley, apparently naturalised at edge of wood. 1st county record.

Geum x intermedium (G. rivale x G. urbanum) - JEO, Great Bedwyn, Wilton Brail, damp woodland tracks. 1st 10 km square record

Heracleum mantegazzianum * - JEO, S of Great Bedwyn, roadside and ditch W of Hillbarn Farm.

Hesperis matronalis * - BL, E of Amesbury, several km of A303 verge.

Hieracium maculatum - BL, Westbury, chalkpit.

Hyoscyamus niger - JRM, Ludgershall, Perham Ranges (E), 50 plants, on arable land taken out of production. 1st 10 km square record.

Kickxia spuria - JH, Farley.

Malva neglecta - BL, Stratford sub Castle. 1st 10km square record.

Melissa officinalis * JNo, between West Winterslow and West Tytherley, Bentley Wood.

Molinia caerulea - PMW, between West Winterslow and West Tytherley, Bentley Wood, 2 clearings.

Onopordum acanthium * - BL, NE of Shrewton, near car park. 1st recent vc record.

Ophrys apifera - BL, Westbury, chalkpit.

Pulmonaria officinalis * - JNo, between West Winterslow and West Tytherley, Bentley wood. 1st recent vc record.

Quercus petraea - JEO, Great Bedwyn, several sites, soggy woodland on acid soil, some natural.

Ranunculus aquatilis - JEO, Great Bedwyn, Wilton Brail, Pond.

Ranunculus parviflorus * - PMW, Bentley Wood. 1st 10km square record.

Salvia verbenaca - DG, Upton Scudamore, road bank, 10 plants. 1st 10km square record.

Senecio viscosus - DG, Netherhampton, derelict factory complex. 1st 10km square record.

Solidago canadensis agg. * JP, Trowbridge, nature reserve behind Tesco's.

Vc 7 Records for 2002

Agrimonia procera - JN, Ramsbury, N of Hens Wood, track in wood. 1st 10km square record.

Amsinckia micrantha * - JN, Stanton Fitzwarren, Stanton Park, wasteground, one large spreading plant. 2nd vice-county record, 1st 10km square record.

Blackstonia perfoliata - JN, Aldbourne, High Clear Down, 2 plants. 1st 10km square record.

Campanula persicifolia * - JEO, Marlborough, river banks, spreading. 1st recent county record.

Ceratophyllum demersum - JN, near Swindon, Coate Water, pond; JN, Aldbourne, near Snap, pond. Both 1st 10 km square records.

Cicerbita macrophylla * - JEO, Marlborough, roadside.

Conyza canadensis * - JN, Chiseldon, trackside; Aldbourne, trackside. Both 1st 10km square records.

Coronopus didymus - JN, near Bourton, farmyard; near Aldbourne, landfill site. Both 1st 10km square records.

Cotoneaster simonsii * - JEO, Swindon, pavement angles, walls and road edges.

Epipactis helleborine - JP, Winsley, garden lawn under tree, perhaps 5-6 plants.

Eranthis hyemalis * - JEO, W of Marlborough, rough areas. 1st 10km square record.

Erophila verna sensu strictu - JEO, Marlborough, stonework, numerous. Recorded only as agg. in Flora, so 1st specific 10km square record.

Foeniculum vulgare * - JP, Winsley, field edge, 2 plants. 1st 10km square record.

Galactites tomentosa * - JP, Winsley, between pavement and wall, 3 plants self-seeded from garden opposite. 1st county record.

Galeopsis bifida - JN, nr Marlborough, Savernake Forest, large population with white corolla.

Hedera helix ssp. Hibernica * - JEO, Marlborough, wooded areas. 1st 10km square record. W of Marlborough, Littlefield; Marlborough, limebank.

Heracleum mantegazzianum * - JEO, Chiseldon, roundabout. 1st 10km square record.

Hyacinthoides hispanica * - JEO, West Overton, fringing A4, white- and pink-flowered; between Lockeridge and Clatford, mainly blue; W of Marlborough, Littlefield, blue and white.

Hypericum hircinum * - JP, Bradford-on-Avon, waste ground and stone river embankment, several plants, 1st recent county record.

Iberis umbellata * - JEO, Burbage, on steep slopes and loose scree, various colours. 1st county record.

Iris foetissima - JEO, W of Marlborough, rough areas.

Juncus compressus - JN, Ramsbury, water meadows, 3 plants. Refind, but greatly reduced.

Lathyrus nissolia - JN, nr Marlborough, grass. 1st 10km square record.

Lepidium draba * - JN, Hinton Parva. 1st 10km square record.

Lunaria annua * - JEO, West Overton, fields and roadside; Marlborough, various locations. Not recorded in Flora so 1st 10 km square records.

Meconopsis cambrica - JEO, near Preshute House, wooded areas. Not recorded in Flora so 1st 10 km square records.

Molinia caerulea ssp caerulea - JN, nr Marlborough, Savernake Forest, area of 2 square metres. Not separately recorded in Flora so 1st 10km square record.

Muscari armeniacum * - JEO, W of Marlborough, rough areas. Not separately recorded in Flora, so 1st 10km square record.

Narcissus x odorus (N. jonquilla x N. pseudonarcissus) * - JEO, W of Marlborough, probably garden relics. 1st county record.

Narcissus poeticus * - JEO, Marlborough, roadside dumps. Not separately recorded in Flora, so 1st 10km square record.

Narcissus x incomparabilis (N. poeticus x N. pseudonarcissus) * - JEO, W of Marlborough, rough areas; Marlborough Downs, hedgerows and paths. 1st and 2nd county records.

Narcissus pseudonarcissus ssp. major * - JEO, Marlborough, various sites. Not separately recorded in Flora, so 1st 10km square record.

Papaver somniferum * - JEO, West Overton, pavement wall angles; Marlborough, various locations, pavement wall angles.

Polypodium interjectum - JEO, Marlborough, College grounds, various locations on walls and epiphytic on trees.

Primula 'Wanda' (P. juliae x P. vulgaris) * - JEO, S of Marlborough, banks of R Kennet and Preshute Lane banks. 1st and 2nd county records.

Pulmonaria officinalis * - JEO, Marlborough and district, various locations; Savernake Forest, one plant by track. 1st 10km square record.

Ribes odoratum * - JEO, Manton, spread from cultivation. 1st county record.

Rorippa sylvestris - JEO, Lockeridge, wet lawns.

Rosa rugosa * - JEO, Marlborough, 2 locations.

Salix purpurea - JN, Bishopstone, springs, 3 bushes. 1st 10km square record.

Salix x rubra (S. purpurea x S. viminalis) - JN, Swindon, Coate Water, one. 1st recent county record.

Scilla bithynica * - JEO, Marlborough and nearby, various locations. 1st and 2nd county records.

Soleirolia soleirolii * - JEO, W of Marlborough, Littlefield, spread to semi-shaded paths and lawns. 1st 10km square record.

Thlaspi arvense * - JN, Compton Bassett, roadside. 1st 10km square record.

Vicia tetrasperma - JN, near Ramsbury, woodland track. 1st 10km square record.

Viola canina ssp, canina - JN, near Marlborough, Savernake Forest.

Vc 8 records for 2002

Agrimonia procera - RV, Porton Down, trackside; WBS, Bedwyn Brail. 1st 10km square record.

Agrostemma githago * - BL/AH/JN, Cholderton, 2 locations, one at weedy field edge and possibly planted by the owner. 1st 10km square record.

Alchemilla vulgaris agg. - BL, near Westbury, Clanger Wood. 1st county record.

Amaranthus retroflexus * - JEO, Wilton, Bedwyn Brail, 2 locations with agricultural weeds. 1st and 2nd 10km square records.

Anthemis cotula - BL, W of Salisbury, Rangers Lodge, unsprayed field edge.

Aster x versicolor (A. laevis x A. novi-belgii) * - RV, West Wellow, verge. 1st 10km square record.

Astragalus danicus - CBG, NW of Tidworth, Haxton Down.

Betula pubescens - WBS, Wilton, Bedwyn Brail.

Bromus secalinus * - AJS, W of Tidworth, Brigmerston Down; Bulford, Beacon Hill. 1st and 2nd recent vc records; JRM, Cholderton, field corner, many hundreds.

Carex humilis - RV, Porton Down, one clump. 1st 10km square record.

Carex viridula ssp. oedocarpa - WBS, Wilton, Bedwyn Brail. 1st 10km square record.

Catapodium rigidum - JN, NW of Tidworth, Haxton Down. 1st 10km square record.

Centaurea cyanus * - BL/AH/JN, Cholderton, 2 locations. 1st and 2nd 10 km square records.

Centaureum pulchellum - RV, Porton Down, woodland ride, 22 plants; 1st 10km square record; BL, Porton Down; AS /ER, N Tidworth, Sidbury Hill, a few plants in each of 2 locations. 1st 10km square record.

Ceratochloa carinata * - JRM, Newton Tony, uncut corner of hayfield, 6 plants. 1st 10km square record.

Cichorium intybus * - JN, Cholderton, field verge, possibly planted by owner. 1st 10km square record.

Cirsium x medium (C. acaule x C. tuberosum) - JN, NW of Tidworth, Haxton Down, large clumps. 1st 10km square record.

Cirsium tuberosum - JN, Warminster ranges, large clump.

Coeloglossum viride - JH /AM, Laverstock Down.

Colchicum autumnale - WBS, Wilton, Bedwyn Brail, 2-3 patches; JRM, Upper Chute, Coldridge Wood, Collingbourne Woods, locally abundant and scattered widely.

Corydalis cava * - JEO, Pewsey, lane, presumed escape from nearby gardens.

Crataegus laevigata var. rosea * - JEO, near Wilton, roadside. 1st 10km square record.

Cynoglossum officinale - AD, Wilton, Grovely Down; BL, Laverstock Down, large numbers; RV, Porton Down, rough ground.

Datura stramonium * - TP, Charlton-all-Saints, ploughed old cattle pasture. 1st 10km square record.

Diploxys muralis * - JN, NW of North Tidworth, bare areas in tank tracks.

Dryopteris affinis - WBS, Wilton, Bedwyn Brail; JN, SE of Great Bedwyn, Webb's Gulley. 1st 10km square record. RV, Whitsbury Common, woodland. 1st 10km square record.

Dryopteris affinis ssp. affinis - RV, Whitsbury Common, woodland. Not specifically recorded in Flora, so 1st specific 10 km square record.

Dryopteris x complexa (D. affinis x D. filix-mas) - WBS, Wilton, Bedwyn Brail. 1st county record.

Dryopteris carthusiana - JN, Wilton, Wilton Water, one plant; 1st 10km square record; WBS, Wilton, Bedwyn Brail.

Epipactis helleborine - BL, near Westbury, Clanger wood, lots.

Epipactis phyllanthos - BL, Steeple Langford, Langford Lakes, considerable spread since recorded a few years back; JH /AM, West Harnham, old site.

Genista anglica - JN, N Tidworth, Haxton Down. 1st 10km square record.

Glyceria x pedicellata (G. fluitans x G. notata) - WBS /JEO, Wilton, Bedwyn Brail, 3 ponds, 1st 10km square records.

Helleborus foetidus - JNo, W of Salisbury, Clarendon Wood. 1st 10km square record.

Helleborus viridis - JNo, W of Salisbury, Clarendon Wood. 1st 10km square record.

Hesperis matronalis * - BL, Stifford, neglected garden.

Kickxia elatine - GY, Trowbridge, gooseberry field. 1st 10km square record; JRM, Upper Chute, edge of arable field. 1st 10km square record.

Kickxia spuria - JN, Warminster Ranges; BL, W of Salisbury, Rangers Lodge, unsprayed field edge; AD, W of Salisbury, Clarendon.

Lactuca serriola * - AT, Salisbury, industrial estate.

Lathyrus nissolia - CBG, NW of Tidworth, Haxton Down, one plant.

Legousia hybrida - BL, Broadchalke, Knowle Hill.

Lemna minuta * - JN, Burbage, Seymour Pond; JEO, Bedwyn Brail, 4 ponds

Lemna trisulca - JN, Burbage, Seymour Pond.

Leucanthemum x superbum (L. lacustre x L. maximum) * - BL, Netherhampton, field edge. 1st 10km square record.

Lotus glaber - JN, NW of Tidworth, Haxton Hill. 1st 10km square record.

Lunaria annua * - JNo, Salisbury, R. Bourne. 1st 10km square record.

Luzula multiflora ssp. congesta - WBS, Wilton, Bedwyn Brail. 1st 10km square record.

Lycopodiella inundata - RV, West Wellow, common, edge of bog, 3 small areas. 1st recent county record.

Mentha x gracilis (M. arvensis x M. spicata) * - JN, Warminster Ranges. 1st 10km square record.

Mimulus guttatus * - DJW/JEO, Wilton, Bedwyn Brail.

Minuartia hybrida - JN, NW of Tidworth, abundant on bare areas. 1st 10km square record.

Myosotis laxa - JEO, Wilton, Bedwyn Brail, pond.

Oenanther pimpinelloides - HE, near Dinton, near R Nadder. 1st 10km square record

Ononis spinosa - CBG, NW of Tidworth, Haxton Down. 1st 10km square record.

Orchis morio - MS, West Wellow, meadow, dozens.

Papaver hybridum - BL, Berwick St James, garden; Rangers Lodge, unsprayed field edge.

Papaver somniferum * - BL, Broadchalke, cultivated field.

Petroselinum segetum - AJS, Pewsey, Jones' Mill, 3 plants on river bank. 1st 10km square record.

Picris hieracioides - JN, NW of Tidworth, Haxton Down.

Platanthera chlorantha - JN, Wilton, Bedwyn Brail, several in woodland glade; JRM, Upper Chute, Collingbourne Woods, muddy track through Beech plantation; WBS, Wilton, Bedwyn Brail.

Potamogeton natans - WBS, Wilton, Bedwyn Brail, 2 ponds.

Primula x polyantha (P. veris x P. vulgaris) - JNo, W of Salisbury, Clarendon Wood.

Prunus conradinae * - EG, Alderbury. 1st county record.

Pseudosasa japonica * - RV, West Wellow Common, from nearby cultivation. 1st county record.

Quercus x rosacea (Q. petraea x Q. robur) - JEO, Wilton, Bedwyn Brail, pond edge. 1st 10km square record.

Rosa rubiginosa - AD, NW of Wilton, Grovely Down. 1st 10km square record.

Sagina nodosa - JN, NW of Tidworth, Hound Plantation. 1st 10km square record.

Salix x reichardtii (S. caprea x S. cinerea) - JEO, Wilton, Bedwyn Brail. 1st vc record.

Saponaria officinalis * - PP, Porton Ranges, on top of mountain of chalk. 1st 10km square record.

Scrophularia sambucifolia * - BL, near Bowerchalke, Middleton Down, several stands on hardcore, probably garden escape. 1st county record.

Spergula arvensis - BL, Tisbury, castle ditches. 1st 10km square record.

Spiranthes spiralis - JH, Odstock Down.

Stachys arvensis - RV, West Wellow, occasional weed in small-holding.

Valeriana dioica - JN, Wilton, Bedwyn Brail, near 2 ponds.

Verbena officinalis - BL, Bishopstone; W of Salisbury, Rangers Lodge, unsprayed field edge.

Veronica hederifolia ssp. lucorum - RV, Whitsbury, 2 roadside verge locations. Recorded as agg. in Flora, so 1st and 2nd county records.

Vicia sativa ssp. nigra - CBG, NW of Tidworth, Haxton Down. Not recorded separately in Flora, so 1st specific 10km square record.

Vicia sylvatica - JRM, Upper Chute, Collingbourne Woods, one large plant under Beech. 1st 10km square record.

Aliens at Marlborough 2002

The status of formerly cultivated plants in our flora raises a number of problems, as some of the above vc7 records show. If a plant grown in a garden seeds itself on the other side of the road, as with *Galactites tomentosa*, is it a part of our flora? If it spreads purely vegetatively beyond the boundaries of its cultivation, as with *Ribes odoratum*, what then? Or suppose it simply continues to grow in a disused garden, as with *Narcissus x odoratus*? What if it has been dumped and continued to grow, as with *Narcissus poeticus*? It is valuable to record such occurrences, but should we allocate to them a status such as 1st county record or even 1st 10km square record? All of the records here have been included in the vc7 list above, and treated like other Wiltshire records. The receipt of a large number from in and around the grounds of Marlborough College, however, gives these issues an unusual prominence. Such recording is much to be welcomed, but it was thought best to list these separately, which also provides a summary of the work done there - all by Jack Oliver.

The plants recorded included: *Adoxa moschatellina*, *Aster lanceolatus*, *Aster x salignus* (*A. lanceolatus* x *A. novi-belgii*), *Carex pendula*, *Cornus sericea*, *Cotoneaster franchetii*, *Cotoneaster frigidus*, *Crocus tommasinianus*, *Crocus vernus*, *Eranthis hyemalis*, *Hedera colchica*, *Hedera helix* ssp. *hibernica*, *Lamiastrum galeobdolon* ssp. *argentatum*, *Leucojum aestivum*, *Lunaria annua*, *Narcissus poeticus*, *Narcissus pseudonarcissus* ssp. *major*, *Pulmonaria officinalis*, *Scilla bithynica*, *Scilla siberica*, *Symphoricarpos albus*, *Ulmus minor* ssp. *minor*.

Records update 1993-2000

Vc7 1993

Medicago sativa ssp. varia - JTu, Chippenham, previously found by Grose, but 1st recent vc record.

Vc 7 1998

Erigeron acer - PTe, Baydon, M4 adjoining Ermine Street, steep bank, 2500 plants.

Vc7 1999

Pteridium aquilinum - JEO Savernake Forest, record-breaking(?) frond, 4.83m (15ft 10in).

Vc7 2000

Campanula poscharskyana * - JEO, Marlborough, High Street and Parade, walls and pavement angles, behind old drainpipes, crumbling brickwork, etc.

Dryopteris affinis - JEO, Savernake Forest.

Dryopteris affinis ssp. affinis - JEO, near Great Bedwyn, Tottenham Park, dense damp woodland.

Galinsoga quadriradiata * - JN, Marlborough, High Street, in paving, 12 plants in flower.

Lamiastrum galeobdolon ssp. argentatum * - JEO, Savernake Forest,

Ophrys apifera - SEd, Ashton Keynes, Cotswold Water Park, 2 plants at one location, 7 at another; Liddington, 95 plants; Little Hinton, at least 32; BG, Beckhampton, gallop/football pitch. 47 rosettes

S. x reichardtii (Salix caprea x cinerea) - JEO, near Great Bedwyn, N end of Tottenham House Park, damp woods, where both parent species are common.

Vc8 1997

Tanacetum parthenium * - DJW/PMW, Tollard Royal, Rushmore Estate, double-flowered form.

Vc8 2000

Anthemis cotula - JO/PS, East Martin, Hants, Talks Farm.

Carex pseudocyperus - AH, Stourhead area, woodland. 1st 10 km square record.

Euphorbia serrulata* - AH, Mere, garden weed. 1st vc record.

Euphorbia platyphyllos - DG, Netherhampton, arable land. 1st 10km square record.

Fumaria densiflora - DG, Netherhampton, arable land.

Galinsoga quadriradiata * - BL, Salisbury, churchyard. 1st 10km square record.

Malva neglecta - DOG, Newton Tony.

Ranunculus arvensis - DG, between Charlton and Rushall, footpath. 1st 10km square record.

Sambucus edulis * - BL, Winterbourne Stoke, refind.

Saxifraga granulata - VH, Fonthill Gifford.

Sorbus hupehensis * - JEO, S of Savernake Forest, field and road edges. 1st county record.

Torilis arvensis - PRS, Bratton, road bank, 13 plants, 9 flowering. Updating of site of many years standing.

Recording plants from new groups

A group of plants not in the 1993 *Wiltshire Flora* but now being recorded is the *Bryophyta* (mosses and liverworts). A not very common example is *Cinclidotus fontinaloides*, found by Jack Oliver in the River Kennet at Clatford in 2002. This is normally attached to wood and rocks in streams, rivers and lakes. Jack has also recorded some charophytes: *Chara vulgaris* and *Chara globularis* sensu strictu from a pond in Marlborough; and *Chara vulgaris* ssp. *vulgaris*, *Chara vulgaris* var. *longibracteata* and *Nitella opaca* from Bedwyn Brail near Wilton.