The flora of Buckinghamshire churchyards

Roy Maycock

ABSTRACT

ROY MAYCOCK

THE FLORA OF BUCKINGHAMSHIRE CHURCHYARDS

An outline of the establishment of Buckinghamshire as a county is given, together with a brief survey of its physical features. The 231 churchyards of the county are located and their phanerogamic floras listed, as a result of at least two visits having been made to each at different seasons of the year. An assessment of the floristic value of these sites is made in relation to the county as a whole by devising numerical values for the species and the sites. Each species found in the churchyards is allocated an Index Value, which is calculated according to its frequency in the whole county and put on a logarithmic scale, so that emphasis is given to rare species. By summing the Index Values for the species found at a particular site, an Index Score is obtained. This Score gives the indication of the floristic value of the site and brief accounts of the 25 churchyards in the county with the highest Index Scores are given.

Factors affecting the distribution of churchyard species in Buckinghamshire include geology, size, management and number of habitats. These are discussed and particular attention is given to the range of habitats, especially the composition of the grassland and its relation to national criteria. Species which are rare in Buckinghamshire and its churchyards are commented upon, as are others of interest.

Churchyards are well-defined sites and comparisons between their floras has been made possible by the innovation of quantitative methods of assessment.

THE FLORA OF

BUCKINGHAMSHIRE CHURCHYARDS

A thesis submitted by

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(B.Sc. Dunelm)

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FRONTISPIECE.

The Church of St. Laurence
and part of the Churchyard
WEST WYCOMBE
Buckinghamshire.

ACKNOWLEDGEMENTS

I acknowledge with grateful thanks the help and advice of several friends at various stages in the preparation of this work. For companionship in the field I was pleased to have the company of Mrs. Betty Marcan or Mrs. Barbara North on several occasions. Other friends and acquaintances sent me species lists from some churchyards.

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For help with the statistical work I am grateful to Mr. Eddie Shoesmith of the University of Buckingham. He guided my thoughts on several occasions, as well as introducing me to a computer.

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CONTENTS

Except for the text references to publications, the content of this thesis is entirely my own work. It has not previously been submitted for any degree or diploma.

R. Maycock.

Roy Maycock

November 1985

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PART 1

INTRODUCTION

1.1 Aims

The publication of 'The British Islands and their Vegetation' by Sir Arthur Tansley in 1939 was a landmark in British ecological studies and set a pattern for descriptive botanists working in that field. Since then there has been a trend for ecologists to become more quantitative, and various sophisticated statistical methods are now used in the analysis of data. The collection of this data has also been more systematic and so more appropriate to mathematical treatment.

The use of the eleven-category scale of cover-abundance proposed by Domin in 1905 was an early attempt at giving some idea of the relationships between plants in a particular habitat. This association between species was used by the Zurich-Montpellier School (Schröter, 1894; Flahault, 1893, 1901) and eventually the phytosociological classification method of Braun-Blanquet. This attempts to 'describe and classify vegetation in terms of communities in which plants are associated with one another' (Haslam et al, 1975).

With all of these methods there has to be an assessment of the floristic composition of the vegetation and, again, various workers have proposed methods for doing this (Shimwell, 1971). For example, Koch (1957) devised an Index for estimating the overall similarity of a number of species lists, Sørenson (1948) proposed a Coefficient which compared the number of species common to two areas expressed as a percentage of the mean number of species per area and Curtis (1959), working with plant communities in Wisconsin, used percentage contribution to weight the species.

Doubtless, all of these methods are very suitable for use by quantitative ecologists but, for this study where a large number of sites are to be compared for floristic diversity, a scheme is devised which is relatively simple to use, by field botanists for example, and could readily be adapted by local Naturalists' Trusts doing conservation work.

This study is of the phanerogamic floras of churchyards of Buckinghamshire. It aims to determine which are botanically the 10% most valuable, a criterion taken to mean those which have been found to contain the greatest variety of species, with special weighting given to species rare within the county. Some attempt is also made to account for the distribution of the plants in these churchyards, as well as to make more general comparisons of all the sites.

1.2 Buckinghamshire

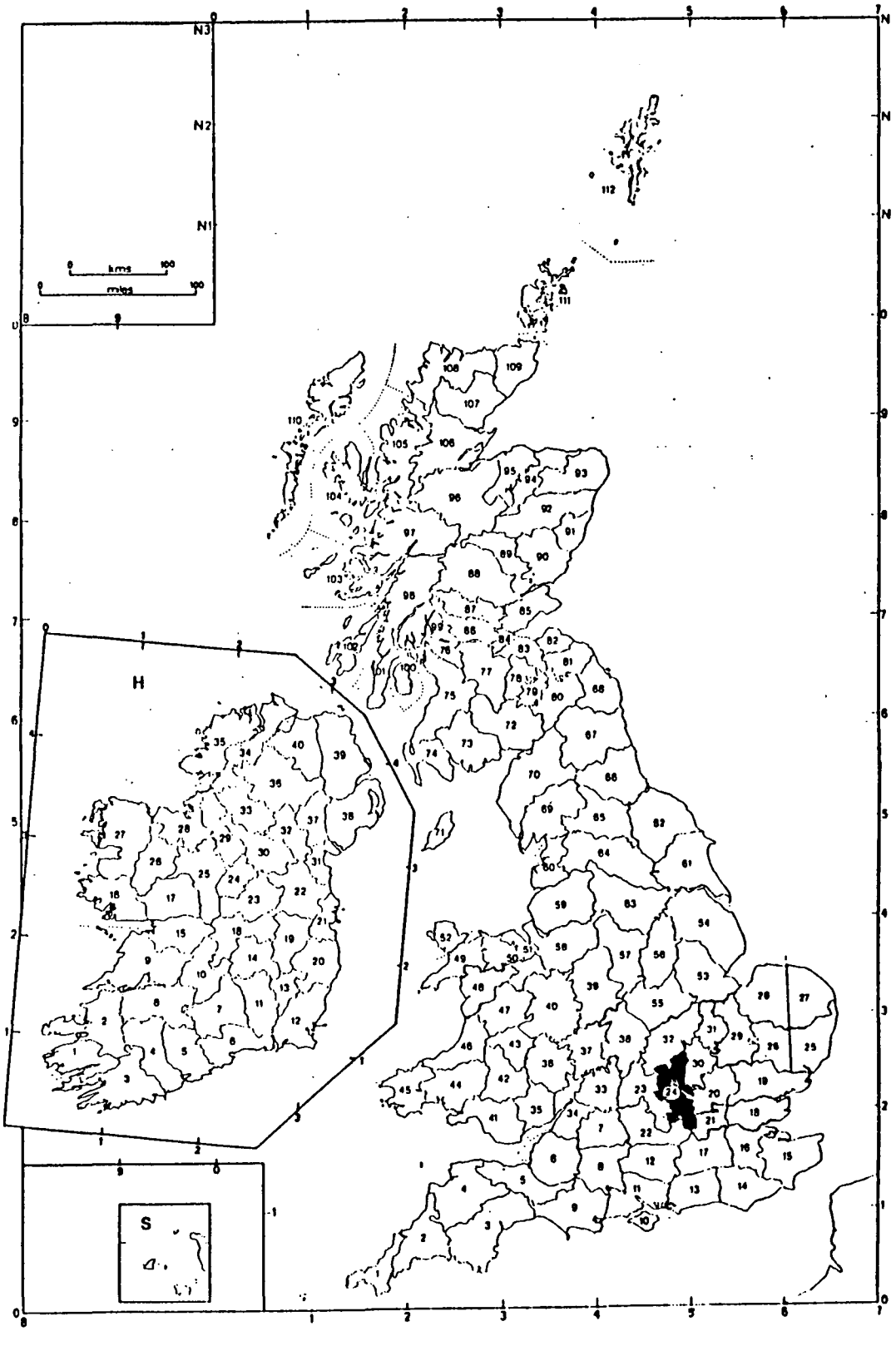
1.2.1 Establishment of the County

Buckinghamshire is a relatively small county in the south midlands of England. It is surrounded by six other counties, none of which has a coastal boundary, reflecting its central position remote from the sea. (Map 1 shows this position.)

The main axis of the county runs from north to south for about 85Km, whilst the maximum width is less than half this distance. It seems that Buckinghamshire was an entirely artificial creation with its boundaries cutting across other political groupings (Reed, 1979). It may well have been that the Danes, who came from the east, got about as far as Watling Street and were prevented from going much further west by troops from Buckinghamshire. Alfred the Great (849 - 899), who ruled the kingdom of Wessex, instigated important administrative changes, establishing shires to strengthen his defences against the Danes and these shires were centred on local settlements of the day.

Map 1

THE BRITISH ISLES SHOWING VICE-COUNTIES AND THE POSITION OF BUCKINGHAMSHIRE (V.C.24)



Buckingham was already an important military centre in the more populous part of the county and its defensible site, in the loop of the River Ouse, is reminiscent of Durham. It had two fortresses, later a castle and was made the county town. The first mention of Buckinghamshire, as such, was in 1016 and the boundaries established then changed little until more recent times.

1.2.2 The Study Area

W.C. Watson in his Cybele Britannica (1852) proposed the Vice-County system for the purposes of studying plant and animal distributions. The system was widely adopted and used during the early part of the twentieth century but has now been partly superseded by the use of the national grid to define units of distribution. The 'Atlas of the British Flora' (Perring and Walters, 1962) first used, on a national scale, this grid system of recording. Watson's Vice-Counties divided Britain into 112 unit areas more equal in area than the administrative counties. Bucks is Vice-County number 24 and it is this which is shown on Map 1. The vice-county covered precisely the area of the administrative county outlined on an atlas map of 1844 (Dandy, 1969).

The present survey is based on this vice-county, together with areas which have been gained by the present administrative county, i.e. that part of Ibstone which was in Oxfordshire until 1895, and Stokenchurch which was transferred from the same county in 1896. Transferred from the administrative county of Buckinghamshire have been Towersey (to Oxfordshire in 1932), Linslade (to Bedfordshire in 1965), and Slough with Datchet, Eton, Horton and Wraysbury (to Berkshire in 1974). All of these are retained in Buckinghamshire for the purposes of this survey.

1.2.3 Geology

Solid Geology

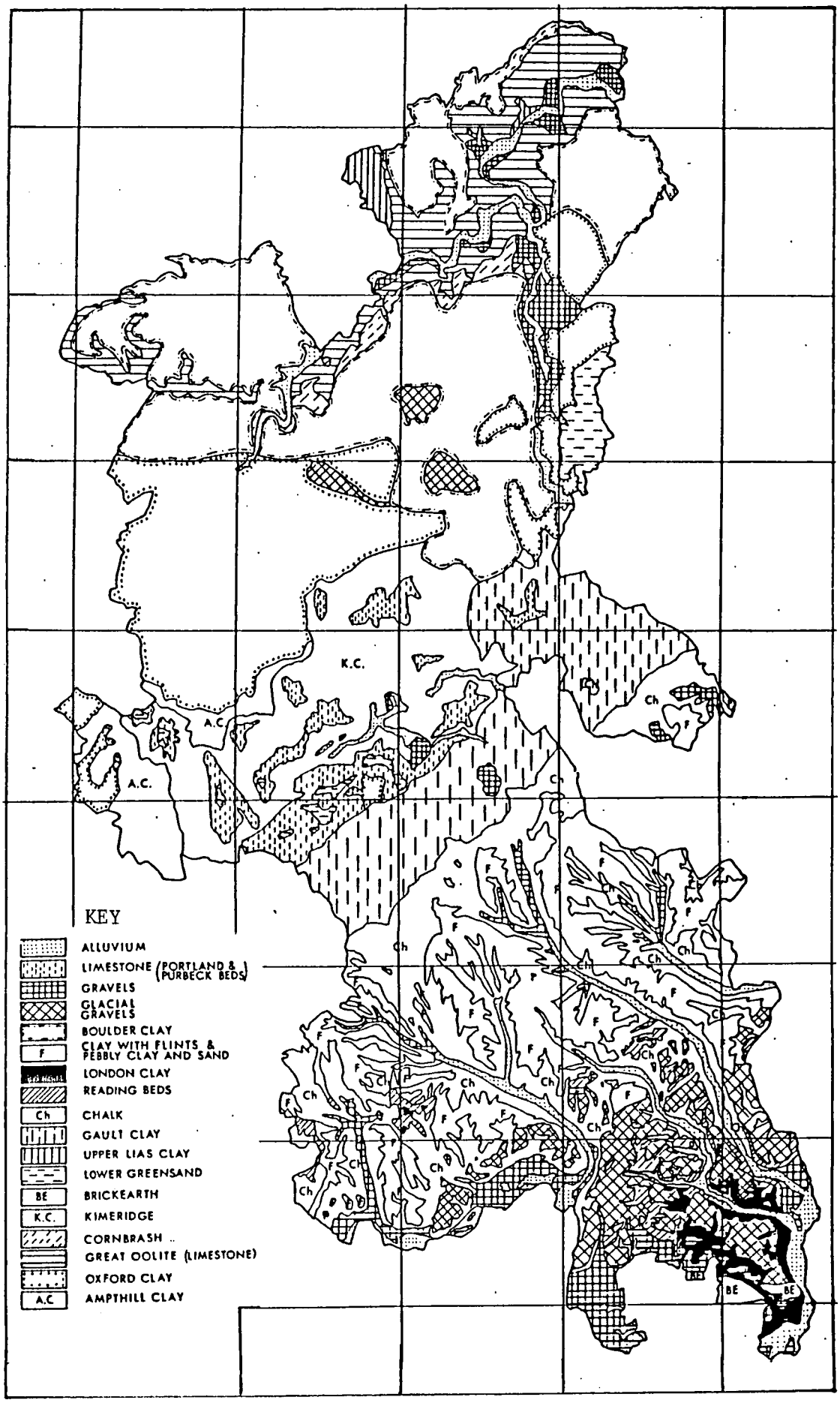
The oldest rocks in the county are in the north; the most recent in the south. Outcrops run roughly north-east to south-west across the county but not all are fully exposed. Map 2 indicates the outlines of the disposition of these rocks in post-1974 Buckinghamshire.

Lithologically, the county has clays, limestones (including chalk), and sands and gravels. Small areas of Lias clay in the extreme north are followed to the south-east by the calcareous Oolitic limestone and rubbly limestones and clays which form the Cornbrash. Extensive areas of Oxford clay follow, and south of these is a complex of Kimmeridge clay, capped in places with Portlandian and Purbeckian calcareous beds with occasional, higher areas of Lower Greensand. To the west is a small outcrop of Corallian beds, here the siliceous Arngrove stone. Centrally in this part of the county are patches of Lower Cretaceous sands and in the east a larger area of Lower Greensand, sometimes iron-rich, forming an escarpment contrasting with the northern clay plains. The Gault clay comes up to the base of the Chalk of the Chiltern escarpment, but with a sliver of Upper Greensand in the south-west.

The Upper Chalk forms the bold escarpment of the Chiltern Hills which virtually separates the north of the county from the south. Together with the Middle Chalk and the Lower Chalk a very large area is covered. The south-east 'triangle' of the county has isolated patches of Reading beds of clays and sands, with London clay completely overlain by drift deposits. The map indicates the true complexity of the county's geology, although the details of some boundaries are still not certain.

Map 2

BUCKINGHAMSHIRE SHOWING GEOLOGY



Drift Geology

The rocks of the solid geology form the framework on which the soils are built. Sometimes, where the rocks are near the surface, the soils are derived directly from them and influence the vegetation. In other cases drift deposits are much more important.

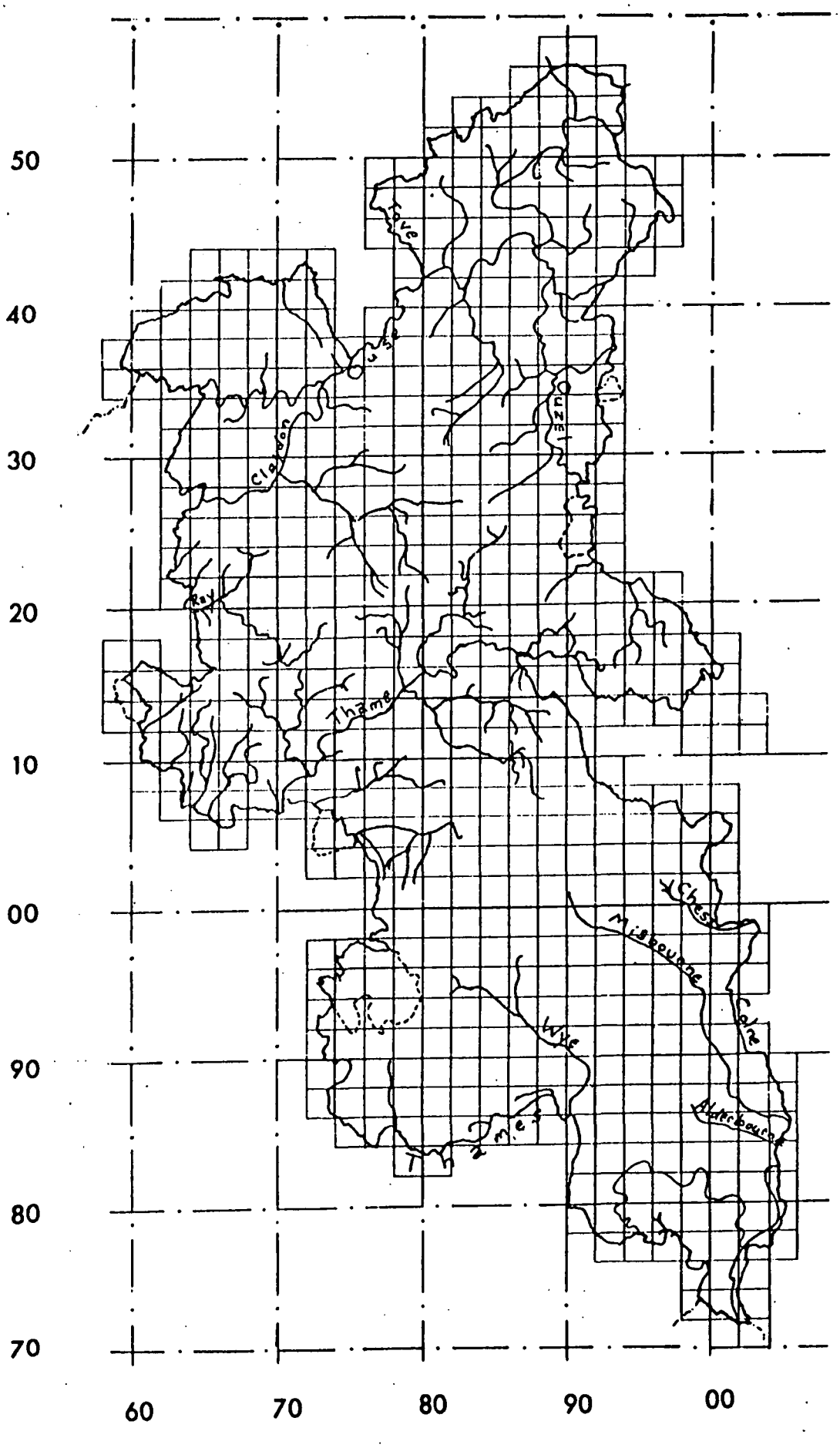
Much of the north has boulder clay (covering the oolite and clays) and some glacial gravels, all of which contain calcareous material. South of the Chiltern escarpment much of the chalk is covered by clay with flints. This tends to give soils less alkaline in nature than those derived from calcareous substrata. Most river valleys have alluvial deposits; they are most extensive about the Ouse and Thames, the latter where terrace gravels extend several miles from the present river.

1.2.4 River Drainage

Buckinghamshire has two important river systems: the Ouse in the north and the Thames in the south. The Ouse drains most of the county from west of Westbury in the west to east of Cold Brayfield in the east. From the south it is joined by the extensive Claydon Brook near Buckingham and the River Ouzel at Newport Pagnell. This river runs northwards, draining much of the east of the county from Linslade. The River Ray drains from east to west an area north of the Vale of Aylesbury. The River Thame arises in the east of the county and traverses, with many tributaries, the whole of the Vale of Aylesbury, then crosses the county boundary into Oxfordshire near Thame. The Chilterns, of course, have no water but from the top of the escarpment all water flows into the Thames. The High Wycombe area southwards is drained by the River Wye and in the east the River Colne forms the county boundary, but is joined by the Rivers Misbourne and Alderbourne near Denham. The River Chess flows for a short distance from near

Map 3

BUCKINGHAMSHIRE SHOWING RIVERS AND DRAINAGE PATTERN



Chesham to the eastern county boundary.

The main water courses are shown on Map 3.

1.2.5 Altitude

The Chiltern Hills form a dividing ridge which separates the north from the south of the county, a division which is very real. The Hills are about 240 - 250m, with the highest point near Wendover at 260m. To the north the land undulates from about 110m, ultimately down to 55m where the River Ouse leaves the county. The escarpment of the Brickhills in the north-east rises to about 170m.

The main gaps through the Chilterns are at Princes Risborough and Wendover whilst south of the ridge the dip slope, dissected by deep valleys or 'bottoms', goes down to about 20m where the Thames leaves Buckinghamshire at Eton.

Map 4 shows these physical features.

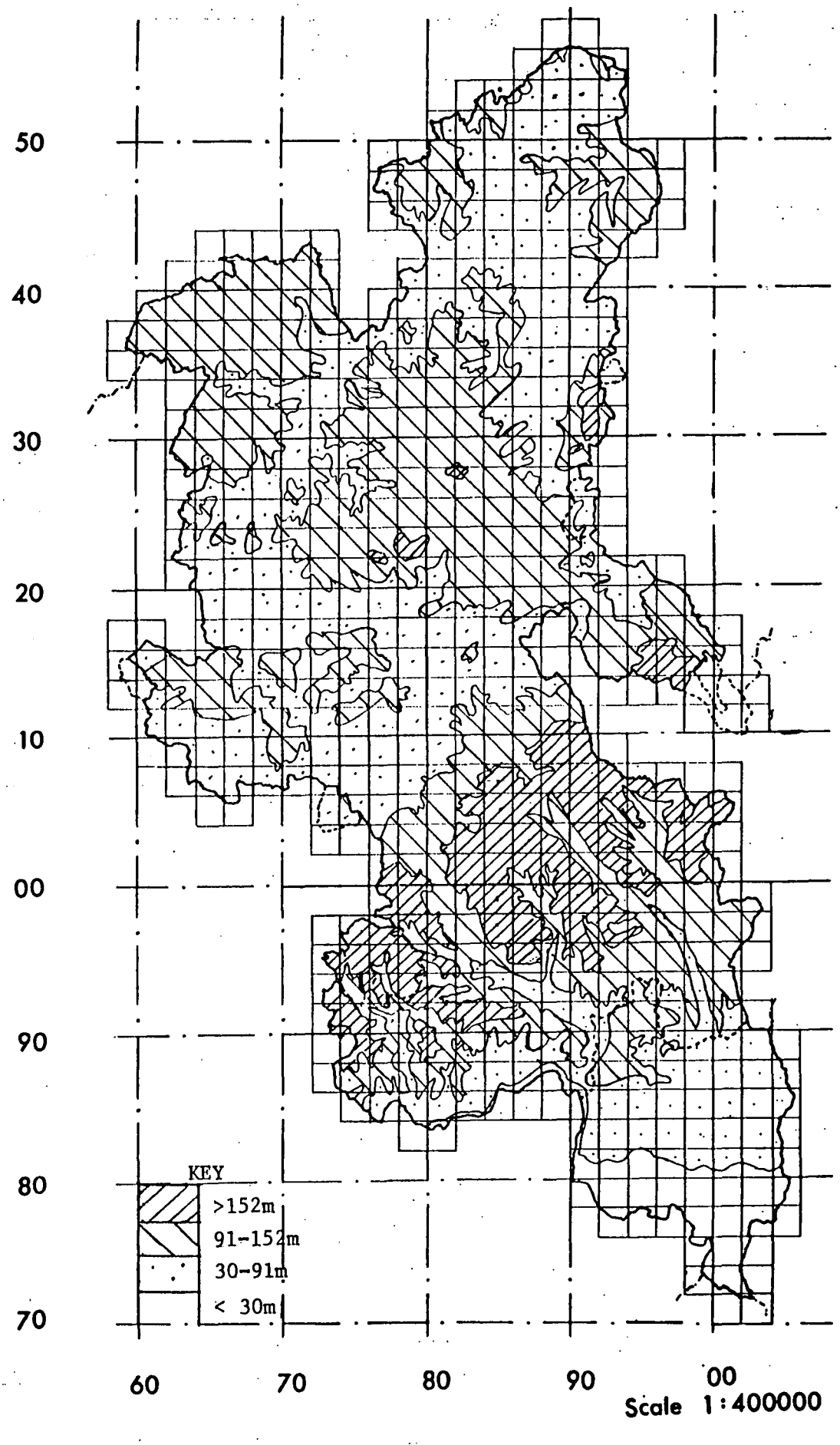
1.2.6 Area and Land Use

Lying, as it does, in central England, most of the county is intensively farmed, with grazing of sheep and cattle (see Maps 5 and 6), and also the growing of cereals (see Map 7), although the amount of oil-seed rape grown has increased in recent years. The yellow fields interspersed between the large corn-fields are to be seen throughout the county. In the south there is more woodland (see Map 8), much planted but often with native species, which has led to the expression 'leafy Bucks.'

The approved Buckinghamshire County Structure Plan (1980) states that 94% of the county's area can be considered rural and that about one-third of it is greenbelt and/or area of outstanding natural beauty (see Figure 1). Figure 2, taken from the same source, relates to 1975, but it is doubtful if the proportions have changed drastically since it was prepared.

Map 4

BUCKINGHAMSHIRE SHOWING ALTITUDE



BUCKINGHAMSHIRE SHOWING DISTRIBUTION OF LAND USE

Figure 1

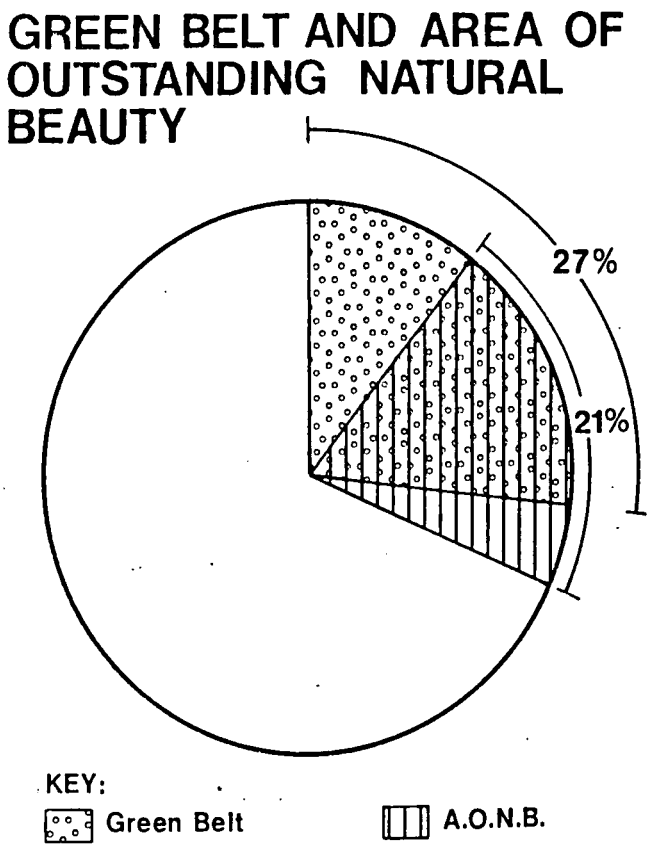
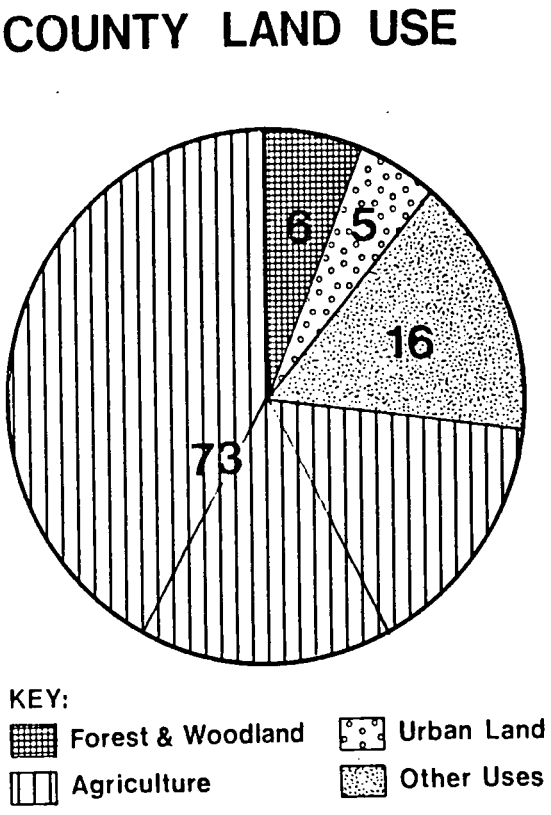


Figure 2



BUCKINGHAMSHIRE SHOWING LAND USE

Map 5

Dairying

Map 6

Cattle

Map 7

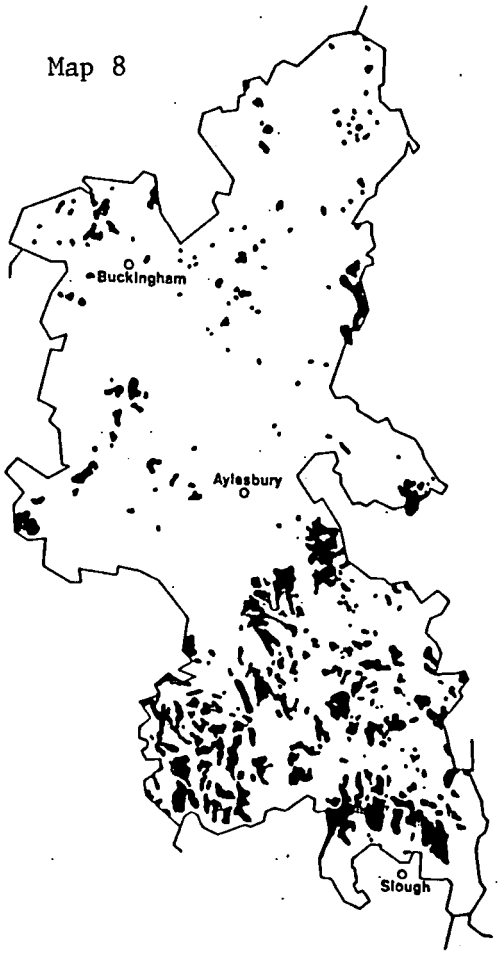
Cereals

Mixed

Source: MAFF June 1968

WOODLAND DISTRIBUTION

Map 8



The most recent data available from Buckinghamshire County Council are as follows:

Area of County	188 300ha	
Forest and Woodland	11 000ha	6%
Urban land	10 300ha	5.5%
Agriculture	136 000ha	72.5%
Mineral extraction	2 300ha	1.2%

The amount of land in use for agriculture was divided as follows:

Permanent or temporary grass	57%
Barley	21%
Wheat and other cereals	21%

Proportions here may well have changed, but data more recent than 1975 are not available.

In this survey sites have been included which were not in Buckinghamshire in 1980 (see 1.2.2). The total area covered by the survey is 194 650ha and the churchyards measured cover 81.2ha; the 15 for which maps were not available for measurement are estimated at covering 6ha, giving a total of 87.2ha. This is a tiny proportion (about 0.04%) of the study area and is itself mostly grassland.

1.2.7 Origin and Development of Grassland

As the ice-sheets of the last glaciation receded, much of Britain became forested. Grassland was rare, but as Neolithic agriculture spread, removing the forests, then it increased. Permanent grassland, as pastures for grazing or meadows for mowing for hay, often needed careful management, and they now form a large part of the Buckinghamshire landscape (see 1.2.6).

In lowland Britain bare ground rapidly becomes colonised, firstly by a variety of weed species and later more species form a closed sward. Over the years this may become species-rich - as is seen in typical chalk grassland. A churchyard fits into this pattern, where regular disturbance (albeit over a limited area) allows weed species to enter and then the grassy sward develops. Because of the subsequent

management of cutting and mowing the sward rarely becomes very species-rich, but it does develop.

1.3 Churchyards

1.3.1 Ancient Burial Sites

There is evidence that Buckinghamshire has, in part at least, been inhabited since Palaeolithic times. Later, in Neolithic times, the people were farmers, possibly moving every two years or so, clearing forests as they went, and monuments, such as the long barrow at Whiteleaf, are an indication of burial sites. This contained a man of some thirty-five years old and could have been the focal point of a territorially-based community. The ring ditches of a later date, now visible from aerial photographs, further suggest this, as they surround round barrows. Several of these are known in Buckinghamshire. About the same time cremation was used for the disposal of some of the dead and a cemetery with cremation urns is known from Stokenchurch and there are also sites along the Icknield Way.

There is evidence of an increasing number of communities from throughout the Iron Age into the time of the invasion by the Romans, and their presence is indicated by archaeological finds from virtually all parishes of the present county. Two burial sites, both cremations, are known; one at Thornborough, one at Weston Turville.

Other continental visitors (including the Danes) arrived during the next five hundred years or so, some welcome, others needing to be repelled. Land was given to the local visitors and the English became established. A number of graves from this period are known from Buckinghamshire, some with direct inhumations, others with cremation remains. The largest cemetery known, of some fifty graves with inhumations, is near Bishopstone. None is large, suggesting that these too only served small groups of people for relatively short periods of

time. Most are likely to have been pagan burial sites, for it is unlikely that Buckinghamshire was converted to Christianity before A.D. 700; St. Birinus established his see at Dorchester-on-Thames (now in Oxfordshire) in 635 and worked north and east from there into what is now Buckinghamshire. The Bishops of Lincoln took over in 1072, and of Oxford in 1837.

1.3.2 Parish Churchyards and Cemeteries

At some stage the county was divided into hundreds, though the true origin of such divisions is unknown. There were possibly eighteen such divisions in 1086, but only eight are now recognised. The hundreds were further divided into parishes. It was the splitting of the previously existing large estates which gradually gave rise to this network of parishes and eventually churches were built and endowed. Churches built of stone, as we know them, were slow to arrive in Buckinghamshire, the earliest evidence being the Saxon crypt at Wing. Other Anglo-Saxon parts are found in churches at Hardwick, Iver and Lavendon.

It is obvious that burial sites formed a focal point for local communities and so, with the establishment of parish churches, they became the sites around which burials were made. In the eighteenth century nearly everyone was buried in a churchyard - in 1700 about 182 000 people nationwide. A few more graves were added to a churchyard each year until it was full and then the oldest parts of the churchyard were reused. Cemeteries, as now known, originated in the nineteenth century, especially in the larger urban areas where populations were increasing. There are many cemeteries in Buckinghamshire towns but several villages also have one, as well as using the churchyard. The most modern method for disposal of the dead, by cremation, became legal in 1884, and in 1984 about two-thirds of the dead were cremated (Hudson, 1984).

1.4 The Study of Buckinghamshire Churchyards

In November 1981 the Botanical Society of the British Isles launched a Network Research Project which it hoped would interest many of its members, the aim of which was to investigate the flora of churchyards and other burial grounds. A number of individual projects had already been carried out in various parts of the country and it was known that some churchyards were floristically rich. For example, Arthur Chater had looked at sites in Cardiganshire and Jim Bingley in Suffolk. The scheme's objective was 'the identification of the botanically most valuable 10% churchyards or other burial grounds in each county and their notification to the appropriate Conservation Trust so that appropriate conservation measures could be taken.' (Briggs, 1981) In this survey the 'botanically most valuable churchyards' are referred to throughout as the 'top 10%' or the '10% best' churchyards.

From 1965 to 1983 I had been actively involved in collecting records in preparation for a new 'Flora of Buckinghamshire' and had prepared tetrad (i.e. 2Km x 2Km grid square) maps for all species for which records were available. These records had been collected by a number of people over the years and give a good idea of the distribution of each species.

With these two incentives a detailed survey of the Buckinghamshire churchyards was begun in 1982. B.S.B.I. members in the county are few, and none volunteered records! A few paid occasional visits to a few sites and I managed to persuade some friends to make preliminary visits to others, particularly in the south of the county. From 1982 to 1985 all churchyards in the county were visited, most of them at least twice and several on more occasions. I have visited all the sites and a photographic record of every church has been made. It seemed obvious that the 10% best churchyards could be discovered only if the status of all was known.

PART 2

METHODS

2.1 The Sites

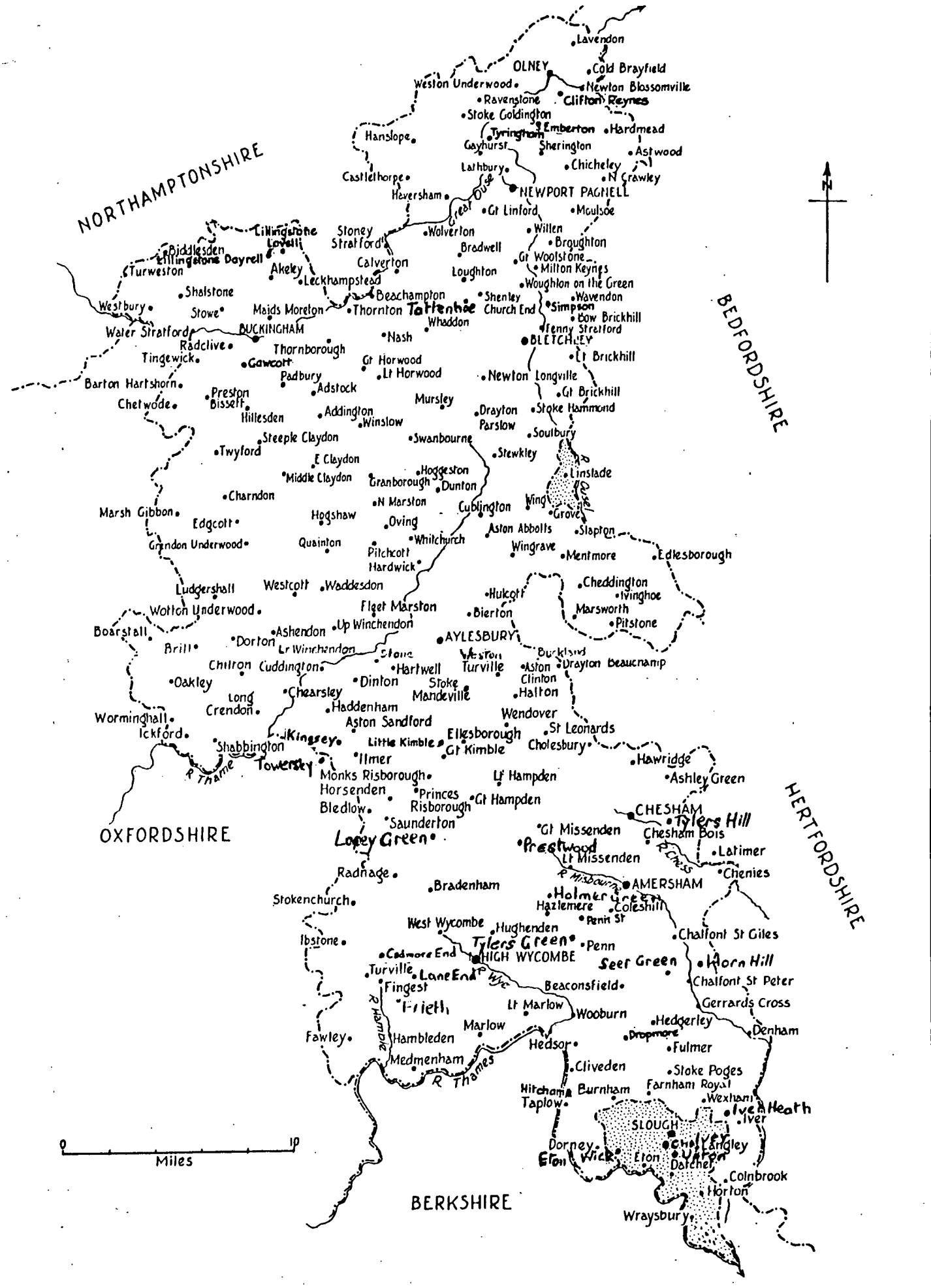
2.1.1 Preparation

The search for sites of churches with churchyards began by scanning the local 1 : 50 000 ordnance survey maps (sheets 152, 153, 164, 165 and 176) together with a 1 : 100 000 map showing civil parishes. At least one church was looked for in every parish; some had none, some had more than one due, no doubt in part, to the fact that civil and ecclesiastical parishes do not necessarily coincide. Sometimes it was difficult to know if a symbol referred to a church without a tower or spire,or to a chapel. Perusal of the Oxford Diocesan Yearbook 1982 followed and a number of telephone calls were made. Eventually 231 churches with churchyards were located and surveyed. These are shown on Map 9.

A few sites originally chosen proved to be unsuitable for inclusion in the survey. For example, the church at Linslade is surrounded by a purely ornamental garden, whilst that at Amersham on the Hill is new and set in concrete. Buckingham itself has a church completed in 1781 which replaced an earlier one which had collapsed in 1776. The old church had a churchyard but the new one does not; it is set on the motte of a former castle which is now a grassy bank. There is, however, a large cemetery in the town. Although some cemeteries and other burial grounds were visited all have not even been located so they are all excluded from this survey.

From previous experience of visiting churchyards, particularly in the north of the county, a list of some 300 phanerogamic plant species was drawn up using the 'Flora of the British Isles' (Clapham, Tutin & Warburg, 1962). Copies of this were used for recording purposes

BUCKINGHAMSHIRE SHOWING CHURCHYARD SITES



(see Appendix I). The Network Research Project form designed by the Botanical Society of the British Isles was used to record other data at each site (see Appendix II).

2.1.2 Visits

Fieldwork began in the spring of 1982. At each site the routine followed was similar, though details were different, mainly dependent on the size and shape of the churchyard itself. To search for the plants, at least two anticlockwise tours were made, one close to the periphery of the churchyard and one close to the church. A variety of zig-zag paths was then taken between these two, trying to ensure that no areas or habitats were missed. In the bigger churchyards, as at Wendover, a series of grids was walked to ensure complete coverage.

Plants recognised in the field were crossed off the checklist or added to it if not included. Sometimes it was necessary to identify or verify species at home and then add them to the list. Referees were seldom needed to confirm identifications, but were used when necessary.

Details of the site, as required by the B.S.B.I. form, were entered in situ as were types of habitat present. The form lists ten categories of habitat, but allows room for others to be added. On-site inspection was quite adequate to determine the habitats listed. Any special management regimes were recorded, either by direct observation or by being ascertained from church workers.

It was found necessary to make at least two visits to each site so that as reliable and representative a list of the flora as possible could be made. At first sites were visited when possible, but during 1984 a plan was drawn up to ensure that as many churchyards as possible were visited at appropriate seasons. Ranunculus ficaria was known to be present in many churchyards from previous visits. If its presence had not been recorded this was taken as an indication that a spring

visit was necessary. A check on the previous visit dates usually confirmed this. No such indicator species was used for summer visits, but dates were checked and appropriate visits made.

I have personally visited every site, usually alone, but sometimes in company with others who may already have visited or who visited it after our initial visit. Sometimes, when photographing the churches, further searches for plants were made, but rarely did such visits add more than one or two species, so it seems that the sampling method of two major visits recorded most species present. It is interesting to note, however, that the best churchyard did, in fact, have the most visits by the greatest number of botanists!

2.2 The Species

2.2.1 Species Included

Although the original list of species drawn up had names taken from the 'Flora of the British Isles' (Clapham *et al*, 1962) nomenclature used in the text is from the 'Excursion Flora of the British Isles' (Clapham *et al*, 1981) bringing it in line with that of 'Flora Europaea' (Tutin *et al*, 1964, 1968, 1972, 1976, 1980).

At each site as many species as possible were recorded and their status noted, if necessary. Native herbaceous plants were all included in the results as were well-established introductions or aliens, particularly if they play an important part in the flora of the churchyard e.g. *Epilobium ciliatum*, *Veronica filiformis* and *V. persica*. If it was considered that adequate data were available for the county (see 1.4) then other herbaceous introductions were included e.g. *Allium paradoxum*, *Cymbalaria muralis*, *Montia perfoliata* and *M. sibirica*.

The woody species included are native shrubs and bushes e.g. *Crataegus monogyna* and *Sambucus nigra*, as these are frequent components of boundary hedges. Holly (*Ilex aquifolium*) may also be found in the

boundary hedge, but is often found as specimen trees elsewhere in the churchyard and may well have been planted. However, because of its associations with Christian mythology as a symbol of everlasting life, and flourishing when most other trees are apparently lifeless it is often found in churchyards so it has been included. Similarly with Taxus baccata, it is also included.

In making records in the field some plants were recorded in their aggregate form. Of these, two, Rosa canina and Rubus fruticosus, occur in 100% of the county tetrads and so do not contribute to the botanical value of a churchyard (see 2.2.3). Common dandelions are all recorded as Taraxacum officinale.

Segregates of Polypodium vulgare were not separated (though I believe P. interjectum would have been the commonest) as adequate information of their distribution in the whole county is not available.

Potentilla anglica is included in the results as the species is known to be present in several churchyards. However, some difficulty was encountered in identifying some specimens, especially if only in their vegetative state, and so the results may include records of P. x italica (i.e. P. erecta x P. reptans).

2.2.2 Species Excluded

The most obvious exclusions are garden plants and trees. In the somewhat artificial environment of a churchyard, species may be planted and survive well without adverse pressures. They might even reproduce (vegetatively or sexually) in the churchyard, but outside in a 'natural' environment they would not survive for very long. Herbaceous plants excluded for this reason include: Alchemilla mollis, Antirrhinum majus, Centranthus ruber, Cerastium tomentosum, Eranthis hyemalis, Helleborus spp., Lamium maculatum, Lunaria annua, Myosotis sylvatica, Oxalis spp. and the many cultivars of Narcissus and Galanthus which readily naturalise.

Adequate data of county-wide distribution are not always available so this will exclude some species from the results. Examples are Cheiranthus cheiri, Corydalis lutea, Linaria purpurea and Sedum reflexum, though these might also be excluded for the previous reason as well. Plants from both of these lists were recorded on site but have been excluded from the results. Of the woody species all non-native shrubs e.g. Ligustrum ovalifolium, Philadelphus coronarius and Symphoricarpos rivularis are excluded, as are all trees. The difficulty here was to decide whether a tree had been deliberately planted or not or whether it was native anyway e.g. Acer pseudoplatanus, Aesculus hippocastanum, Fagus sylvatica, Quercus robur and Tilia x europaea. Again, the presence of these plants was recorded on the field check lists so information is available.

Ultimately the list of plants included or excluded in the results must be somewhat arbitrary.

2.2.3 Assessment of the Species

Having decided which species of plants to include in the results, it became necessary to devise a method which could be used to assess these results. The distribution of plants in Buckinghamshire is known (see 1.4) so it seemed reasonable to use these results to assess the frequency of the plants. There are 546 whole or part tetrads in the county and the dot maps of all species included in the results were examined. The number of dots for each species was totalled and these figures were used to calculate the percentage frequencies for the species. 'Whole numbers' were produced for all except the rarest species where decimals to one place were calculated (see Appendix IV). These figures gave a linear scale of frequency, with the commonest plants having the highest numbers. A new scale was devised to give the commonest plants a low value and to emphasise the value of plants rare in the county. The

formula $\log\left(\frac{100}{x}\right)$ was applied to each percentage, where

x = the percentage occurrence within the county.

The logarithmic scale dealt with the requirement of emphasising the rare species and using the inverse gave these high values. Multiplying by 100 gave figures which seemed readily understandable. Calculations were made to three places of decimals in each case, this being necessary to distinguish between all percentages (especially where these were high). As a result of these calculations a new scale was produced to give each species a numerical value. This value I call the INDEX VALUE of a species.

In general terms the scale is as follows:

(a) Those species occurring in less than 1% of the tetrads in the county have an Index Value greater than 2.

(b) Those species occurring in 1 - 10% of the tetrads in the county have an Index Value between 2 and 1.

(c) Those species occurring in more than 10% of the tetrads in the county have an Index Value less than 1.

2.2.4 Assessment of the Sites

With a numerical value given to each species of plant it was relatively easy to give a numerical value to each churchyard. The site value I call the INDEX SCORE and it is calculated by totalling all the individual Index Values for the plants found within the churchyard.

A high Index Score indicates a high floristic value for a churchyard; conversely a low Index Score indicates a churchyard which is less rich floristically in relation to the county flora.

The areas of the churchyards were estimated from 1 : 2 500 ordnance survey plans housed in the local collection at Aylesbury library. A 2mm square grid was drawn on tracing paper then placed over the appropriate areas of the plans. The total number of full squares

within the churchyard was counted, as was the number of part squares. These were all called 0.5 of a square and the total number of squares converted to hectares (ha). Unfortunately, plans for all of the sites are not yet prepared so all areas have not been estimated; this is particularly true for the larger towns.

Whilst using the maps it was noted that the heights above ordnance datum of many of the churches was given. Where this was the case this figure was recorded and is included in the results.

All of the available results are summarised in Appendix V.

PART 3

RESULTS

3.1 The Plants

Appendix III lists all of the 397 taxa which were recorded from one or more Buckinghamshire churchyards, and the churchyards in which they were found. Appendix IV summarises these results to show the frequencies of those taxa in the churchyards and in the county as a whole, as percentages of churchyards or tetrads respectively. Figure 3 is a histogram showing the frequency of occurrence of the species in the tetrads and Figure 4 shows their frequencies within the churchyards, both for 10% categories.

It is interesting to see that the largest group of plants shown in Figure 3 is the 75 plants that are found in 10% or less of the tetrads. These are what I call the rare species and have Index Values of 1.000 or more. With so many county-rare plant species in churchyards these must form valuable sites where there is opportunity for conservation. The next highest category is what I call the common species, i.e. those occurring in more than 90% of the tetrads. 47 plants are in this category.

Looking at Figure 4, the picture is very different with 232 species occurring in less than 10% of the churchyards. There are several reasons why there are so many plants in this category, but about one-third of them are those plants which are also rare in the county (see above). Other plants are casuals e.g. Avena ludoviciana, or occur in unusual churchyard habitats though they may be more common elsewhere in the county e.g. Cirsium palustre, or cannot survive in churchyards where management is severe e.g. Agrimonia eupatoria. It is surprising that some plants are in this list e.g. Cynosurus cristatus and Potentilla anserina. On the other hand there are 20 plants which

Figure 3

FREQUENCY OF SPECIES IN BUCKINGHAMSHIRE TETRADS

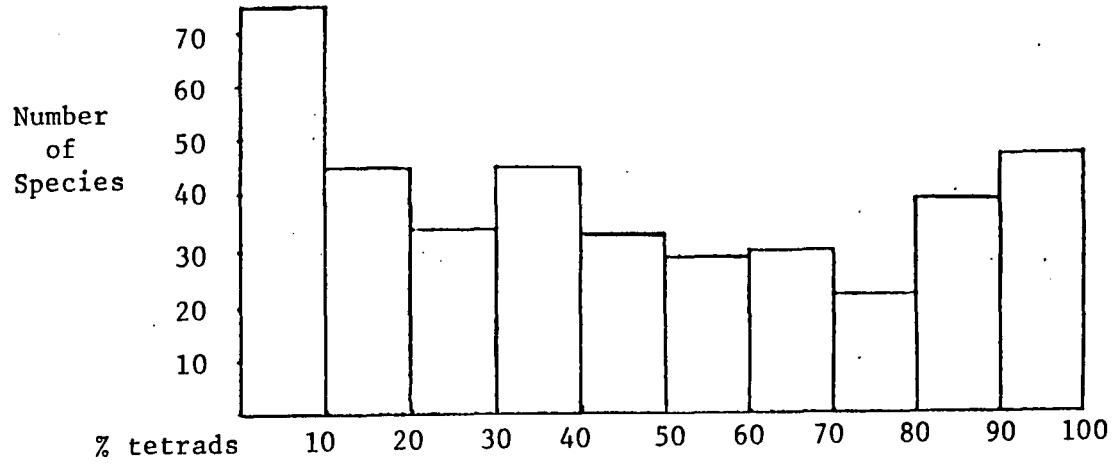
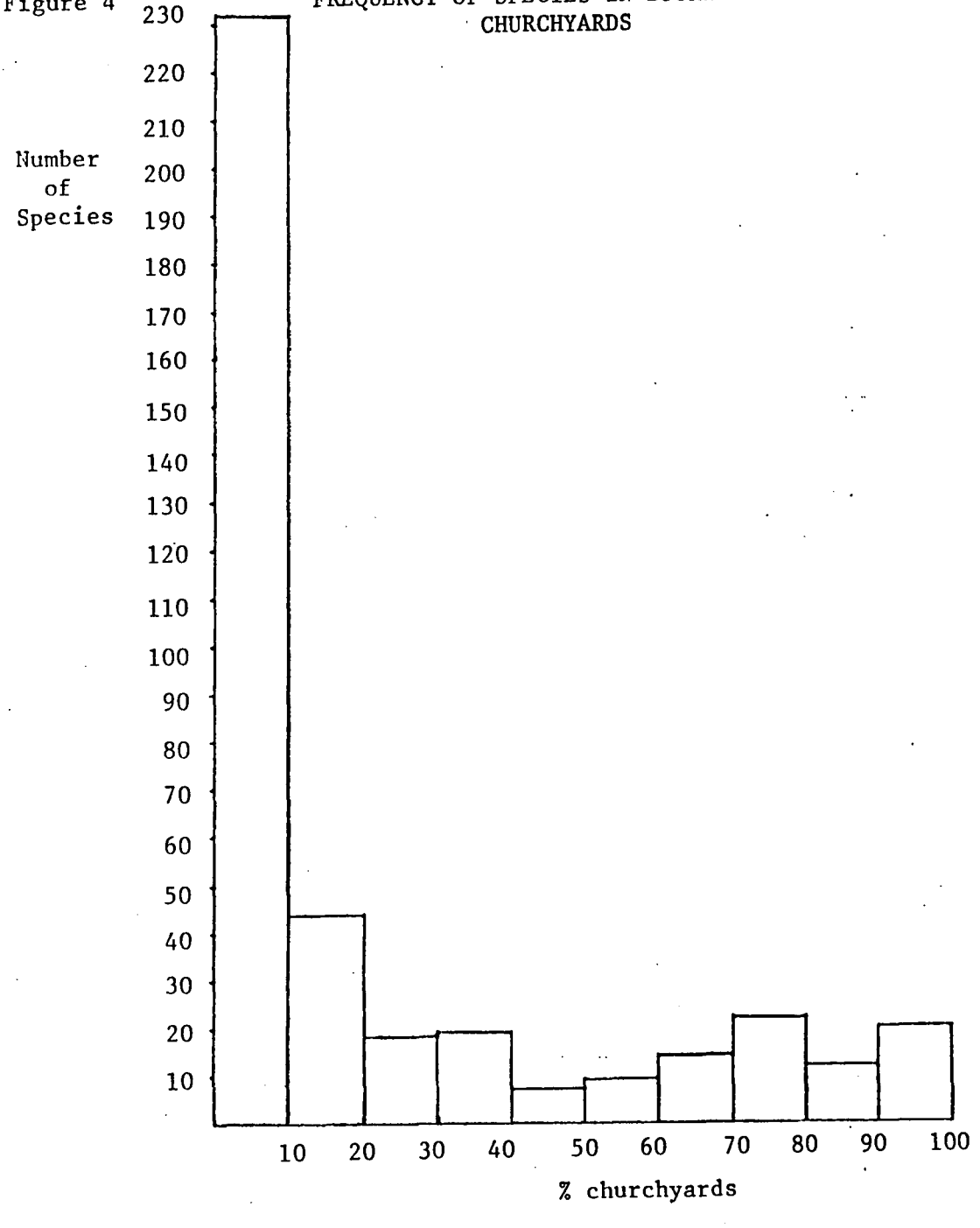


Figure 4

FREQUENCY OF SPECIES IN BUCKINGHAMSHIRE CHURCHYARDS



which occur in more than 90% of the churchyards (see 3.7). These plants form an interesting list of 5 grasses, 13 forbs (i.e. non-graminoid herbaceous angiosperms), one shrub and one climber. Half of the forbs are present in the grassland, but the others could be considered to be weeds, taking advantage of the open habitats often present. They include the commonest plants in the county and all except one are in the list of 47 species occurring in 90% of the tetrads (and that, Stellaria media, is in 89%).

3.2 The Plants in the Churchyards

Figures 5 and 6 show the distribution of species in the churchyards. Figure 5 is a histogram showing the number of churchyards against numbers of species, with species grouped in class intervals of 10; figure 6 is a histogram of the number of churchyards against Index Scores in class intervals of 2.5. Map 10 shows the disposition of these churchyards in the county with their Index Scores in class intervals as above. The two churchyards with the lowest number of species are also those two with the lowest Index Scores. Similarly, the best churchyard has not only the highest Index Score but also the highest number of species. However, between these extremes numbers do not correspond so closely, although 54% have Index Scores between 5 and 12.5 and 58% of the churchyards have between 70 and 99 species i.e. there is a central clumping.

Distribution of churchyards in relation to numbers of species is approximately normal, but the histogram of the Index Scores is distinctly skew. This can probably be accounted for, in part, by the method of calculating the Index Values for the species to emphasise the rare species. 22 of the 25 best churchyards (i.e. Index Scores greater than 20) have between them 67 rare species (i.e. Index Values greater than 1) and a mean Index Score of 113.2; the other 3 churchyards have a mean Index Score of 129, but no rare species. This means that some

Figure 5

SPECIES DISTRIBUTION IN BUCKINGHAMSHIRE CHURCHYARDS

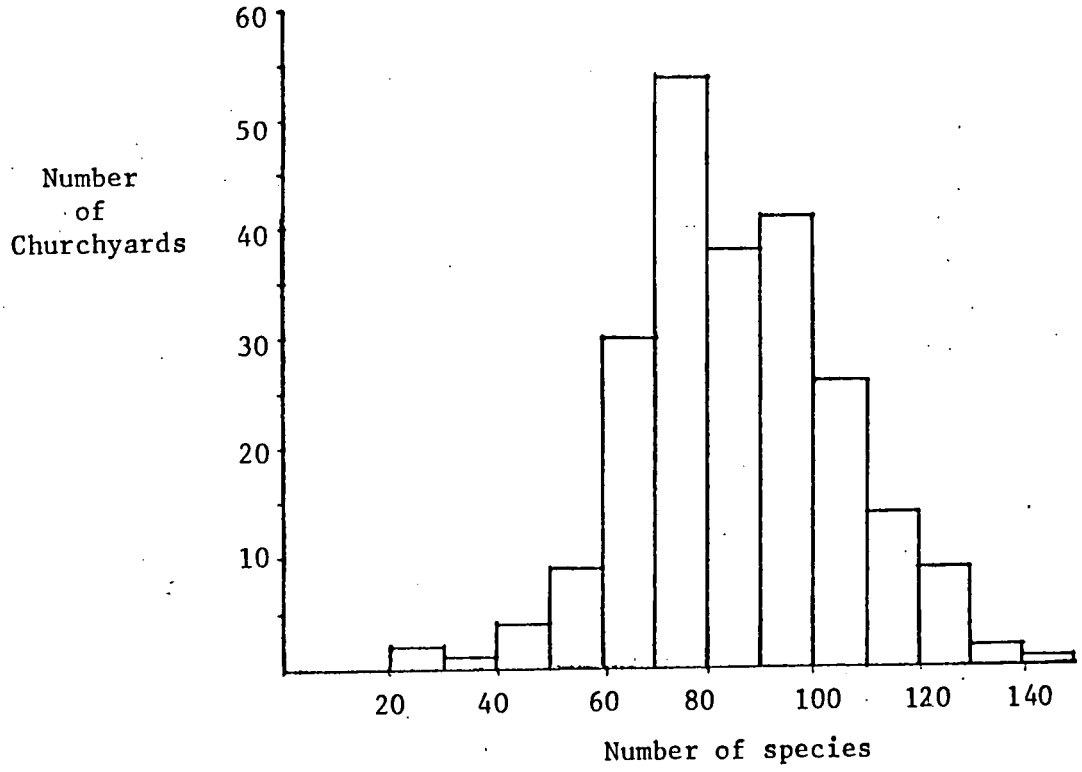
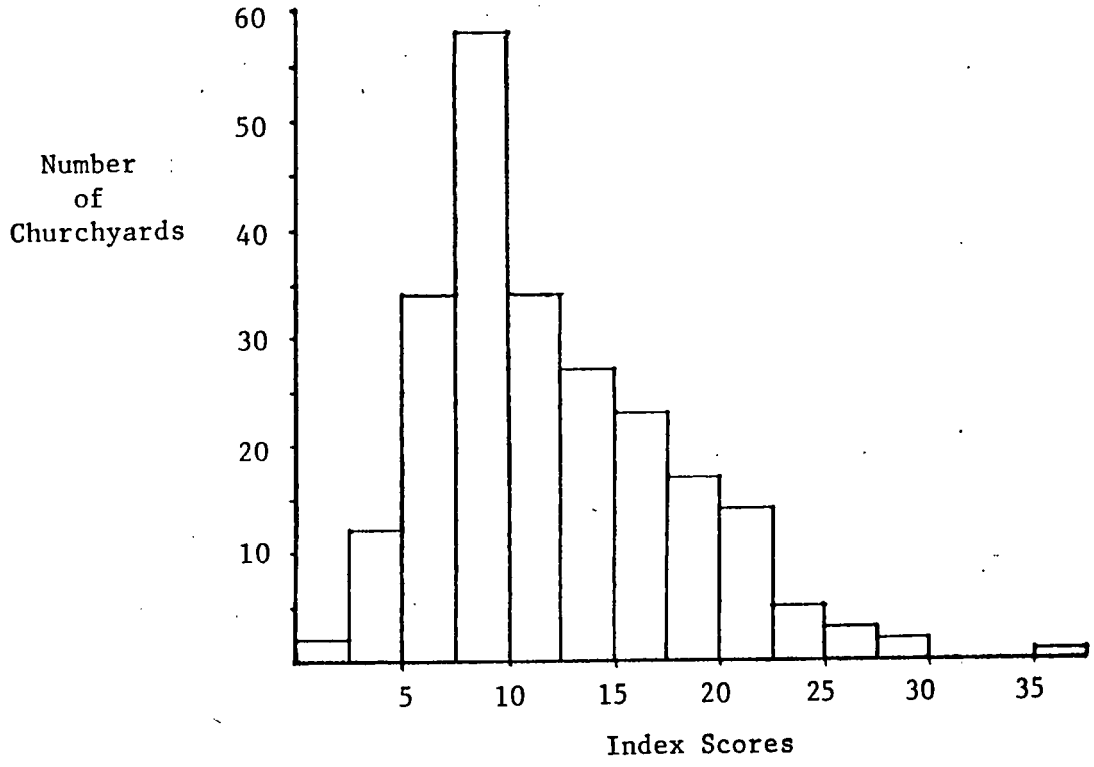


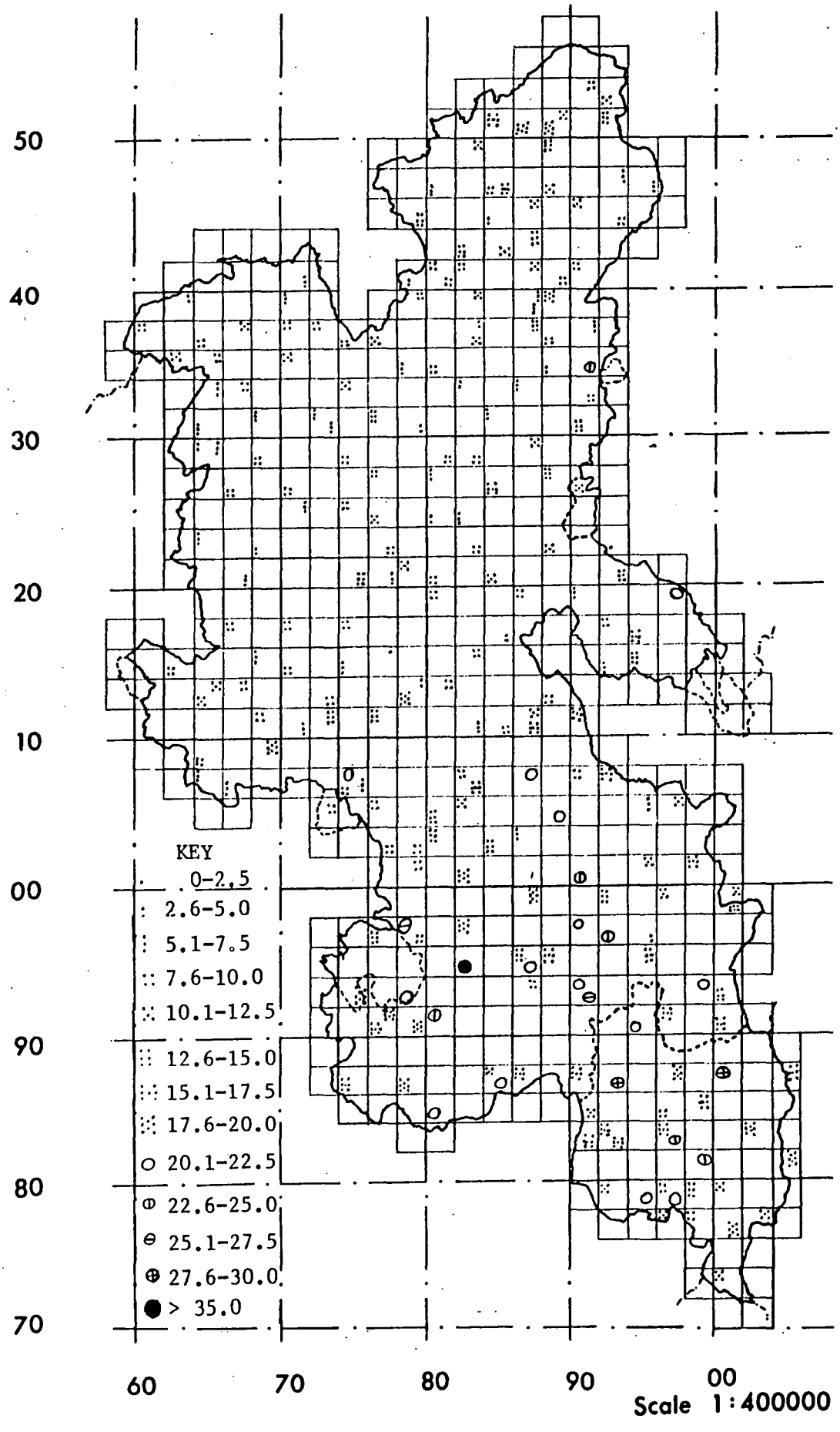
Figure 6

INDEX SCORE DISTRIBUTION IN BUCKINGHAMSHIRE CHURCHYARDS



Map 10

BUCKINGHAMSHIRE SHOWING CHURCHYARD INDEX SCORES



churchyards with lower species numbers can rank highly within the county if they have several rare species e.g. Bow Brickhill with only 90 species but 4 of them rare. Hence the skewing of the curve. It does not necessarily follow that churchyards out of the top 10% do not contain rare species.

The relatioship between Index Scores and the number of species in each churchyard is shown in Figure 7. The correlation between these is high ($r = 0.860$; $P \ll .001$) but this correlation is improved if, as in Figure 8, log/log scales are used ($r = 0.897$; $P \ll .001$), i.e. the original, slightly curvilinear relationship, is straightened. From this it can be seen that the Index Score of a site does give information about the number of species likely to be found at that site.

3.3 Factors affecting the Distribution of the Plants

3.3.1 Geology

The main geological formations found within the county on which churchyards are situated may be reduced to five categories, viz.

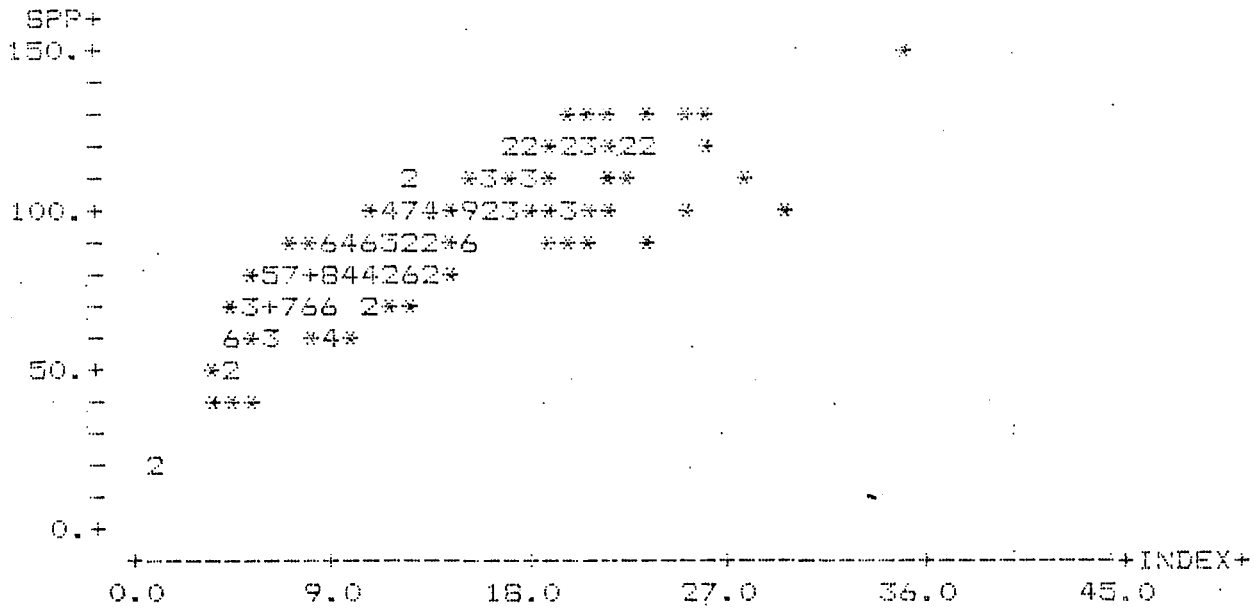
1. Limestones - Oolite
   Cornbrash
   Portland and Purbeck beds
2. Chalk
3. Clays - Lias
   Oxford
   Kimmeridge
   Gault
   Boulder (drift)
4. Clay with Flints
5. Sands - Corallian
   Lower Greensand
   Upper Greensand
   Reading Beds

   Gravels - Valley gravels
   Alluvium

These formations are not distributed equally throughout the county (see Map 2), with approximately 11% limestones, 13% chalk, 47% clays, 9% clay with flints and 20% sands and gravels. Similarly, the distribution of churchyards on these categories is not even either, but

Figure 7

RELATIONSHIP BETWEEN INDEX SCORES AND NUMBER OF SPECIES IN BUCKINGHAMSHIRE CHURCHYARDS

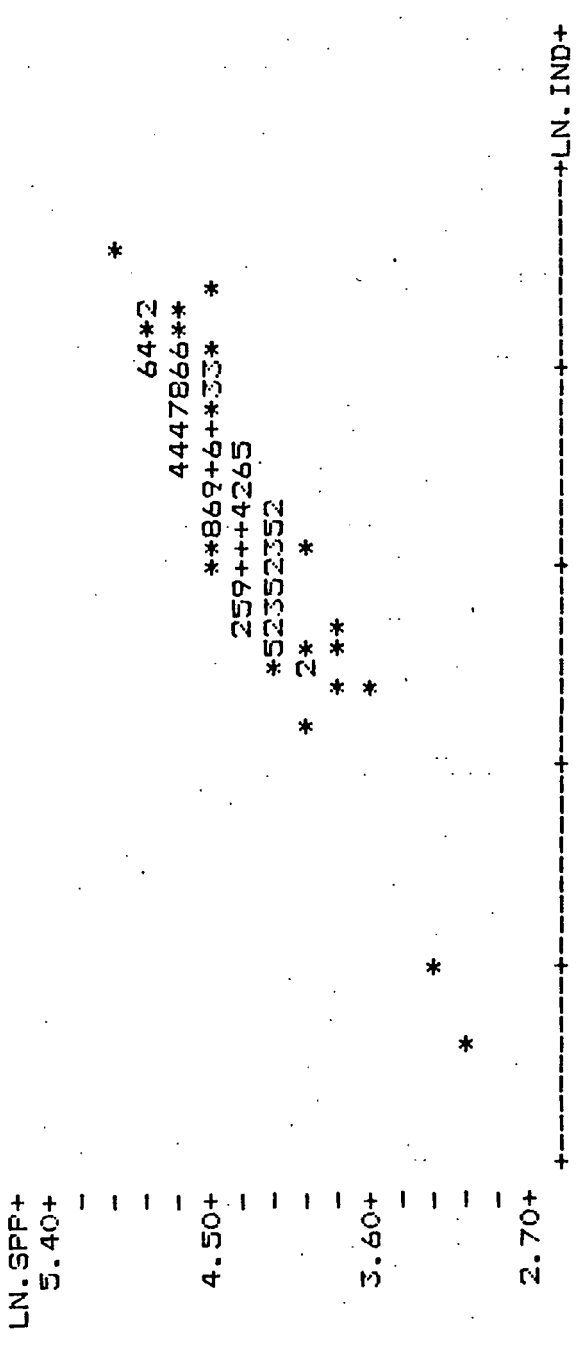


Horizontal Axis:	Index Score
Vertical Axis:	Number of Species
Linear Regression:	No. of Species = 2.9702 Index Score + 50.4023
Correlation Coefficient (r):	0.860
T-ratio:	25.52
Degrees of Freedom:	229
Significance Level:	$\ll .001$

N.B. For ALL Computer Print-out Graphs:
* = 1 point at the co-ordinates
2 - 9 = 2 - 9 points at the co-ordinates
+ = 10 or more points at the co-ordinates

Figure 8

RELATIONSHIP BETWEEN LOG INDEX SCORES AND LOG NUMBER OF SPECIES IN BUCKINGHAMSHIRE CHURCHYARDS



for each, a histogram has been plotted to show Index Scores against numbers of churchyards (Figures 9 - 13). Mean Index Scores and Standard Deviations have been calculated and each pair of categories has been compared using Standard Error to test the significance of the results (Roberts, 1974). These are plotted in the tables below.

Table 1

Geological category	Minimum Index Score	Maximum Index Score	Mean Index Score	Standard deviation	No.of sites	No.of sites in top 10%
Limestones	4.025	21.531	10.695	3.689	56	1
Chalk	5.988	35.542	15.695	6.259	29	5
Clays	0.701	17.490	7.998	3.009	75	0
Cl w Fl	7.088	25.162	16.216	5.175	13	4
Sa & Gr	4.391	29.294	15.653	5.699	58	15

Table 2

	Limestones	Chalk	Clays	Cl w Fl	Sa & Gr
Limestones	-				
Chalk	***	-			
Clays	***	***	-		
Cl w Fl	***	-	***	-	
Sa & Gr	***	-	***	-	-

The significant results in Table 2 are all highly so (i.e $P < .001$ in each case).

As seen above, clay covers a large area of the county, particularly in the north, and has the largest number of churchyard sites (75). The mean Index Score (7.998) for these sites is low and significantly different from those of all other geological categories.

All of the limestones are north of the Chiltern Hills and have 56 sites; these too have Index Scores significantly different from those of all other geological formations.

The other three geological categories do not show significant differences between their results. This is perhaps surprising as the soil types over them certainly show different physical and chemical properties. It is also surprising that the sites on the chalk do not form a more homogeneous group, though reference to Figures 10, 12 and 13 shows that each of these categories has considerable variations in its

HISTOGRAMS TO SHOW INDEX SCORES AGAINST GEOLOGICAL CATEGORIES IN BUCKINGHAMSHIRE CHURCHYARDS

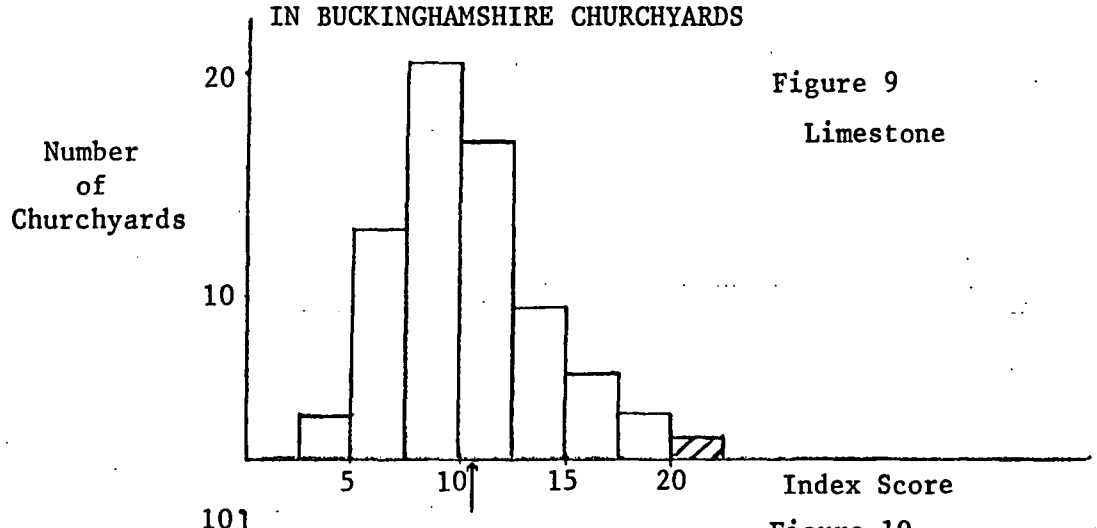


Figure 9
Limestone

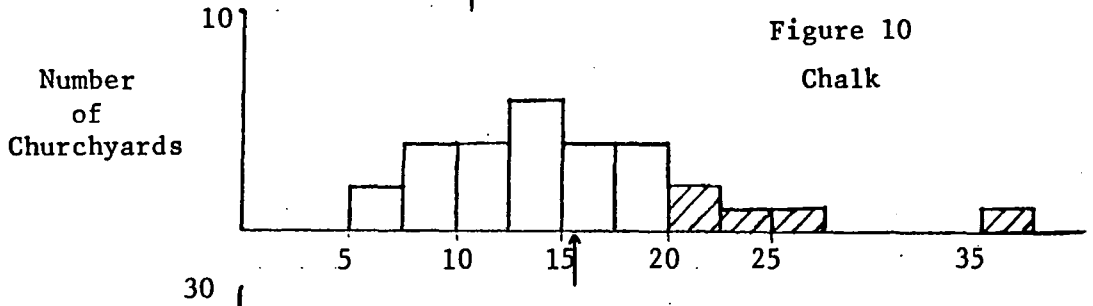


Figure 10
Chalk

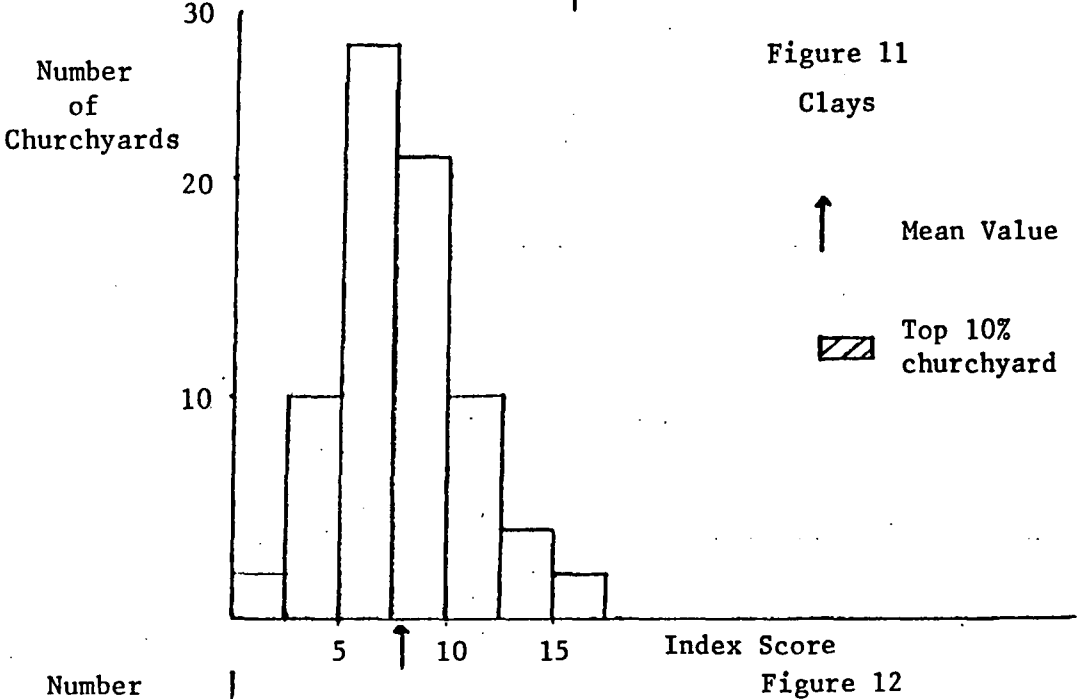


Figure 11
Clays

Mean Value

Top 10% churchyard

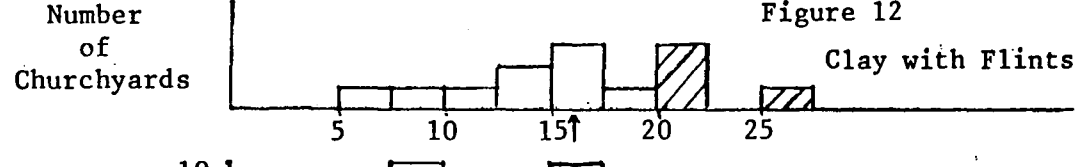


Figure 12
Clay with Flints

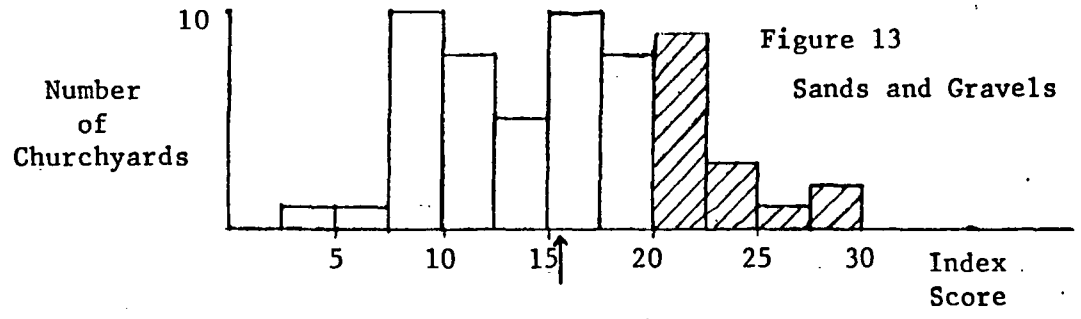


Figure 13
Sands and Gravels

Index Scores. Nevertheless, the high Index Scores seen here are much higher than the low ones.

Although the picture described earlier (see 1.2.3) and the system adopted in this section over-simplify the county's geology, one feature is particularly striking, that is the almost entirely calcareous nature of the rocks. Wiltshire is usually credited with being the most calcareous county in Britain but Buckinghamshire (with Oxfordshire) is hardly less so. The major impact of the geology is therefore that the predominant plants are calcicoles (Fitter, 1985). Calcifuges are few. These facts are reflected in the Index Values of the plants and can be illustrated by taking a few examples of species found in Buckinghamshire churchyards (Table 3).

Table 3

Calcicoles	Index Value	Calcifuges	Index Value
Centaurea nigra	.076	Calluna vulgaris	.959
Clematis vitalba	.301	Cuscuta epithymum	2.000
Cornus sanguinea	.091	Erica cinerea	2.155
Galium verum	.097	Erodium cicutarium	1.301
Hypericum perforatum	.208	Galium saxatile	.886
Knautia arvensis	.328	Hypericum humifusum	1.301
Leontodon hispidus	.076	Jasione montana	2.301
Ligustrum vulgare	.149	Montia perfoliata	1.699
Pimpinella saxifraga	.222	Solidago virgaurea	2.000
Sanguisorba minor	.485	Ulex minor	1.699
Mean Index Value	.204	Mean Index Value	1.630

The solid geology has its main effects where the bed rock is near to the surface; where the drift deposits are thick their effects are more important. But it is, of course, the soils in which the plants grow that play the most important part in determining species present. In Buckinghamshire all soils are alkaline except some on thick Clay with Flints, Sands and Valley Gravels. In some parts of the county different soil types are in close proximity and differences in their effects can be seen by taking two churchyards close together in one tetrad (82/06). These are Little Kimble, in the vale and on the clay, and Ellesborough

on the chalk scarp. The former is at 111.31m and has an Index Score of 8.978; the latter is at 156.30m and has an Index Score of 15.373.

3.3.2 Habitats

These were recorded on the B.S.B.I. Project form (see 2.1.2) but, when the whole survey was complete, it seemed that dividing the grassland into types could have been useful. Most of the churchyards had 4, 5 or 6 of the listed habitats. Scrub, pond and marsh were very rare; grassland, tombstones and paths almost ubiquitous.

A random sample of 70 churchyards was taken and their Index Scores plotted on a graph against number of habitats in each (Figure 14). Table 4 summarises these figures.

Table 4

Number of Habitats	Number of Sites	Index Score Range
2	2	0.701 to 18.339
3	10	5.795 to 20.830
4	16	7.968 to 23.319
5	21	7.808 to 28.171
6	15	6.165 to 35.542
7	4	6.643 to 16.718
8	1	19.842
9	1	19.404

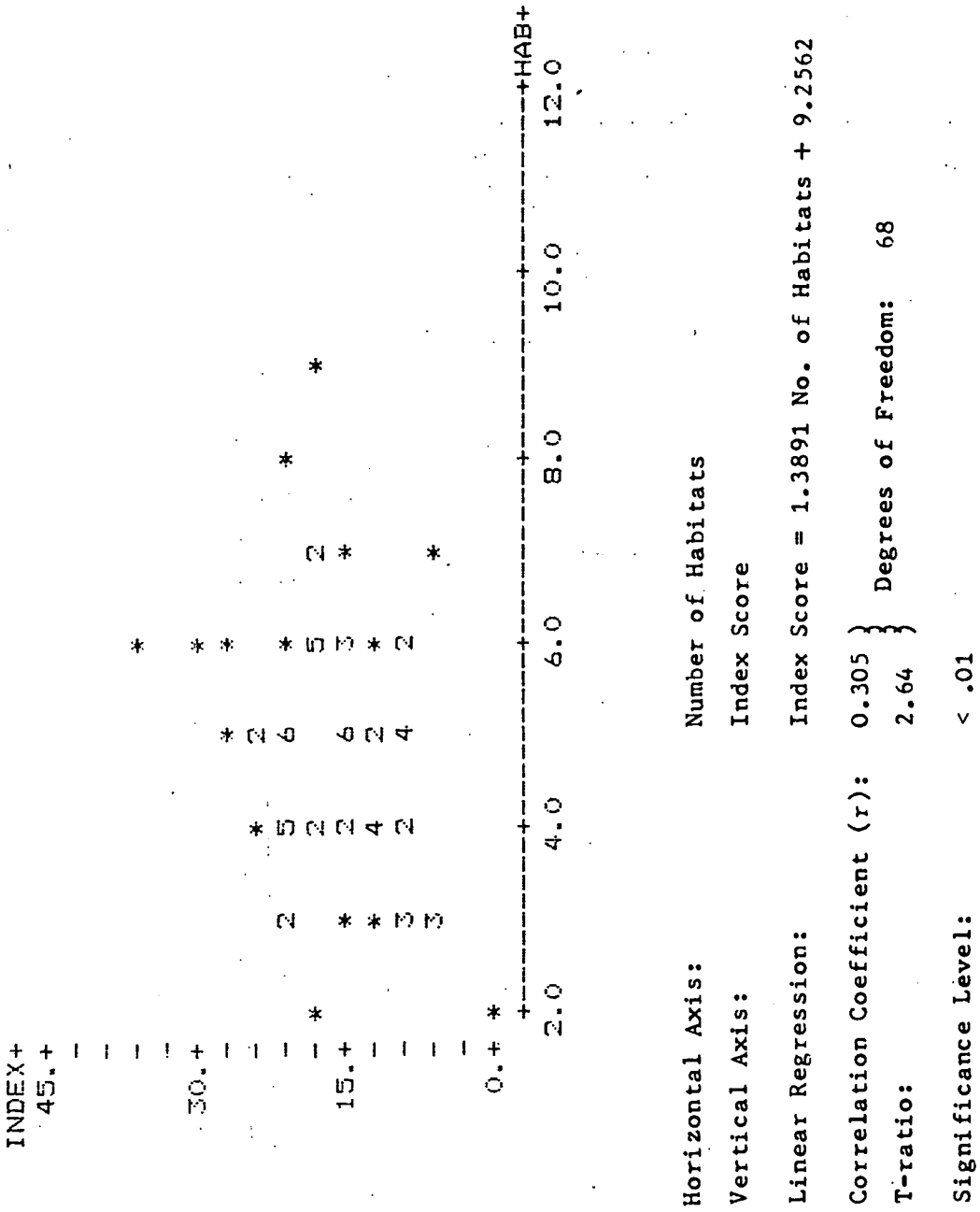
The table shows the range of Index Scores at most habitat numbers to be large, but regression analysis shows that the Index Score does depend on the number of habitats (T-ratio = 2.64; $P < .01$) i.e. the general trend is to increasing Index Scores with increasing numbers of habitats.

3.3.3 Size

When visiting sites, the total area, with graves, was included in the survey. Usually the boundaries were obvious and some had long been established with little recent variation. Others, however, had been extended in area to accommodate increases in numbers of burials. The old and newer parts were usually obvious in the field but it was not possible to record them separately so data are given for the total

Figure 14

RELATIONSHIP BETWEEN INDEX SCORES AND NUMBER OF HABITATS IN BUCKINGHAMSHIRE CHURCHYARDS



area. The calculation of areas was explained in 2.2.4

The sizes of the areas recorded varied tremendously, from 0.2ha at Little Linford to 1.84ha at Great Missenden. Before the survey was carried out it was asserted (Dony, pers. comm.) that the size of the churchyard would affect (or even determine) its floristic value. To test this, a graph of my assessment of floristic values, i.e. Index Scores, against area was plotted (Figure 15) but the results showed a good scatter of points. However, regression analysis of the data shows that the Index Score does depend on the area (T-ratio = 7.42; $P<.001$) i.e. Index Scores increase significantly with increasing area.

The graph shows the greatest cluster of points in the lower quartile i.e. there is a large number (c. 50%) of churchyards with an area of less than 0.5ha (just a little over 'God's acre' of 0.405ha) and an Index Score of less than 14.

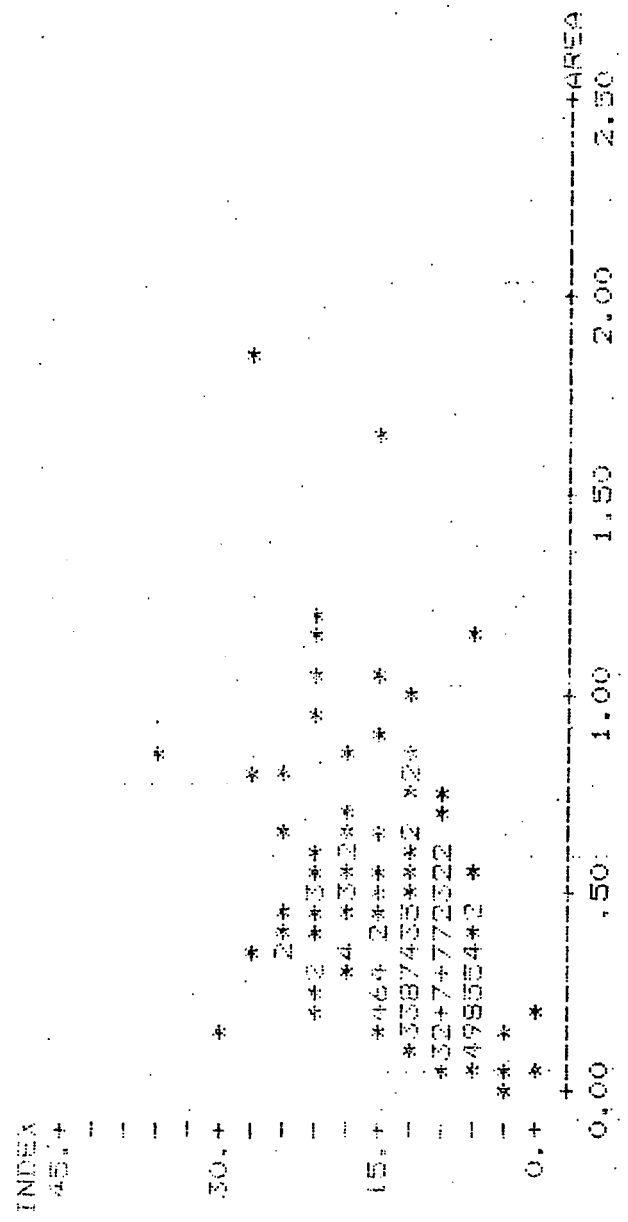
Although the correlation between Index Score and number of species is high (see 3.2), further to the above, a graph was plotted of number of species against area (Figure 16). Regression analysis of these data shows that the number of species does depend on the area (T-ratio = 10.59; $P \ll .001$) i.e. the number of species increases significantly with increasing area.

However, the best linear relationship is between log number of species against log area (T-ratio = 13.23; $P \ll .001$), and this is shown in Figure 17.

It is obvious from the above that Dony was accurate in his prediction about the importance of increasing area in determining floristic value of a site, but it is not the only important factor (see 3.3.1, 3.3.2 and later). In fact, from the data available, the actual number of species present is more dependent on the area than is the Index Score which itself is taken as a more accurate assessment

Figure 15

RELATIONSHIP BETWEEN INDEX SCORES AND AREA
IN BUCKINGHAMSHIRE CHURCHYARDS



Horizontal Axis: Area of Site

Vertical Axis: Index Score

Linear Regression: Index Score = 10.0921 Area + 8.0529

Correlation Coefficient (r): 0.452

T-ratio: 7.42

Degrees of Freedom: 214

Significance Level: < .001

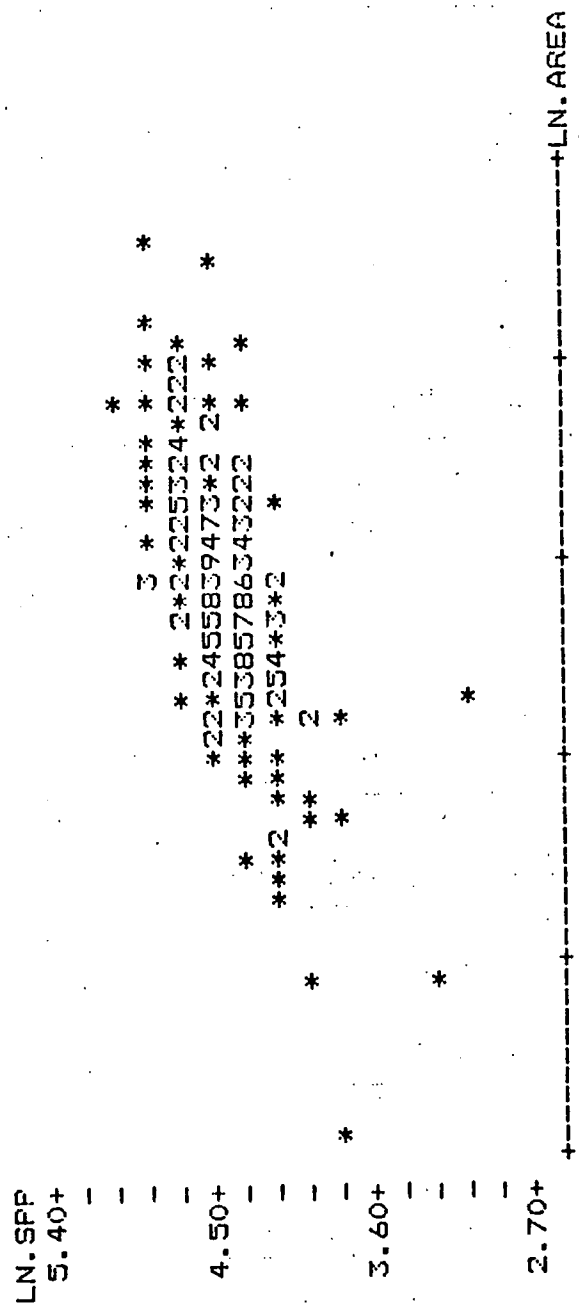
Figure 16

RELATIONSHIP BETWEEN NUMBER OF SPECIES AND AREA
IN BUCKINGHAMSHIRE CHURCHYARDS

Horizontal Axis:	Area of Site	
Vertical Axis:	Number of Species	
Linear Regression:	No. of Spp. = 44.5480 Area + 68.7684	
Correlation Coefficient (r):	0.587	Degrees of Freedom: 214
T-ratio:	10.59	
Significance Level:	$\ll .001$	

Figure 17

RELATIONSHIP BETWEEN LOG NUMBER OF SPECIES AND LOG AREA
IN BUCKINGHAMSHIRE CHURCHYARDS



of floristic value.

To see if there is any dependence of number of habitats on area, data from 62 of the sites previously used were plotted on a graph (Figure 18). A regression analysis shows that there is no such dependence (T-ratio = 1.34; P between .2 and .1). (The other 8 sites of the sample could not be used as plans were not available for the calculations of the areas.)

3.4 Management

Doubtless the management of a churchyard will have an effect on the flora. The measurement of management however has not been undertaken in this survey; it is far too variable over the county as a whole and even in one churchyard from one part to another and from year to year to be able to quantify it. Notes were always made on site where any particular regime could have had an effect on the flora, and the number of habitats (see 3.3.3) may reflect the management.

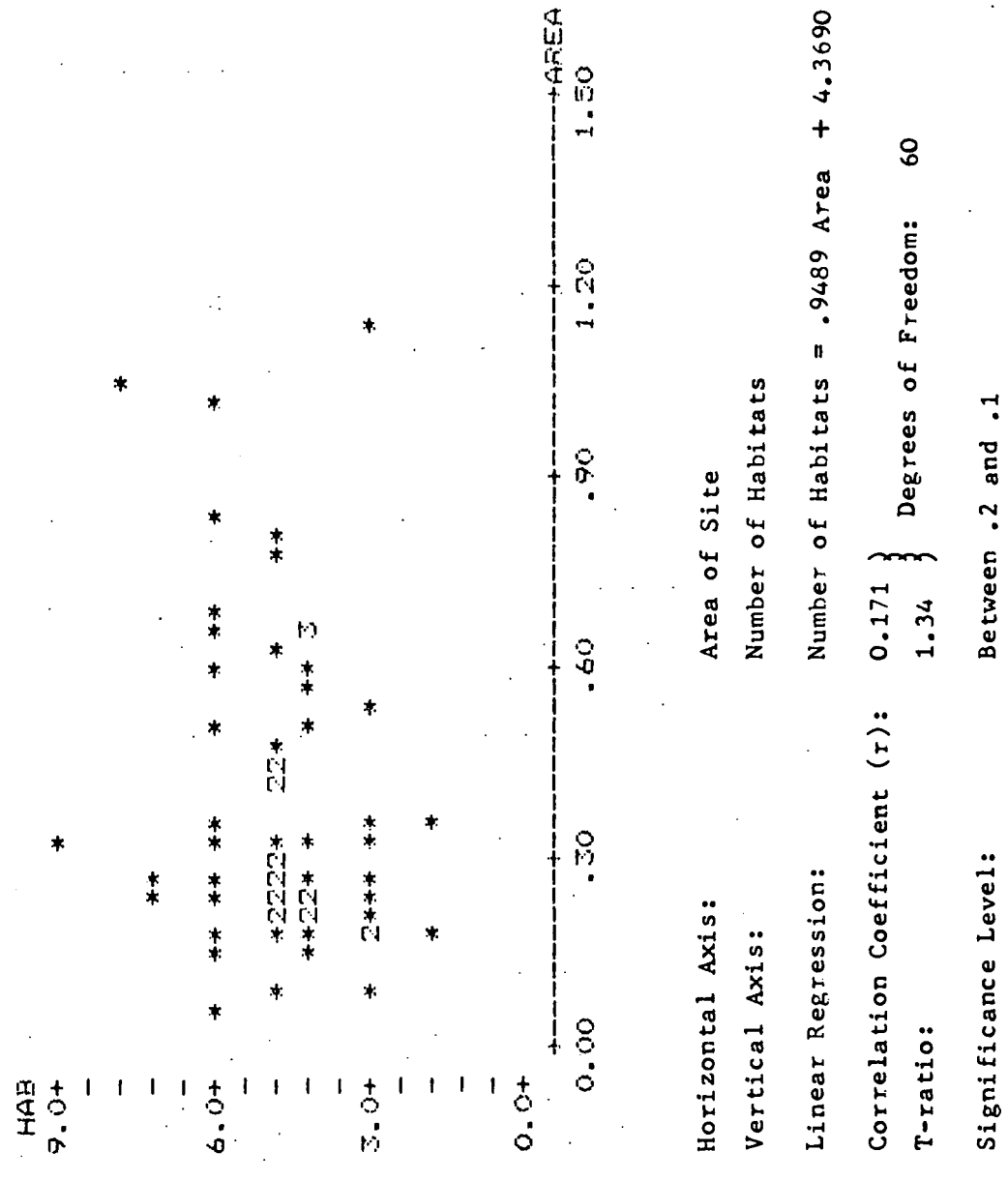
The types of management observed include mowing, grazing, application of herbicides and removal of tombstones or plants.

3.5 The Top Ten Percent

The original aim of this Buckinghamshire churchyard project was to discover the floristically best 10%. As a result of this survey and the method of devising Index Values and Index Scores, 25 of the 231 sites are listed. This is slightly above 10%, but includes all sites which have an Index Score greater than 20.000. A brief account of these follows, arranged in descending order of Index Scores.

Figure 18

RELATIONSHIP BETWEEN NUMBER OF HABITATS AND AREA
IN BUCKINGHAMSHIRE CHURCHYARDS



3.5.1 West Wycombe (Site Number 250)

Dedication: St. Laurence (see Frontispiece)

Grid Ref: SU 828949 Height: 159.72m Area: 0.835ha

No. of Species: 147 Index Score: 35.542 (5spp with I.V. ≥ 1)

No. of Habitats: 6 Geology Category: Chalk

The churchyard occupies much of the site of an old ring fort but, despite being well-known, it was not visited early in the survey although subsequently it was visited by more botanists than any other site, and probably at more seasons. Its very high floristic interest lies in the great variety of species present from several distinct habitats, the fact that it is on chalk and the number of species rare to the county or its churchyards. Campanula glomerata is in the turf where it is not too closely mown; Desmazeria rigida is on walls whilst Diplotaxis muralis and Mercurialis annua are both in bare soil of graves. Uncommon in churchyards are the woodland species Elymus caninus, Milium effusum and Sanicula europaea and in more open habitats Knautia arvensis, Thymus praecox ssp arcticus and Verbascum nigrum. The hybrid between Linaria repens and L. vulgaris had been reported from the site but, despite searching, it was not discovered, although both species were.

3.5.2 Dropmore (Site Number 246)

Dedication: St. Anne

Grid Ref: SU 934864 Height: 95.73m Area: 0.155ha

No. of Species: 97 Index Score: 29.294 (4 spp with I.V. ≥ 1
3 spp with I.V. ≥ 2)

No. of Habitats: 6 Geology Category: Sands & Gravels
(River Gravels)

Set deep in woodland, the churchyard is not easy to find and its flora has become part of the communities surrounding it. It is not species-rich, but contains more county rarities than any other site. This is partly because it is on dry, acid soil - a very rare habitat in Buckinghamshire - but also because it contains a virtually complete

community of plants of the Calluna vulgaris - Ulex minor complex; an oceanic heath with southern affinities (Gimmingham, 1960). As well as these two species it has Erica cinerea, Ulex europaeus and Cuscuta epithymum (actually on the Ulex minor). Other rare plants present are Alchemilla filicaulis ssp vestita, Solidago virgaurea, Teucrium scorodonia as well as the calcifuges Deschampsia flexuosa, Galium saxatile, Hypericum pulchrum, Potentilla erecta and Succisa pratensis. Altogether this is a splendid site; fortunately it is adjacent to an S.S.S.I. so its preservation is virtually guaranteed.

3.5.3 Gerrards Cross (Site Number 192)

Dedication: St. James

Grid Ref: TQ 001879 Height: 84.98m Area: 0.813ha

No. of Species: 108 Index Score: 28.171 (4 spp with I.V. ≥ 1
1 sp with I.V. = 2)

No. of Habitats: 5 Geology Category: Sands & Gravels
(River Gravels)

The original churchyard around the strange, modified Byzantine church built in 1859 must have been quite small, but two later extensions are now incorporated. In some areas the churchyard is very formal with a number of mature trees; in others the turf is species-rich. Various walls support interesting species like Asplenium adiantum-nigrum, A. ruta-muraria and Teucrium scorodonia. The latter is a rare species in the county (I.V. 1.097) and occurs in only three churchyards. It is always a good indicator of acid conditions, as are Conopodium majus, Deschampsia flexuosa, Potentilla sterilis and Polygala serpyllifolia which are also present. Two introduced plants are well naturalised: Lathyrus latifolius and Montia perfoliata, The latter has an Index Value of 1.699, all of its sites in Buckinghamshire being on acid, light or sandy soils. The species which make this a good churchyard in the county are all calcifuges, indicating the overall rarity of this type of habitat. The interesting Potentilla,

P. anglica, I believe is here as it is normally a heath species. P. reptans, one parent of the hybrid P. x italica, is also present but P.erecta (the other parent) is not, so the presence of the hybrid seems less likely than the species.

3.5.4 Great Missenden (Site Number 157)

Dedication: St. Peter and St. Paul

Grid Ref: SP 900009 Height: 141.57m Area: 1.84ha

No. of Species: 132 Index Score: 26.106 (3 spp with I.V. ≥1 1 sp with I.V.> 2)

No. of Habitats: 6 Geology Category: Chalk

This is the largest churchyard in the county and has the second highest number of species present. It is situated high on the chalk overlooking the village but separated from it by a by-pass. A large number of calcicole species is present but, as the county has so many of these, their Index Values are not very high. Plants such as Carduus acanthoides, Cirsium acaule, Clinopodium vulgare, Knautia arvensis, Mycelis muralis, Pimpinella saxifraga, Origanum vulgare, Plantago media and Senecio erucifolius are worthy of mention, but the highest Index Value here is only .620. The walls around the church have a good fern flora, including Polypodium vulgare (I.V. 1.097) and Cystopteris fragilis (I.V. 2.699). This was the only known site in the county for this fern for well over ten years. More typically found on base-rich rock in wet areas (and hence north and west Britain) (Jermy et al, 1978) here it is on a man-made limestone wall which is shaded but not very moist. Parietaria judaica (I.V. 1.046) is also on the walls. Quite a large area near the church is gravelly and used for a car park. This has a good stand of Vulpia myuros (I.V. 1.523).

3.5.5 Wexham (Site Number 201)

Dedication: St. Mary

Grid Ref: SU 993815 Height: 104.75m Area: 0.34ha

No. of Species: 124 Index Score: 26.086 (2 spp with I.V. ≥ 1)

No. of Habitats: 6 Geology Category: Sand & Gravels (River Gravels)

This is a delightful little church with a countryside setting just away from the heavily built-up area of Slough. The grass is well kept and graves tended, so much so that an early botanist-visitor commented that it was not very interesting! However, it has a large number of species, many of which are calcifuge. The rich assemblage of plants in the turf includes: Campanula rotundifolia, Conopodium majus, Holcus mollis, Luzula campestris, Potentilla anglica, P. erecta, P. sterilis, Rumex acetosella, Stachys officinalis, Stellaria graminea and Succisa pratensis. The Index Values of all of these species are quite high, showing their infrequent county distribution. Coronopus didymus, an introduced species to the British Isles, has not spread much in Buckinghamshire, having an Index Value of 1.097, but it is found in between some of the graves in this churchyard.

3.5.6 Penn Street (Site Number 166)

Dedication: Holy Trinity

Grid Ref: SU 924962 Height: 157.99m Area: 0.423ha

No. of Species: 103 Index Score: 25.162 (4 spp with I.V. ≥ 1 1 sp with I.V. > 2)

No. of Habitats: 3 Geology Category: Clay with Flints

Set against the trees of Penn Wood, the spire of Penn Street church is an unusual land-mark for this part of Buckinghamshire. The churchyard has a large number of graves and is well kept, but the turf is naturally short and dry. Woody plants from the surroundings could become invasive if not checked. The county's second record for Cystopteris fragilis has recently come from here. Other county rarities are Polypodium vulgare, Teucrium scorodonia and Trifolium

medium. Only the second of these indicates the acid nature of the soil, but several other calcifuges are present, especially those of drier soils.

3.5.7 Radnage (Site Number 164)

Dedication: St. Mary
Grid Ref: SU 786979 Height: 148.42m Area: 0.338ha
No. of Species: 130 Index Score: 24.793
No. of Habitats: 7 Geology Category: Chalk

This is one of the best churchyards on the chalk, considering its small size. The present village is well away from the church but the churchyard is well kept - at least that part which is in front of the church. Behind, the grass is long and bounded by hedges. A long list of calcicoles could be given, but none is rare with an Index Value of 1.000 or more. Bromus erectus, Centaurea scabiosa, Clinopodium vulgare, Daucus carota, Knautia arvensis, Leontodon hispidus, L. taraxacoides, Origanum vulgare, Pimpinella saxifraga, Plantago media, Sanguisorba minor and Verbascum nigrum are examples of the more interesting species; good as an assemblage but none highly significant on its own.

3.5.8 Lane End (Site Number 180)

Dedication: Holy Trinity
Grid Ref: SU 806916 Height: 178.17m Area: 0.665ha
No. of Species: 131 Index Score: 23.319 (1 sp with I.V. > 1)
No. of habitats: 4 Geology Category: Sands & Gravels

This churchyard has a high number of species present and, although the number of habitats is small, the soil varies from one part to another, some being sandy and dry, some clayey and wet. The church itself is close to the village green and the churchyard extends up hill from there. The plants with high Index Values are again calcifuges but their variety is not as great here as at Wexham, for example. The ferns are well represented in the churchyard with Pteridium aquilinum - another plant characteristic of acid soils. Dryopteris filix-mas and

Phyllitis scolopendrium are close to the church and a fine display of Ceterach officinarum survives well on its walls. Galium saxatile, Potentilla sterilis, Rumex acetosella and Veronica officinalis are indicative of the drier conditions which exist here. Trees are present in variety, but not in great numbers and several herbs often found in woods are present, e.g. Deschampsia flexuosa, Hyacinthoides nonscripta and Melica uniflora. This is a churchyard of great floristic variety.

3.5.9 Penn (Site Number 176)

Dedication: Holy Trinity
Grid Ref: SU 916937 Height: 168.38m Area: 0.455ha
No. of Species: 117 Index Score: 23.229 (2 spp with I.V. > 1)
No. of Habitats: 5 Geology Category: Sands & Gravels

The walls of the church and churchyard support Asplenium adiantum-nigrum, A. ruta-muraria, Ceterach officinarum and Phyllitis scolopendrium, whilst Dryopteris filix-mas is nearby. Buckinghamshire is in a very dry part of the British Isles, the 660mm isohyet separating most of it from its wetter, westerly neighbours. Consequently it is not a county rich in ferns, so to find five species in one churchyard is remarkable. Since the publication of Druce's Flora of Buckinghamshire in 1926, there is evidence that the two Asplenium species have increased their distribution and, although still rare, Ceterach officinarum (I.V. 1.399) may also be more widespread. Much of the grass is closely mown but Trifolium micranthum and Thymus praecox ssp arcticus both survive; the former is very rare in the county (I.V. 1.523) and is found only in one other churchyard, Hitcham.

3.5.10 Stoke Poges (Site Number 198)

Dedication: St. Giles
Grid Ref: SU 976827 Height: 46.98m Area: 0.785ha
No. of Species: 119 Index Score: 23.061 (2 spp with I.V. > 1)
No. of Habitats: 5 Geology Category: Sands & Gravels (River Gravels)

With Thomas Gray buried in the churchyard where he is said to have

written his 'Elegy' this must be the county's most famous churchyard. The original churchyard was about half its present size, for there are two lych gates and the route from the roadside to the church porch is very long. Being on one of the less common geological formations, several of the county's calcifuges are present e.g. Conopodium majus, Lysimachia nemorum, Potentilla sterilis and Montia perfoliata. Thymus praecox ssp arcticus is also here, as is the somewhat elusive Valerianella locusta. This is a short-lived plant so with infrequent visits to an area it could easily have been missed. However, in lighter, drier areas around some of the graves it was found. Potentilla anglica is present in small quantity.

3.5.11 Bow Brickhill (Site Number 51)

Dedication: All Saints

Grid Ref:	SP 912345	Height:	163.06m	Area:	0.35ha
No. of Species:	90	Index Score:	23.042	(3 spp with I.V. > 1 1 sp with I.V. > 2)	
No. of Habitats:	5	Geology Category:		Sands & Gravels (Lower Greensand)	

To appear so high in the county's top 10% of churchyards with only 90 species present means that Bow Brickhill has something special about its flora. The Lower Greensand, which enters Buckinghamshire from Bedfordshire, forms an escarpment just over the border. Bow Brickhill church is on top of the hill, set amongst pine trees and forming a land-mark for miles for those travelling in the north of the county. The sandy soil is very light and acid; the only area in north Buckinghamshire like this. In the turf are Narcissus pseudo-narcissus and Saxifraga granulata, but over a large area the soil is so thin that only a poor turf forms, one dominated by Deschampsia flexuosa. In this, and especially adjacent to graves, are Jasione montana, Luzula pilosa and Ornithopus perpusillus. Calluna vulgaris has one of its two Buckinghamshire stations here and it is with Ulex europaeus. Other calcifuges present are: Conopodium majus, Galium saxatile,

Holcus mollis, Pteridium aquilinum and Rumex acetosella. It is good to see these somewhere in north Buckinghamshire!

3.5.12 Edlesborough (Site Number 106)

Dedication: St. Mary the Virgin
Grid Ref: SP 970191 Height: 113.00m Area: 0.963ha
No. of Species: 115 Index Score: 22.143 (1 sp with I.V. > 2)
No. of Habitats: 6 Geology Category: Chalk

The church stands high on a chalk promontory from the Chilterns, overlooking the clay vale below. Since the completion of the survey the churchyard has had an M.S.C. team in to 'tidy' it; one can only hope that the removal of invasive scrub will have been beneficial to the chalk grassland turf, though it may take a long time before a species-rich community returns. Fortunately the churchyard is big and has several areas to act as sources of seed for the recently cleared areas. A Prunus sp, known locally as the Edlesborough prune, was present in the churchyard; it may have gone. "It is still grown in orchards in the area; the fruit is virtually inedible but makes excellent jam, jelly or wine. It is reputed to have been grown originally to make dye for commercial use (air force uniforms or the Luton hat trade)." (Mrs. Eileen Alsford, pers. comm.) Apart from a wide range of calcicoles the churchyard has (or had) Bunium bulbocastanum. This is a very rare plant nationally, most of its distribution being in adjacent Bedfordshire (Dony, 1953). Buckinghamshire has it in just one tetrad - this one, with the churchyard in it!

3.5.13 The Lee (Site Number 222)

Dedication: St. John the Baptist
Grid Ref: SP 899044 Height: 194.5m Area: 0.66ha
No. of Species: 115 Index Score: 22.342 (1 sp with I.V. > 2)
No. of Habitats: 4 Geology Category: Clay with Flints

This churchyard is unusual in that it encloses two churches. There is a little, old 13th century one built from local stone and a larger

red-brick one built in 1869. Much of the turf is kept short but there are patches, some within the graves themselves, where the meadow species are allowed to flourish. A variety of grasses, including Agrostis spp, Alopecurus pratensis, Anthoxanthum odoratum, Briza media, Cynosurus cristatus and Trisetum flavescens, uncommon dicots like Conopodium majus, Lotus uliginosus, Stachys officinalis and the very rare Jasione montana (I.V. 2.301) put on a splendid display.

On the other hand, the churchyard has several species normally associated with dry, calcareous habitats e.g. Daucus carota, Fragaria vesca, Pimpinella saxifraga and Plantago media, but there are far more calcifuges over the area as a whole. Woodland/hedgerow species found here, e.g. Arum maculatum, Dryopteris dilatata, Hyacinthoides nonscripta, Holcus mollis, Moehringia trinervia, Primula vulgaris and Viola riviniana, are greater in number than in many churchyards.

This is one of the sites I like most.

3.5.14 Marlow (Site Number 187)

Dedication: All Saints

Grid Ref: SU 851862	Height: 30.4m	Area: 0.455ha	
No. of Species: 113	Index Score: 22.207	(4spp with I.V. ≥ 1)	
No. oc Habitats: 5	Geology Category:	Sands & Gravels (Alluvium)	

The southern border of this churchyard is the River Thames, but it does not support any species which give any indication of this. It has a few species of particular interest, like Potentilla anglica. Desmazeria rigida is a beautiful little grass growing on some of the walls and Parietaria judaica abounds adjacent to others. Both of these species have widespread distribution in the county and show no apparent pattern - except that they are rare. Conversely, Allium vineale, which is here, is virtually restricted to a small part of the south of the county - from here across to the area of Slough.

3.5.15 Medmenham (Site Number 221)

Dedication: St. Peter and St. Paul

Grid Ref: SU 805845 Height: 37.0m Area: 0.66ha

No. of Species 128 Index Score: 21.547

No. of Habitats: 6 Geology Category: Sands & Gravels (Alluvium)

This is almost another riverside churchyard and, undoubtedly, what puts it into the top 10% is the interesting wetland area found within its bounds. It is only small, is surrounded by a low hedge, and was probably only included when the churchyard was extended. It has not been disturbed for burials and hopefully will not be. Species present include: Angelica sylvestris, Cirsium palustre, Conium maculatum, Filipendula ulmaria, Galium palustre, Juncus effusus, Lotus uliginosus, Lychnis flos-cuculi, Polygonum amphibium and Symphytum officinale. None of these species is rare within the county, but such an assemblage in a churchyard makes it unique.

Elsewhere, various walls have the ferns Asplenium adiantum-nigrum, A. ruta-muraria and Phyllitis scolopendrium and the calcicolous Mycelis muralis.

3.5.16 Haddenham (Site Number 142)

Dedication: St. Mary the Virgin

Grid Ref: SP 742079 Height: 76.92m Area: 0.51ha

No. of Species: 102 Index Score: 21.531 (3 spp with I.V. > 1
1 sp with I.V. > 2)

No. of Habitats: 6 Geology Category: Limestone

An Index Value of 2.031 for Geranium rotundifolium, the last plant to be recorded, put this churchyard into the top 10%. It is only one of two to be found north of the Chilterns so, as such, is of considerable interest. It has four other Geranium species, including G. lucidum which grows in a few graves. It was the first churchyard in which Rumex pulcher was recorded, but this has now been found in several others, especially on the oolitic limestone. Lamium

amplexicaule is also rare and found in light, often sandy soils; here it is round some of the graves. It is associated with other weed species as Chenopodium polyspermum, Coronopus squamatus, Fumaria officinalis, Linaria vulgaris, Papaver dubium, Rumex acetosella and Solanum nigrum. One species which has increased greatly in Buckinghamshire in the last twenty years is Lactuca serriola and it is found in disturbed soil in this churchyard. So, with a few county rarities and quite a lot of plants with Index Values of .500 or more, it can be seen why this churchyard is of interest.

3.5.17 Beaconsfield (Site Number 179)

Dedication: St. Mary and All Saints

Grid Ref: SU 945900 Height: - Area: -

No. of Species: 108 Index Score: 21.407 (3 spp with I.V. ≥ 1)

No. of Habitats: 5 Geology Category: Sands & Gravels (River Gravels)

As it is in a town, this is one of the churchyards whose area could not be estimated from a plan, as it is not yet prepared. However, I estimate it to be about 0.5ha. It is thus quite large and very tidy, with flower beds as well as graves. Around the church is a collection of half-a-dozen ferns, with Asplenium trichomanes and Polypodium vulgare being rarities.

Calcicoles and calcifuges are all found here: Linaria repens, Verbascum nigrum and V. thapsus contrasting with Conopodium majus, Digitalis purpurea, Holcus mollis, Pteridium aquilinum and Rumex acetosella, but notice again that the calcifuges outnumber the calcicoles and so increase the Index Score. Interesting weeds here are: Arabidopsis thaliana, Silene vulgaris and Urtica urens.

3.5.18 Wendover (Site Number 140)

Dedication: St. Mary
Grid Ref: SP 872074 Height: 131.51m Area: 1.178ha
No. of Species: 123 Index Score: 21.362 (3 spp with I.V. > 1)
No. of Habitats: 6 Geology Category: Chalk

The church stands on the edge of the town at some distance from the main road to Amersham but at least two extensions to the original churchyard have made it one of the largest in the county, and it now reaches the main road. Being on the chalk it has many calcicoles, with Verbascum nigrum and V. thapsus probably being the most spectacular; the former being quite abundant. A number of woodland species are also present e.g. Ajuga reptans, Arum maculatum and one of the few recorded churchyard sites for Carex sylvatica. One of the more recently added areas had been disturbed and a number of infrequent weeds had appeared. These could be transitory members of the flora but were interesting to see and added to the Index Score. Much of the boundary to the churchyard is a flint wall and in places this has a good crop of Ceterach officinarum and Poa compressa, whilst Parietaria judaica is on the church wall.

3.5.19 Terriers (Site Number 170)

Dedication: St. Francis
Grid Ref: SU.877945 Height: - Area: 0.54ha
No. of Species: 124 Index Score: 20.830 (1 sp with I.V. > 1)
No. of Habitats: 3 Geology Category: Clay with Flints

It surprises me that this churchyard is in the top 10%, situated, as it is, in the relatively new suburb of High Wycombe. The church itself was opened in 1930 and there are few graves; the grass is mostly cut short. There is a high proportion of shrubs in the flora and some of them could have been introduced, although they are all 'wild' species. (Shrubs of known garden origin are omitted from the Index Score.) Herb species are associated with these trees, and weeds are frequent. From the large number of species present over all, it

is difficult to pick out any which are of particular interest.

3.5.20 Eton Wick (Site Number 203)

Dedication: St. Peter

Grid Ref: SU 952783 Height: - Area: -

No. of Species: 90 Index Score: 20.808 (4 spp with I.V. > 1
1 sp with I.V. = 2)

No. of Habitats: 4 Geology Category: Sands & Gravels
(River Gravels)

This must be, or is already fast becoming, the churchyard for Eton as well as Eton Wick. At Eton the huge church is derelict and there is a separate cemetery. The church at Eton Wick looks relatively new, but the red-brick building was erected in 1869 and the churchyard has now been extended and awaits new burials. The turf is not botanically interesting but the weed species which exist in graves or open soil boost the Index Score. How long these species will persist is difficult to say, but if the habitats remain open then the plants could survive. Rare species involved are: Diplotaxis muralis, Geranium pusillum, Medicago arabica and Mercurialis annua, but also present are Anagallis arvensis, Aphanes arvensis, Cerastium glomeratum, Conyza canadensis, Erophila verna, Fallopia convolvulus, Galeopsis tetrahit, Papaver dubium and Solanum nigrum. These are not rare species but all of them are infrequent in churchyards, indicating that the communities of such areas are normally much more closed.

3.5.21 Tylers Green (Site Number 175)

Dedication: St. Margaret

Grid Ref: SU 904937 Height: - Area: -

No. of Species: 121 Index Score: 20.791 (2 spp with I.V. > 1
1 sp with I.V. = 2)

No. of Habitats: 5 Geology Category: Sands & Gravels

This churchyard is in two very obvious parts: a lower, newer part separated from the old part by the original churchyard wall. Much of this is of limestone and flint, with mortar between, which supports a mass of yellow Sedum acre and one part has a fine display of the very

rare Erinus alpinus (I.V. 2.000). Polypodium vulgare is found adjacent to part of the church wall. The other rare plant here is Foeniculum vulgare, a plant which appears to be spreading in Buckinghamshire, though its origins may well be from cultivation. It does not always persist at a particular site. With the fennel, in the newer part of the churchyard, is a good variety of weed species unusual in churchyards e.g. Anagallis arvensis, Atriplex patula, Calystegia sepium ssp silvatica, Sinapis arvensis and Solanum nigrum. One part has woodland species such as Carex sylvatica and Circaea lutetiana whilst Ajuga reptans is in the turf.

3.5.22 Slough (Site Number 205)

Dedication: St. Mary
Grid Ref: SU 976795 Height: 96.89m Area: 1.13ha
No. of Species: 116 Index Score: 20.536 (2 spp with I.V. > 1)
No. of Habitats: 3 Geological Category: Sands & Gravels

The first visit to this large churchyard was made late in the summer of 1983, when the whole area was very overgrown and had a mass of blackberries. The second visit, in the spring of 1985, saw a complete transformation: the whole area had been tidied up, but grass cutting had not been drastic enough to remove all the forb species. Hopefully Lathyrus pratensis, Tragopogon pratensis and Valeriana officinalis will survive. Aphanes arvensis was abundant in areas where grass cutting had occurred. In open sites Coronopus didymus, Lactuca serriola and Papaver dubium were found. Coronopus didymus (I.V. 1.097) is a rare plant found mostly in or near the larger Buckinghamshire towns of the south. Lactuca serriola had a population explosion a few years ago and now seems to be taking advantage of any sites where there is little competition. It is surprising that it is Papaver dubium which is the more frequent poppy of churchyards, although none has been found very often. Bearing in

mind the first sentence of this brief account, the other feature of interest is found in the following list: Fragaria vesca, Ribes uva-crispa, Rubus idaeus and, whilst not edible, Allium vineale (I.V. 1.301) puts in its most westerly appearance in a Buckinghamshire churchyard.

3.5.23 Cadmore End (Site Number 211)

Dedication: St. Mary-le-Moor
Grid Ref: SU 784926 Height: 187.54m Area: 0.269ha
No. of Species: 104 Index Score: 20.498 (2 spp with I.V. > 1)
No. of Habitats: 5 Geology Category: Sands & Gravels

This little churchyard has been visited regularly by one of its parishioners which has helped to ensure that no species was missed and it is probably recorded as completely as any in the county. Apart from this, however, it is worthy of inclusion in the top 10% as it does have an interesting flora - again of calcifuges. Spergularia rubra (I.V. 1.699) appears only in this churchyard, where it is fully exposed to the morning sun and indicates the heathy nature of the light soil. Hypericum humifusum is a similar indicator species and otherwise is only found at Bow Brickhill (see 3.5.11). Other calcifuges include Galium saxatile, Potentilla erecta and P. sterilis.

3.5.24 Chalfont St. Giles (Site Number 177)

Dedication: St. Giles
Grid Ref: SU 991936 Height: - Area: 0.408ha
No. of Species: 129 Index Score: 20.449
No. of Habitats: 5 Geology Category: Sands & Gravels

A large number of species, none of which is rare, leads to the inclusion of this churchyard in the top 10%. Management varies considerably, with bothshort turf and overgrown areas of tall, grassy vegetation. Different species are found in each area. Add to these the various other good habitats and the species total increases. The highest individual Index Value is .854 for Leontodon taraxacoides - a nice plant to find, but not infrequent in suitable grassland

throughout the county. It is an indicator of an alkaline soil and there are a few other such calcicoles e.g. Daucus carota, Pastinaca sativa, Pimpinella saxifraga, Plantago media and Sanguisorba minor. Some of the calcifuges, typical of so many other churchyards, are also here e.g. Holcus mollis. It is this mixture which leads to the interest of this site.

3.5.25 Holmer Green (Site Number 230)

Dedication: Christ Church
Grid Ref: SU 779159 Height: 173.79m Area: 0.198ha
No. of Species: 90 Index Score: 20.134 (1 sp with I.V. > 1)
No. of Habitats: 4 Geology Category: Clay with Flints

This is another relatively new church, brick-built and with a small churchyard. Three sides are surrounded by a high hawthorn hedge, two with trees. The fourth side is open to a footpath and the parish hall. Where graves are present they are in serried ranks, close together, but with close-mown areas between the rows. Again, it is calcifuges which boost the Index Score: Galium saxatile, Potentilla erecta and Succisa pratensis, but for this part of the county Pimpinella major and Sheradia arvensis are unusual. The main claim to fame for this churchyard, however, is the presence of Alchemilla xanthochlora (I.V. 1.523), always an interesting plant to find in Buckinghamshire.

3.6. The Rare Species

Churchyards which occur in the top 10% are often those which have county-rare species in them, but there are other rare species which are not found in these churchyards or not in them exclusively. In all, 74 of the 397 taxa recorded from churchyards are found in 10% of the county's tetrads or less i.e. have an Index Value of 1.000 or more. A brief review of some of these species follows, the others having been dealt with in section 3.5.

3.6.1 Aira praecox (I.V. 1.399)

This was found only in Coleshill churchyard, one having a lot of other good calcifuges.

3.6.2 Alchemilla filicaulis ssp vestita (I.V. 1.399)

This was found at Dropmore, Ibstone and Tylers Hill. It is a plant found commonly in the north of England in a variety of grassy places but in the south it is distinctly rare. The Tylers Hill site is damp, like most of its other Buckinghamshire sites, but the other two are drier and under trees. This suggests that the plant does not tolerate the drying conditions of the south.

3.6.3 Alchemilla xanthochlora (I.V. 1.523)

Like the previous species, this is much more common in the north of the country but in Buckinghamshire is even less common. It was found in Stowe and Holmer Green churchyards. I have known this plant from gardens in the vicinity of Stowe for some thirty years. Maybe it originated at Stowe or maybe even here it was planted at some time. All of its other county records are from the Chilterns area.

3.6.4 Allium paradoxum (I.V. 2.000)

This is a species introduced from the Caucasus and North Persia, but it is well naturalised in Drayton Beauchamp churchyard where it forms huge carpets of light green foliage, dotted with the white of its flowers at the right time of the year - May.

3.6.5 Allium ursinum (I.V. 1.301)

This is rare in Buckinghamshire owing to the lack of suitable habitats i.e. damp deciduous woods with high humus content and often on calcareous soils (Tutin, 1957). The woods on the chalk are too dry, but it is found in small quantity in Iver churchyard.

3.6.6 Allium vineale (I.V. 1.301)

This is a weed of open, cultivated land, surviving best without

competition on dry, sandy or heavy soils (Richens, 1947). It used to be common, especially in the south of the county but, as its presence in crops tainted the corn, eradication was necessary. It is still found in five churchyards, viz. Farnham Royal, Fulmer, Marlow, Slough and Upton - all in a restricted part of the south of the county.

3.6.7 Anthemis tinctoria (I.V. 2.301)

This is another introduced plant species, coming originally from the continent. It is still to be found naturalised on the railway bank near Hanslope where it was recorded in Druce's day (1926). The one churchyard record, surely of garden origin, is from Ivinghoe.

3.6.8 Asplenium trichomanes (I.V. 1.000)

Of the three wall species of this genus found in the county, this is the least common. It is also the least common on churchyard walls but is found at Ashley Green, Beaconsfield, Burnham, Dorney, East Claydon, Halton, Little Missenden, Long Crendon and Westbury. These are scattered over the county with no apparent link to explain the distribution.

3.6.9 Atropa belladonna (I.V. 1.523)

This is a strongly calcicolous species found only rarely off the chalk in Buckinghamshire. However, it thrives in Tyringham churchyard on the Northamptonshire oolite and is in small quantity at Thornton. This is on the clay, but the church is in the grounds of a convent school. It could be that the plant has survived from the days when the plant was used medicinally - or did the nuns dilate the pupils of their eyes to beautify themselves?

3.6.10 Avena ludoviciana (I.V. 1.399)

Found only at Sherington, this must be considered as a casual.

3.6.11 Brachypodium pinnatum (I.V. 1.699)

This is not nearly as common in Buckinghamshire as in other

counties, where it is very invasive on the chalk. It is unlikely to persist in the soils of the River Gravels at Eton Wick where it was found - an unusual churchyard site.

3.6.12 Bunium bulbocastanum (I.V. 2.699)

See Edlesborough (3.5.12)

3.6.13 Calystegia sepium ssp pulchra (I.V. 2.000)

One is almost inclined to think that this rather beautiful colour subspecies might be planted, but it would be very invasive. It will probably survive at Shenley and Stoke Hammond where it was found.

3.6.14 Campanula glomerata (I.V. 1.097)

This calcicole is quite common in the grassland along the edge of the Chiltern escarpment, but elsewhere it is rare. It is found at West Wycombe and Ellesborough - two of the best churchyards on the chalk.

3.6.15 Carex divulsa (I.V. 1.000)

This interesting sedge was well known from the Chilterns southwards before this survey began but now its range is known to extend northwards as well. Hillesden churchyard is its northernmost known site in the county and Addington and Granborough are also north of the Chilterns. To the south it is recorded from Dorton, Fingest and Ibstone.

3.6.16 Carex muricata ssp lamprocarpa (I.V. 2.000)

Recent nomenclatural changes may mean that this species was misnamed or misidentified prior to the publication of the new edition of 'Sedges of the British Isles' (Jermy, Chater and David, 1982). On one very wet day one large plant was found in Taplow churchyard and identified as this taxon. Unfortunately, on subsequent visits it was not found again so its identity has not been confirmed by a competent referee. However, I believe the record to be accurate.

3.6.17 Cephalanthera damasonium (I.V. 1.000)

This orchid is often found in small quantity in Chiltern beech woods. Leaves were seen in Great Kimble churchyard, but no flowers. However, Mrs. Bletchly (pers. comm.) identified it when in flower. I would like to confirm the identity.

3.6.18 Ceterach officinarum (I.V. 1.339)

An interesting fern found in the walls of churches or their surroundings. Present records are only from Lane End, Penn, Seer Green and Wendover but several years ago it was at Westbury, in the north of the county. The wall where it grew is now overgrown with ivy - one of the places where its growth has been a menace.

3.6.19 Cirsium eriophorum (I.V. 1.301)

The distribution of this splendid thistle is being reduced in Buckinghamshire as the development of Milton Keynes continues. It is one of the few species which does well on the stiff alkaline clays in the north of the county but was recorded only from Old Bradwell churchyard.

3.6.20 Coronopus didymus (I.V. 1.097)

This, introduced plant, is found in Cublington, Hitcham, Prestwood, Slough and Wexham churchyards. It is a species which has not yet spread drastically in Buckinghamshire; its northernmost (and non-churchyard)site is Aylesbury.

3.6.21 Cuscuta epithymum (I.V. 2.000)

See Dropmore (3.5.2)

3.6.22 Cystopteris fragilis (I.V. 2.699)

See Great Missenden (3.5.4) and Penn Street (3.5.6).

3.6.23 Desmazeria rigida (I.V. 1.046)

This species is typical of dry, unshaded, south-facing slopes and walls, particularly where the calcareous content is high (Clark, 1974).

It is surprisingly rare over the county as a whole, most of the records coming from the areas where there are limestone walls. This is its habitat at Castlethorpe, Dinton, Ellesborough, Great Linford, Marlow, Olney and West Wycombe.

3.6.24 Diplotaxis muralis (I.V. 1.301)

See West Wycombe (3.5.1)

3.6.25 Dipsacus pilosus (I.V. 2.000)

One boundary of the churchyard at Ibstone blends imperceptably with the damp edge of a chalk woodland. This species is found here, together with Alchemilla filicaulis ssp vestita.

3.6.26 Equisetum telmateia (I.V. 1.046)

This forms one of the finest green 'walls' that I have ever seen. It is at Saunderton and is obviously managed to keep it in check, but it acts as a good calcifuge indicator.

3.6.27 Erica cinerea (I.V. 2.155)

Heathland is virtually absent from Buckinghamshire so the presence of this species in Dropmore churchyard is a delight. It is present in the surrounding S.S.S.I. in small quantity.

3.6.28 Erinus alpinus (I.V. 2.000)

Fairy-flax is an introduced species which has become established on limestone walls in various parts of the country. In Buckinghamshire it is restricted to five sites, two of which are on walls around the churchyards of Bradenham and Tylers Green.

3.6.29 Erodium cicutarium (I.V. 1.301)

This is another plant of sandy soils (common near the sea) and heaths, so it is not surprising that it is rare in Buckinghamshire, although Druce (1926) had it in more sites than the present survey from which the Index Value was calculated. It was found only in Soulbury churchyard.

3.6.30 Filipendula vulgaris (I.V. 1.301)

This species has two distinct ecological habitats in Buckinghamshire - either on dry, open chalky slopes or in fen-type grassland. At Slapton, where it was found in the churchyard, it was in the latter type of situation. Chater (pers. comm) has suggested that this species may sometimes be planted in churchyards but this did not seem to be the case here.

3.6.31 Foeniculum vulgare (I.V. 1.523)

See Tylers Green (3.5.21)

3.6.32 Galinsoga ciliata (I.V. 1.339)

This is one of the more recent introductions to Britain and is occasionally found as a weed of cultivation. It was found in churchyards at Aston Abbotts and Stony Stratford, but it may not persist there.

3.6.33 Geranium lucidum (I.V. 1.523)

Haddenham has already (see 3.5.16) been mentioned as one churchyard containing this species but it is also at Haversham, Little Hampden and Stewkley. In three cases it grows actually in untended graves where it is probably protected from the management treatment of the areas between the graves. Little Hampden churchyard is not regularly mown and the plant survives close to the church wall.

3.6.34 Geranium pusillum (I.V. 1.523)

The high Index Value for this species is strange, but even with close searching in north Buckinghamshire I seldom find it. It has turned up, however, in five churchyards, viz. Burnham, Eton Wick, Seer Green, Stone and Thornton.

3.6.35 Geranium rotundifolium (I.V. 2.301)

This is a very rare species in the county, but may be under-recorded. However, even Druce found 'the rarity of this species in

Bucks is remarkable.' To have it in two churchyards is good; one is again Haddenham, the other Long Crendon.

3.6.36 Gymnocarpium robertianum (I.V. 2.699)

The only known site in the county for this plant is a buttress of the church at Wooburn. Two plants have survived there for about five years to my knowledge. The fronds are small and appear sterile. In the wild, in the British Isles, the plant is restricted to limestone areas but it has become naturally established in artificial habitats in urban areas (as here), (Jermy et al, 1978). Presumably the mortar used between the fints of the church wall is of the right consistency and content to 'act as limestone.' It is interesting to speculate on its spread, as there are plenty of churches in Buckinghamshire whose construction materials are similar to those at Wooburn.

3.6.37 Hypericum dubium (I.V. 1.222)

This has always been a rare plant in Buckinghamshire, one found mainly in wet ditches and brook sides. Its presence at Water Stratford is interesting.

3.6.38 Hypericum humifusum (I.V. 1.301)

A plant of dry, heathy places is not unexpectedly rare in Buckinghamshire; its only churchyard sites are at Bow Brickhill and Cadmore End.

3.6.39 Impatiens glandulifera (I.V. 1.097)

The occurrence of this species in Buckinghamshire is only as a casual. Its presence at Cholesbury can only be considered transitory.

3.6.40 Jasione montana (I.V. 2.301)

See Bow Brickhill (3.5.11) and The Lee (3.5.13)

3.6.41 Juniperus communis (I.V. 11523)

Bradenham is a churchyard on the chalk that has several distinctly

calcicolous species. This shrub is not common on the Chilterns and is not surviving well. Maybe a churchyard is a good place to encourage its conservation.

3.6.42 Koeleria macrantha (I.V. 1.523)

This plant is virtually confined to open, dry grassland on the chalk i.e. along the edge of the Chilterns. Drayton Beauchamp, where it was found, is at the bottom of the escarpment so a rather surprising site.

3.6.43 Lamium amplexicaule (I.V. 1.301)

This weed of cultivation is more common on the lighter soils of the county, north and south. Despite being an annual it tends to survive in the same area for a long time (e.g. my garden); it is only at Bow Brickhill and Haddenham in churchyards.

3.6.44 Lathyrus latifolius (I.V. 1.301)

Often an escape from cultivation elsewhere in the county, in the five churchyards it may well have persisted from having been planted. It is an interesting inclusion, but of little significance.

3.6.45 Linaria repens (I.V. 1.399)

This beautiful little calcicole is found in a few places in north Buckinghamshire but is more common in the south. It may grow in fairly open grassy places or in walls. Apart from West Wycombe, it is found in churchyards at Beaconsfield, Bradenham and Halton. All of these are on its most favoured substrate - chalk.

3.6.46 Medicago arabica (I.V. 2.000)

See Eton Wick (3.5.20)

3.6.47 Mercurialis annua (I.V. 1.399)

Another ephemeral weed of waste places, mostly on the lighter soils of the south of the county. It grows between graves or paving slabs at Eton, Eton Wick and West Wycombe.

3.6.48 Montia perfoliata (I.V. 1.699)

An odd little plant, introduced, but surviving well in sandy soils and possibly spreading. As these soils are so infrequent in Buckinghamshire so is the distribution of this plant. It is in the churchyards at Gerrards Cross, Great Brickhill and Stoke Poges.

3.6.49 Montia sibirica (I.V. 2.000)

Brill is the only churchyard where this introduced plant is to be found.

3.6.50 Myosotis ramosissima (I.V. 1.399)

A very early-flowering forget-me-not which grows in the dry, heathy soils which are so uncommon in Buckinghamshire. It grows in the short turf of Horton and Long Crendon churchyards.

3.6.51 Ornithopus perpusillus (I.V. 1.699)

See Bow Brickhill (3.5.11)

3.6.52 Papaver lecoqii (I.V. 1.000)

In Buckinghamshire this plant has been shown to be more common than Druce believed. Like so many of the poppies, it grows best in recently disturbed soils and is quite at home on the heavy clay. It is found in five churchyards, viz. Aston Clinton, Cublington, Kingsey, Slapton and Weston Turville.

3.6.53 Parietaria judaica (I.V. 1.046)

This is one of the few species whose frequency in churchyards is greater than its frequency over the county as a whole: 11% of the churchyards have it, whereas it is found in only 9% of the tetrads. There are plenty of walls in and around churchyards which provide suitable habitats so maybe it could be expected to occur in more than 25 sites. It seems to show no preferences, for it is scattered over all parts of the county.

3.6.54 Poa compressa (I.V. 1.222)

This is another wall species, often found along the tops, especially if they are made of limestone. Because of this, it is commoner in the north of the county and is found at Little Kimble, Newport Pagnell, Olney, Ravenstone, Simpson, Wendover and Worminghall.

3.6.55 Polygala serpyllifolia (I.V. 2.000)

This is the calcifuge milkwort, so its rarity is to be expected. It was seen only at Gerrards Cross.

3.6.56 Polygonum bistorta (I.V. 2.000)

A plant usually associated with wet meadows, particularly in northern and western Britain, its presence in Great Hampden churchyard appears to be natural. It forms large patches and survives the occasional mowing. I have not seen it in flower, nor yet in the adjacent meadows, so the churchyard seems to be its vegetative refuge.

3.6.57 Polypodium vulgare (I.V. 1.097)

Ten churchyard walls support this species. They are in all parts of the county, so where local conditions are suitable this species could be expected to survive.

3.6.58 Polystichum setiferum (I.V. 1.699)

The plants in Emberton churchyard would undoubtedly have been planted in the first place, but may have increased.

3.6.59 Potentilla anglica (I.V. 1.301)

Found in eleven churchyards in the south, this interesting plant is usually found in heathy areas. It is considered here as being typical of acid soils. (see 2.2.1)

3.6.60 Ranunculus arvensis (I.V. 1.097)

This is a cornfield weed whose frequency must have decreased dramatically since clean seed and weed-killers have been used

for crops. It occasionally appears in light soil sites in the county but, being an annual, it rarely survives for long. Its presence at The Lee may well be a one-off occasion.

3.6.61 Rumex pulcher (I.V. 1.699)

Since the churchyard survey began, this is one species in the county whose distribution has been shown to be more widespread than was originally thought. It has now been found in 16 churchyards (one more, in fact, than is shown in the results as it was found after they were compiled), whereas up to 1983, its county distribution was restricted to 9 tetrads, some without churchyards. Its presence in churchyards is commented on by Lousley and Kent (1981) as are the facts that it is most plentiful where soil has been disturbed and where it is sandy or chalky. Churchyards on the oolitic limestone to the north of the River Ouse are those where it is most frequent.

3.6.62 Saxifraga granulata (I.V. 1.699)

I suspect that this is another species much reduced in its distribution since Druce's day, mainly due to changes in agricultural practices, particularly drainage. The three churchyards where it has been seen are Bow Brickhill, Great Brickhill and Old Linslade - all on the Lower Greensand. It is strangely missing from Little Brickhill which lies between Bow and Great. During 1984 it was found in a riverside meadow just off the greensand.

3.6.63 Saxifraga tridactylites (I.V. 1.699)

This is one of the few species more common in the north of the county than in the south, as it grows well on the walls made from oolitic limestone. All the villages on that substrate seem to have it, as do their churchyards. It was found at Clifton Reynes, Cold Brayfield, Lavendon, Newton Blossomville, Olney, Ravenstone and Weston Underwood.

3.6.64 Solidago virgaurea (I.V. 2.000)

This very rare species is found in only one churchyard, Dropmore, where it is prolific and surviving well. Hopefully it will remain, if encroaching gorse and bramble are not allowed to choke it.

3.6.65 Spergularia rubra (I.V. 1.699)

See Cadmore End (3.5.23)

3.6.66 Symphytum orientale (I.V. 1.699)

Some of the villages along the Ouse valley have this species and it is in the churchyards of Milton Keynes, Ravenstone, Willen and Clifton Reynes. The plant is not native, but it does not seem big enough to have been used as a 'pot herb' like some of the other comfreys.

3.6.67 Taraxacum laevigatum (I.V. 1.523)

I suspect this may well be under-recorded for the county and has been seen only in Halton churchyard.

3.6.68 Teucrium scorodonia (I.V. 1.097)

This species has been recorded from only three of the acid-soil churchyards i.e. Dropmore, Gerrards Cross and Penn Street, all of which are, not surprisingly, in the top 10%.

3.6.69 Trifolium medium (I.V. 1.000)

This plant has a disjointed distribution over much of the county. Similarly, there seems to be little to link the five churchyards where it is found: Beachampton, Granborough, Leckhampstead, Penn Street and Ravenstone.

3.6.70 Trifolium micranthum (I.V. 1.523)

See Penn (3.5.9)

3.6.71 Ulex minor (I.V. 1.699)

See Dropmore (3.5.2)

3.6.72 Viscum album (I.V. 1.155)

Mistletoe parasitises a variety of trees in the south of the county but was found only in Bradenham churchyard.

3.6.73 Vulpia ciliata ssp ambigua (I.V. 2.699)

The identity of this taxon was confirmed for me by the late C.E. Hubbard (pers.comm) when I first discovered it on a limestone wall in Olney in June 1977; it still grows there. How long it had been there I do not know, nor do I know how long it has been on a similar wall around Weston Underwood churchyard. It was well established when I saw it in August 1984. Normally a rare plant of coastal sands and inland heathy places in southern and eastern England, its presence in Buckinghamshire is a great surprise, especially as it is growing on limestone! Fortunately the walls are not likely to be cleaned,so it should persist. Maybe this is another species that might even spread (see 6.1.43); there are plenty of similar walls in north Buckinghamshire.

3.6.74 Vulpia myuros (I.V. 1.523)

See Great Missenden (3.5.4)

3.7 Other Species

The frequencies of all species in churchyards and in the county are shown in Appendix IV, together with their Index Values. Some categories of plants are selected from these lists.

3.7.1 The Common Species

At the opposite end of the scale to the rare species are those which are commonly found. These are considered to be in 91% of the county's tetrads or more and have an Index Value of .041 or less. There are 48 of them. Of these, 18 are also found in more than 90% of the county's churchyards. All are amongst the most common plants

nationally and are found in a wide range of situations, viz:

Achillea millefolium	Holcus lanatus
Anthriscus sylvestris	Lamium album
Arrhenatherum elatius	Plantago lanceolata
Bellis perennis	Poa annua
Dactylis glomerata	Ranunculus repens
Festuca rubra	Sambucus nigra
Galium aparine	Taraxacum officinale
Glechoma hederacea	Trifolium repens
Hedera helix	Urtica dioica

Two other species, Rumex acetosa and Veronica chamaedrys, are also found in more than 90% of the churchyards and almost as many county tetrads, viz: 92% & 90%, and 99% & 89% respectively.

Of the other 30 species which are common in the county, 6 are distinctly infrequent in churchyards, viz:

	% Frequency	
	Churchyard	County
Acer campestre	11	94
Epilobium hirsutum	34	92
Matricaria matricarioides	16	96
Polygonum aviculare	30	95
Prunus spinosa	8	93
Rumex crispus	28	92

Five other species are less common, viz:

Alliaria petiolata	64	96
Chamerion angustifolium	56	92
Elymus repens	61	91
Ranunculus acris	45	93
Stachys sylvatica	61	97

Most of the other 19 species are not really so uncommon in churchyards either, viz:

Arum maculatum	78	93
Capsella bursa-pastoris	77	97
Cerastium fontanum	79	96
Cirsium arvense	73	98
Cirsium vulgare	84	97
Convolvulus arvensis	73	92
Crataegus monogyna	73	99
Heracleum sphondylium	83	99
Lapsana communis	77	94
Lolium perenne ssp perenne	84	97
Medicago lupulina	71	94
Plantago major	76	98
Potentilla reptans	81	97
Rumex obtusifolius	80	97
Senecio vulgaris	90	95

	% Frequency	
	Churchyard	County
Solanum dulcamara	84	98
Sonchus asper	76	92
Stellaria media	89	98
Trifolium pratense	79	97

3.7.2 Anomalous Species

A few species are more frequent in churchyards than they are in the county as a whole. Two of these are woody plants which are often associated with churchyards, viz:

	% Frequency	
	Churchyard	County
Ilex aquifolium	80	66
Taxus baccata	86	52

The others (though few are grasses), are often associated with the grass sward, viz:

Cardamine hirsuta	76	59
Cardamine pratensis	69	62
Crepis capillaris	86	79
Festuca rubra	97	95
Luzula campestris	47	45
Parietaria judaica	25	11
Primula vulgaris	61	53
Ranunculus ficaria	89	84
Sagina procumbens	72	63
Veronica chamaedrys	99	89
Veronica filiformis	53	43
Veronica hederifolia	68	64

There are species whose distribution in churchyards more or less coincides with their tetrad distribution, viz:

Arabidopsis thaliana	29	31
Campanula rotundifolia	17	19
Epilobium ciliatum	61	63
Linaria repens	2	4
Luzula campestris	47	45
Pimpinella saxifraga	61	60
Symphytum orientale	2	2
Veronica agrestis	18	18
Viola odorata	63	64

However, by far the greater proportion of species are less frequent in churchyards than in the county (see Figures 3 and 4), e.g.

Agrimonia eupatoria	9	79
Arctium minus	20	85
Cynosurus cristatus	10	77
Lathyrus pratensis	24	89
Lotus corniculatus	39	88

	% Frequency	
	Churchyard	County
Phleum pratense	23	90
Potentilla anserina	3	88
Sonchus arvensis	20	85
Tamus communis	17	85

PART 4

DISCUSSION

4.1 Introduction

The transition from purely descriptive ecology to that including numerical data was rather slow in Britain, much of the early quantitative work being carried out by ecologists on the mainland of the European continent. On the other hand the development of mapping techniques to show the distribution of species owes much to the mammoth task which produced the 'Atlas of the British Flora' (Perring and Walters, 1962) and to the innovation of tetrad maps in 'The Flora of Hertfordshire' (Dony, 1967). Since then several local Floras have included such maps and in the 'Atlas of the Kent Flora' (Philp, 1982) the number of tetrads in which a species is recorded is also noted. The use of these 'dot maps' would make the calculation of Index Values, as outlined earlier (see 2.2.3), possible; their calculation from the tetrad totals already published would make the calculations even easier. Having got these Index Values, assessment of any site could then be made by calculating the Index Score. Compared to other methods of assessment (see 1.1) this will give an immediate floristic value to a site which can then be compared to any other site within the county. It is, at present, not possible to use the method for comparing sites of the same type within different counties.

4.2 Methods of Assessment

As the aim of the project was to determine which are floristically the 10% best churchyards in Buckinghamshire it was necessary (a) to assess all sites and (b) to devise a method which could be used to compare the sites. All sites in the county were visited and the Index Values for species and Index Scores for sites were devised and used as a basis for making comparisons.

It seemed necessary to try to be as objective as possible, hence the setting up of a numerical scale for species and the standardising of visits. The formula $\text{Log}\left(\frac{100}{\%\text{ occurrence of sp in county}}\right)$ (see 2.2.3) was simple to apply once the percentage occurrence of species in the county's tetrads had been established. Fortunately, because of recent, as yet unpublished work, these values were readily available. To make the Index Values meaningful (to scientists and non-scientists alike) the formula gives numbers of low value i.e. 0 to 3, although decimals are also used. It seemed appropriate that common plants should have low values and rare plants relatively high ones, and also that the rarity value should be emphasised. This means that churchyards with rare species received weighting for these species. Hence, the form of the formula. Conservation should not involve just rare species, but if they are found in association with others in an assemblage, then people are often more inclined to 'save the rarity.' Obviously this will mean conserving the whole assemblage, so by adding together the Index Values an Index Score (for the assemblage or site) is reached. Again, the highest Scores will indicate the best sites over all, i.e. those of greatest value for conservation.

In 'A Nature Conservation Review' (Ratcliffe, 1977) the difficulty of assessing sites for conservation purposes is highlighted. Before 1965, sites of national importance were recommended by those with experience; after that date it became necessary to explain why areas were important before recommendations were made. Because of the difficulties, a series of ten criteria for site assessment were established (Size, Diversity, Naturalness, Rarity, Fragility, Typicalness, Recorded history, Position in an ecological/geographical unit, Potential value and Intrinsic appeal), the first five being considered the most important.

Considering some of these criteria, the methods of assessment established in this project come out highly in some respects, viz:

(a) They consider the vegetational component of the ecosystem.

(b) Species richness is a factor of relative and not absolute importance.

(c) The diversity of habitats at the site is taken into account as their number affects species diversity and hence influence the Index Score (see 3.3.2).

(d) The area of the site shows a marked tendency to affect species number (see 3.3.3) so the Index Score is affected by this criterion.

(e) Individual rare species are a bonus, but even one rare species will give a higher value to a site than to another comparable site with no rarities. (The tetrad method of assessment of rarity in a county, as used here, compares favourably with the national method of assessment using 10Km squares - as used in the preparation of the 'Red Data Book' for example.)

The criterion of 'naturalness' does not change the assessment very much, as no churchyard can be considered very natural; all are liable to human activity.

However, even with the criteria set out, site assessment is still considered complex. It is said, "the manner of judgement is an art rather than a science." (Ratcliffe, 1977)

A method of site assessment used in Holland (Mennema, 1973) was explored in an attempt to make a more scientific judgement. Here, an evaluation of the vegetation of parts of the valley of the River Merkske was made, based on all vascular species present in each square kilometre. In Holland all such plants have been allocated to a sociological-ecological group and a frequency category so, by using appropriate formulae, floristic values for species present and for the

the squares themselves can be calculated. The ideas of giving numerical values to species and churchyards were, in part, taken from this work. However, since to the author's knowledge no such species grouping and frequencies are available for the British Isles, the calculations used here are more simple and do not involve an ecological element. As mentioned above, the Index Values and Index Scores relate specifically to Buckinghamshire. Comparable values could be calculated for the British Isles, using the data available in the 'Atlas of the British Flora', but again, no ecological significance would be implied.

4.3 Factors Affecting Index Scores

Whilst the Index Scores give a floristic value to a site it is obvious that the presence of the plants required to realise this value is controlled by a number of factors. These are now discussed.

4.3.1 Geology

The presence of different geological strata within the county seems to have a very important effect on the distribution of plants. As is clearly shown in Sections1.2.3 and 3.3.1, most of Buckinghamshire has a calcareous solid geology and these rocks are often overlain by alkaline drift. It is well known that grassland developed on calcareous soils is species-rich, because of the high levels of available, free Ca^{2+} ions, high organic content and also a deficiency of N, P and K. This deficiency limits growth and competitive power, especially of grasses, so a wide range of forbs grows. Churchyards on chalk and, to a lesser extent the oolitic limestone and cornbrash, thus tend to be species-rich.

Where the chalk is overlain by clay with flints, or glacial gravels and sands, the effect of the chalk is reduced. In fact, if the clay with flints is very thick then acid heaths may develop. This is illustrated by the flora of some of the churchyards on this substrate.

It is only in parts of south Buckinghamshire that glacial gravels and sands overlie chalk, but as they tend to have been derived from acid rocks their effect is significant.

If the sites of individual villages are considered it is often found that they, and the churches in particular, are on well-defined areas, often above the surrounding land. It could mean that there are micro-geological differences between site and surroundings, but the geology has been defined as accurately as available maps allow.

The geological factor appears to be important in determining the Index Scores of the churchyards. To test how important, one of the geological categories (i.e. sands & gravels) was taken, and just the sites on the Lower Greensand examined. This rock forms the scarp of the Brickhills in the north-east of the county and a few small outliers occur above the Portland and Purbeck beds further west. Altogether it is found in 17 tetrads. Churchyards found on the Lower Greensand are at Bow Brickhill, Little Brickhill, Great Brickhill, Old Linslade and Brill.

The same calculation procedures as for the whole county were repeated. The species found in the five churchyards were listed, their percentage occurrence in the 17 tetrads found and new Index Values (called Greensand Index Values = G.I.V) calculated. From these, new Index Scores (called Greensand Index Scores = G.I.S) for each site were determined. 31 species were present in all 17 tetrads so contributed nothing to the Greensand Index Scores. The results are tabulated below and overleaf:

	I.S.	No.of Spp contributing to I.S.	Mean I.V.
Bow Brickhill	23.042	90	.256
Little Brickhill	8.841	62	.143
Great Brickhill	13.958	75	.186
Old Linslade	11.591	76	.153
Brill	11.866	91	.130

	G.I.S.	No.of Spp contributing to G.I.S.	Mean G.I.V.
Bow Brickhill	15.479	68	.228
Little Brickhill	6.499	47	.138
Great Brickhill	9.654	56	.172
Old Linslade	8.739	53	.165
Brill	10.333	67	.154

Bow Brickhill churchyard is the best churchyard on the lower greensand, both in the context of the whole county and for that geological category. If the mean Index Values and Greensand Index Values are compared, then an 11% decrease at this site shows that it contains a high proportion of plants typical of the lower greensand and, because of the high mean Values a number of plants which are rare, even on the lower greensand. Conversely, it can be shown that Little Brickhill is the 'worst' of this group of churchyards. The churchyard showing the greatest change in rank order is Brill. It has 13 species found only at this site, one of which is Montia sibirica and, as it is county-rare and lower greensand-rare, probably accounts for most of the difference.

From this example it may be concluded that (as the rank order of churchyards is more or less unchanged, and that the best churchyard on a county-basis is still the best amongst the lower greensand group), although the flora varies in composition according to the local geology its diversity and the content of rare species is less dependent on that geology.

4.3.2 Habitats

The B.S.B.I. Project-recording form lists ten habitats. The number of these occurring in each churchyard is given in the results (see 3.3.2) and it has been shown that, as habitat diversity increases, the number of species increases, thus affecting the Index Score for a particular churchyard. The range of habitats is often limited and this may help to explain why some species common throughout the

county are distinctly not so in churchyards, e.g.

Species	Index Value	% in Churchyards	
Corylus avellana	.081	16	from woodland
Festuca gigantea	.143	32	
Epilobium hirsutum	.036	34	from wetland
Filipendula ulmaria	.155	3	
Juncus effusus	.149	<1	
Anagallis arvensis	.137	11	as weeds
Equisetum arvense	.144	6	

Each habitat will be considered, to show how it might influence the flora.

4.3.2.1 Grassland

This habitat is present in all churchyards, usually forming the largest component of the area. Buckinghamshire is a lowland county and so its grasslands (together with their heaths and scrub) can be defined as an "anthropogenic complex of plant communities characteristic of well-drained to damp soils at low levels, where recent land-use has been mainly limited by grazing." (Ratcliffe, 1977) 'Grazing' is perhaps not appropriate for all churchyards (see 4.2.3) but the sub-climax (or plagioclimax) vegetation would quickly revert to scrub and eventually to woodland if left and not maintained by human intervention.

Most lowland grasslands are found on basic soils (of which there are plenty in Buckinghamshire) and, on the drier soils where the churchyards are found, may be further classified as:

(a) calcareous grassland (with a pH value of 6.5 to 8.0);
(b) neutral grassland (with a pH value of 5.5 to 7.0)
    (i) calcareous clay pastures,
    (ii) calcareous loam pastures,
    (iii) dry meadow,
    (iv) alluvial meadows.

Each of these groups has its constant species i.e. is a typical phytosociological unit, but a churchyard is seldom left undisturbed,

so none has all the characteristic species for any of the categories listed on the previous page. Good examples, however, from each category may be found in Buckinghamshire, e.g.

(a) West Wycombe;

(b) (i) The Lee,
(ii) Chalfont St. Giles,
(iii) Quainton,
(iv) Medmenham.

With the neutral grasslands particularly, the various types are determined by a number of factors including water regime, soil-type and management. Whether the turf is used as a pasture (i.e. for grazing) or as a meadow (i.e. for cutting for hay) has a considerable effect on the species present. A list of common grasses found in grazed turf has been drawn up (Proctor, 1981) and the occurrences of these plants in Buckinghamshire as a whole and in its churchyards is given below:

Species	Index Value	% in Churchyards
Dactylis glomerata	.009	97
Festuca rubra	.022	97
Holcus lanatus	.009	94
Lolium perenne ssp perenne	.013	84
Poa pratensis	.086	71
Poa trivialis	.051	71
Anthoxanthum odoratum	.167	33
Agrostis capillaris	.194	24
Phleum pratense	.046	23
Bromus hordeaceus	.097	13
Cynosurus cristatus	.114	10

It is interesting to note that those species which are the commonest in churchyards are also those which have low Index Values. The low occurrence of Cynosurus cristatus is surprising; it may have been overlooked in the field (? on how many occasions), but this cannot be the only reason for its absence from the lists.

A second list, of broad-leaved dicotyledonous plants, for the same turf is also given by Proctor. Again, it is interesting to note the

close correlation between distribution in the county and in the churchyards, and the high frequencies in both.

Species	Index Value	% in Churchyards
Trifolium repens	.004	98
Taraxacum officinale	.004	96
Bellis perennis	.009	95
Plantago lanceolata	.009	95
Achillea millefolium	.009	94
Rumex acetosa	.046	92
Cerastium fontana	.018	79
Plantago major	.009	76
Cirsium arvense	.009	73
Ranunculus acris	.031	45
Trifolium dubium	.119	39

Meadows have other species, many of which could not survive the grazing pressures of a pasture. The lists of these given by Proctor do not fit the churchyard pattern as closely as the previous lists; four species hardly seem to survive in Buckinghamshire churchyards, viz:

Species	Index Value	% in Churchyards
Arrhenatherum elatius	.013	94
Alopecurus pratensis	.046	76
Anthriscus sylvestris	.004	97
Heracleum sphondylium	.004	83
Leucanthemum vulgare	.102	69
Centaurea nigra	.076	51
Lathyrus pratensis	.051	24
Vicia sepium	.268	17
Knautia arvensis	.328	6
Geranium pratense	.602	5
Vicia cracca	.187	2
Pastinaca sativa	.538	1

It seems, then that the churchyard turf must be likened more to grazed grassland, although some meadow species are often present.

In neutral grasslands outside churchyards those with a low pH value (i.e. c.5.5) often have Conopodium majus, Deschampsia cespitosa, Hypochaeris radicata, Lathyrus pratensis, Ononis repens and Rumex acetosa associated with them. Penn Street is the only churchyard with Ononis repens but it does have all the other indicator species

except Deschampsia cespitosa. Other churchyards with this type of turf are at Ashley Green and Lacey Green.

Those grasslands with a higher pH value (i.e. c.7.0) often have Centaurea scabiosa, Filipendula vulgaris, Leontodon hispidus, Pimpinella major, Primula veris and Sanguisorba minor. This assemblage occurs in no churchyard. In fact, the maximum number in any one churchyard is two. This is surprising in view of the fact that so much of the county is basic. Some of the species are distinctly rare: Filipendula vulgaris is at Slapton only and Pimpinella major is at Hazlemere, Holmer Green and Soulbury only. Leontodon hispidus, on the other hand, is in 62% (143) of the churchyards.

Although there are fewer churchyards in the county with lower pH values they do seem to have more typical grasslands. The range of churchyards on soils with a higher pH value is great and the grassland is more variable in its composition.

Neutral grasslands were once one of the most widespread and extensive meadow types but, because of farming changes and the addition of manures and fertilisers, the nutrient status has changed and they are now largely gone. They are probably the most threatened of all British habitats but also the most neglected (Ratcliffe, 1977). Often, of course, they are lost completely by ploughing and re-seeding, especially with varieties of Lolium perenne.

If land with acid soils is deforested and not recently cultivated, then dwarf-shrub heath develops, with calcifuge or acid-tolerant species. This type of habitat is rare in Buckinghamshire but the churchyards at Bow Brickhill and Dropmore are good examples where some of the grassland is changing to heath.

4.3.2.2 Scrub

In natural habitats scrub is often a transitory stage in the seral development to woodland and is dependent for its development on the absence of grazing. Under normal management conditions in a churchyard the scrub stage is not allowed to develop, but if a hedge forms a boundary it often has those species which would take the opportunity to colonise if management ceased, e.g.

Species	Index Value	% in Churchyards
Sambucus nigra	.009	97
Crataegus monogyna	.004	73
Corylus avellana	.081	16
Ligustrum vulgare	.149	15
Acer campestre	.027	11
Cornus sanguinea	.091	10
Prunus spinosa	.031	8
Euonymus europaeus	.456	3

The herbaceous plants associated with the woody plants may be residual species of the original grassland or may be colonists which find the conditions favourable. Such plants include:

Species	Index Value	% in Churchyards
Urtica dioica	.004	98
Galium aparine	.004	95
Glechoma hederacea	.013	94
Arum maculatum	.031	78
Stachys sylvatica	.013	61
Geum urbanum	.056	59
Brachypodium sylvaticum	.046	42
Ajuga reptans	.244	25
Galium mollugo	.276	23
Arctium minus	.071	20
Circaea lutetiana	.237	15
Mercurialis perennis	.208	13
Agrimonia eupatoria	.102	9
Origanum vulgare	.602	8
Clinopodium vulgare	.377	6
Teucrium scorodonia	1.097	1

As can be seen, some of the county's commonest plants occur in this list and several are abundant in churchyards. These are the species not only associated with scrub development but also ones often found in disturbed ground where there is little competition. It is

interesting to note that those species with more specialised requirements are less frequent both in the county and in the churchyards.

The other plants which are associated with the scrub are the climbers, particularly Bryonia dioica, Clematis vitalba and Tamus communis.

4.3.2.3 Woodland

The climax vegetation for the whole of Buckinghamshire would be woodland but no churchyard is big enough or neglected enough to have developed into a woodland. However, there are herbaceous species characteristic of such a habitat and several of these are found in churchyards. The presence of hedgerows may also provide sufficient shelter for such herbaceous plants, e.g.

Species	Index Value	% in Churchyards
Primula vulgaris	.276	61
Hyacinthoides nonscripta	.215	34
Carex sylvatica	.387	8
Moehringia trinervia	.310	7
Anemone nemorosa	.620	4
Oxalis acetosella	.469	4
Poa nemoralis	.469	2
Viola reichenbachiana	.721	2
Lamiastrum galeobdolon	.481	1
Hordelymus europaeus	.959	<1

The high frequency of primroses and bluebells may well be because of planting at some sites and because they can also survive in more open sites. It is remarkable how uncommon are all the other species.

4.3.2.4 Ponds

No churchyard encloses a pond, though a few, such as Hardmead, Little Marlow and Horsenden, have them as part of a boundary. This means that no true aquatics have been recorded and the number of marginal plants is minimal from these few sites: e.g. Carex riparia (1 site), Galium palustre (3 sites), Glyceria maxima (2 sites), Phalaris arundinacea (2 sites) and Pulicaria dysenterica (1 site).

4.3.2.5 Marsh

As with the previous habitat, very few churchyards have wet areas within them, so again the number of typical plants is very few and the number of sites small: e.g. Carex hirta (6 sites, not all wet), Cirsium palustre (5 sites), Filipendula ulmaria (7 sites), Lotus uliginosus (5 sites) and Rumex conglomeratus (6 sites). Consequently, neither of these habitats can be considered important for conservation in Buckinghamshire churchyards; there are plenty of ponds and marshes elsewhere in the county.

4.3.2.6 Tombstones

All of the Buckinghamshire churchyards have some graves in them but, associated with the more labour-saving management of mowing, they are not always in situ all over the area. It is a time-consuming occupation to keep churchyards mown as regularly as some incumbents would wish. In their wisdom, or otherwise, one presumes the Parochial Church Councils have authorised the removal of some of the stones and prevented the erection of others. Where churchyards are supplemented by other burial grounds the older tombstones may have been removed; the head stones are then frequently lined up somewhere: around the periphery of the churchyard, along path edges or up against the church wall. Sometimes only the kerb stones of the tombs are removed, leaving head and foot stones, whilst there are examples of head stones alone being left.

The wholesale removal has the most deleterious effect on the flora, as the flattening of the area allows frequent, low-level mowing. This reduces species diversity. This diversity is proportionally increased as amount of removal is decreased. The areas enclosed by the tombstones themselves are, of course, very variable: those with concrete bases being useless for plant growth, but various gravel

and soil infills give a variety of habitats - and hence another chance of increasing species diversity.

The churchyard at Winslow is an excellent example of wholesale removal of tombs; all of the head stones now forming a peripheral wall. Only 67 species have been recorded, with an Index Score of 7.543 i.e. even below the mean of 7.998 for a churchyard on clay. Where the tombs are left then occasionally unusual species, like Geranium lucidum at Haddenham and Stewkley, may be found.

4.3.2.7 Paths

Sometimes the paths are just well-mown tracks through the churchyard, when their flora is little different from the surrounding grassland. Sometimes they are metalled or paved in some way (e.g. bricks, slabs, cobbles or even old tombstones) but commonly they are gravelled. Each offers a variety of micro-habitats which are often frequented early in the year by annuals such as Arabidopsis thaliana or Erophila verna, whereas later the cracks may support Capsella bursa-pastoris, Matricaria matricarioides and Senecio vulgaris. One species almost restricted to this habitat is Sagina procumbens, occurring in 72% of the churchyards and in many it will be close to the doors or porches most frequently used!

4.3.2.8 Walls

These are splendid sites for some of the most unusual plants of Buckinghamshire churchyards. The variety of building materials makes them interesting, though it is the spaces between them which accommodate the plants. Mortar is alkaline and 'soil' accumulating may be made more so if the wall itself is of limestone. Saxifraga tridactylites is perhaps the best example of a species restricted to limestone walls, but others found are Desmazeria rigida, Poa compressa and Sedum acre. Vulpia ciliata ssp ambigua has one of its two county sites on a wall around Weston Underwood churchyard. The flint walls, more common

in the south of the county, also have their rarities e.g. Gymnocarpium robertianum has its only county site on Wooburnchurch wall, whilst Erinus alpinus is on two similar walls around the churchyards of Bradenham and Tylers Hill. More frequent in churchyards than in the county as a whole is Parietaria judaica, aptly named Pellitory-of-the-wall.

A group of plants particularly associated with walls and, for Buckinghamshire, well represented in churchyards are the ferns Asplenium adiantum-nigrum, A. ruta-muraria, A. trichomanes, Ceterach officinarum, Phyllitis scolopendrium and Polypodium vulgare. They seem to survive on a variety of substrates so it may well be other factors (e.g. low rainfall, low humidity) which restrict their distribution elsewhere in the county.

4.3.3 Management

One of the characteristics of churchyards which makes them unusual is that they are managed. This management affects the plants growing and surviving and is probably second in importance for determining the plants found (see 4.2.1).

Mowing is undoubtedly the most frequently applied management technique, all churchyards being cut at some time during the year. The frequency varies greatly and the whole churchyard may not be treated in the same way. Weekly mowings throughout the grass-growing season with low-set blades are the most drastic, and some sites look like bowling greens. These may become species-poor as the growing points of plants are removed. If the blades of the mowers are not too low, more species will survive and if the mowing season is restricted this too may help to maintain species variety. Mechanical mowers can seldom reach all corners, so areas around the periphery of the churchyards and tombs may survive to increase floristic variety. Hand clipping around graves may remove some of these plants, but often such

treatment occurs only if regular mowing is not carried out. Francesca Greenoak has recently (September, 1985) published 'God's Acre' and in November told of management of part of Wiggington (Hertfordshire) churchyard. One part had been mown weekly for eight consecutive summers and the turf kept short. The next year, the man responsible for the mowing became ill and the regular mowing ceased: plants of the sward grew. Apart from the grasses a number of forbs flowered, including a fine display of Cardamine pratensis. From this, it seems likely that mowing does not necessarily kill all the forbs but does prevent them from flowering; the mower-blade setting must be important.

At the other extreme from very regular mowing is where just one or two cuttings take place in a year. This is probably worse for the floristic variety as a few species tend to grow vigorously at the expense of others. Anthriscus sylvestris can be very invasive if allowed to flourish! Small herbs are unable to compete, particularly for light, and so are lost from the flora. Neglect is as bad for the flora as is an over-zealous mowing team.

One species which probably owes its spread to mowing management (not just in churchyards) is Veronica filiformis. This is a plant introduced into this country from the Caucasus, where it is relatively rare. In short, mown turf in this country it has rapidly spread, since short pieces of stem with nodes grow freely and are dispersed by the mowing process (Salisbury, 1961). Often the fragments grow along the lines of regular mowing which may then be picked out in blue when the plants flower.

Before churchyards were mown mechanichally sheep were often used to keep down the grass. This was not always popular with the parishioners but some vertical wooden tombs (or sheep boards) are still to be found in some churchyards and it is popularly believed that they indicate

that sheep had been present. Stoke Poges and The Lee both have several. During this survey only at three sites have animals been seen as part of the management plan. At Hughenden an area of the churchyard is fenced off and a few sheep are free to roam. They are helping to maintain a short turf, though the Index Score for the churchyard of 14.871 is well below the mean value for churchyards on the chalk of 15.695.

Similarly, at Tingewick the Index Score of 6.677 is below the mean value for churchyards on the clay of 7.998. Here, the churchyard is mown infrequently and on my 1983 visit two tethered goats were attacking the vegetation. Their efforts were erratic and not very effective. Examination on a visit in the succeeding year did not reveal any lasting effect on the vegetation.

In 1984 one goat was tethered in the tiny churchyard at Grove.

To draw conclusions from so few examples is dangerous, but animal grazing by these two species does not seem to have been to the floristic advantage of these churchyards.

Disturbance of parts of a churchyard may still occur for interment purposes. Cultivation activities are similar and exposed soil is an invitation for weeds to appear. The high frequencies of Euphorbia peplus (in 64% of the churchyards), Lamium purpureum (73%), Poa annua (97%), Senecio vulgaris (90%), Stellaria media (89%) and Veronica persica (47%) are evidence of this.

To counteract the unwanted growth of plants, further management may be necessary, e.g. hedge trimming, hoeing, herbicides. As an innovation, widespread use of weedkillers seems to be little in evidence. Their use seems to be restricted to pathways, though occasionally a strip around the base of the church walls is treated. The overall loss to the flora is probably not great, although if they are applied early in the

spring to gravelly paths, plants such as Arabidopsis thaliana and Erophila verna may be lost. More persistent species such as Poa annua and Matricaria matricarioides, may be killed on paths but they usually manage to find another niche in the churchyard in which to survive. It is likely that the widespread use of herbicides in a churchyard could create more problems than it solved, for the most noxious weeds, like thistles and nettles, are least affected by many weed-killers.

Where walls form the boundary to the churchyard they may sometimes be 'tidied up'. Fortunately too much of this does not take place, but if, for example, Hedera helix becomes rampant, it may have to be removed. At Leckhampstead a limestone wall was so overgrown by ivy that its removal caused considerable damage to the wall, and possibly the loss of interesting species. Removal of plants from the church fabric may, of course, be necessary for its safe and weatherproof maintenance.

A few species need special mention, their occurrence perhaps reflecting past or present management regimes, or some other factor. For example, in the short turf the abundance of Cardamine pratensis (in 69% of the churchyards) was surprising. Even in relatively dry churchyards, plants were often found, especially in the shady (and often moist) corner formed by the north wall of the church and the east wall of the north porch. If such a porch was absent, so often was the Cardamine, although this may not necessarily be the only reason for its absence e.g. tombs are sometimes in this position. Luzula campestris is another species which has a more frequent distribution in churchyards than in the county as a whole (47% v 45%) and in many tetrads in the north I suspect the churchyard is the only site where it survives. Lack of competition in the short turf is to its advantage.

Cardamine hirsuta has a much higher frequency inchurchyards than in

the county (76% v 59%). It is a weed with explosive fruits which seem able to exploit the nooks and crannies of graves, walls etc. in a churchyard and to flourish. It is likely that it has recently become more abundant in churchyards owing to the increasing numbers of plants which have been brought into them from nurseries and garden centres - other places where this species is very abundant.

The overall management of each churchyard will depend on many factors, including labour availability, but should be determined with as many interests as possible being considered, including the plants.

4.3.4 Age

The age of most churchyards is almost impossible to assess; some may pre-date the church which they surround, but if the church is very new (i.e. 20th century) the churchyard is likely to have been defined at the same time. From observations, it is also obvious that all parts of all churchyards are not the same age; that part immediately around the church is the oldest, with extensions being added as the number of burials increased. Monks Risborough affords such an example, where the extension is reached across a footbridge. In this survey, each complete churchyard was treated as a single unit.

Stone churches, as found today, mostly date from the 12th or 13th centuries but with later extensions, some very extensive. In Buckinghamshire only four churches were mentioned in the Domesday record, all north of the Chilterns: at Crawley (or Hardmead), Buckingham, Aylesbury and Haddenham. Sometimes the dedications of churches give some indication as to their associations and possibly their age, though this is not necessarily the date of origin of the churchyard. It is interesting to note that the church at Sherington is the only one in the country to be dedicated to St. Laud and indicating its association with the Bishop of Lô in Normandy where

there was a monastery. Other dedications indicating origins are St. Firmin, St. Cecilia and St. Dunstan (Kirk, 1946).

Those churchyards around old churches are very old and the grassland in them has been relatively undisturbed for hundreds of years (Barker, 1972). They probably originated as enclosed parts of fields adjacent to the church itself. The composition of the grasslands has been considered earlier (see 4.2.2.1) and helps confirm this. However, to use age as an assessment factor has not been possible.

4.3.5 Public Interests

The management of a churchyard may occasionally be determined by the number of visitors it receives. The visitors may be coming to the churchyard or to the church itself. Buckinghamshire has some features of particular interest and the church authorities often ensure that a neat and tidy churchyard is presented to the visitor. This may extend to the whole area or just to a part of it. Olney, for example, is well known for its hymn writers William Cowper and John Newton, and John Gauntlett who was one of the first church organists. The areas around their graves and much of the remainder of the churchyard is mown. Wing church has a fine Saxon crypt and Stewkley is an almost complete Norman church. These are frequently visited by those interested in church architecture and the areas immediately around these churches reflect this. The view of Fingest church in a deep, beech-wooded Chiltern valley is considered by many as being one of the finest rural views in the county. To maintain this view, the churchyard is kept very tidy. Ellesborough church is the one used by the Prime Minister when staying at Chequers, so that part of the churchyard from the main gate to the church door is well maintained.

A few personalities of national importance have their remains interred in Buckinghamshire churchyards and the areas of their graves, at least, are well tended. Lord Beaconsfield (Benjamin Disraeli) is at Hughenden and Thomas Gray (of Elegy fame) is at Stoke Poges. This is a frequently visited churchyard and even has a visitor kiosk just outside the north door! Its whole area is well maintained although it still ranks within the top 10% for the county.

West Wycombe churchyard is the best botanically in the county but it is more likely to be visited by people wishing to see the mausoleum of the Dashwoods, the local family who included the leader of the famous Hell-fire Club.

I do not believe any measurable significance can be applied to this factor, but in a few cases it needs to be considered.

PART 5

CONCLUSION

The floral survey of Buckinghamshire churchyards began in response to a need to know if they had any conservation value, and in addition to know individually their relative values. The top 10% was suggested as being an appropriate proportion to consider of conservation importance. This meant knowing something of all the churchyards, so the field work began - erratically at first, systematically later. With these raw data, a system to make comparisons between the sites was required and the Index Values and Index Scores were devised. These picked out the floristically rich churchyards, with particular emphasis given to species rare in the county. Many of the rarest species are found in one or more of the top 10% churchyards, but two plants with single churchyard sites do not occur in any of the top 10%, so need special mention: Weston Underwood (with Vulpia ciliata ssp ambigua) and Wooburn (with Gymnocarpium robertianum). On the local basis these are important and so, I believe, are those churchyards on the rare acid soils, with Bow Brickhill and Dropmore probably being the best examples.

It seems likely that the geology of a site is the most important single factor determining the actual species present in a churchyard, but size and management play an important part in determining the number of habitats present and hence species diversity. The boundaries of the sites are also important i.e. there is no one over-riding factor determining what is a good site.

On a national basis no Buckinghamshire churchyard merits particular attention except, perhaps, Edlesborough where Bunium bulbocastanum is found. This is a nationally rare species growing in this restricted area on the Buckinghamshire/Bedfordshire border.

In 'A Conservation Review' (Ratcliffe, 1977) churchyards are included with other artificial ecosystems, categorised as non-agricultural dry land. Of the 406 species listed from artificial habitats 69 (17%) are found in churchyards or parks and they are given as the main habitat for four introduced species (not included in this survey) whilst their walls are said to support more abundant populations of Asplenium ruta-muraria, A. trichomanes and Ceterach officinarum than natural habitats. Churchyards may also provide an alternative habitat for species which are more widespread elsewhere. There are ever-increasing demands on land for a variety of purposes and the areas left where native plants and animals may survive are decreasing. In a small way churchyards may well continue to be managed so as to help alleviate the problem. Although individually small, they may be locally interesting; they may conserve rare species, but it is said 'they are unlikely to be very important in safeguarding significant portions of the populations of more common species' (Ratcliffe, 1977).

This survey has shown that there are rare national and local species present in Buckinghamshire churchyards and also, in contrast to the sentiments of the previous paragraph, many common species are important components of their floras.

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FIELD RECORDING SHEET

B.S.B.I. CHURCHYARD SURVEY BUCKINGHAMSHIRE (v.c.24)

Grid Reference of Site: .....

ACER CAMPESTRE (Field Maple)
PSEUDOPLATANUS (Sycamore)
ACHILLEA MILLEFOLIUM (Yarrow)
AEGOPODIUM PODAGRARIA (Ground Elder)
AESCULUS HIPPOCASTANUM (Horse-chestnut)
AGRIMONIA EUPATORIA (Agrimony)
AGROPYRON REPENS (Couch-grass)
AGROSTIS GIGANTEA (Black Bent)
STOLONIFERA (Creeping Bent)
TENUIS (Common Bent)
AJUGA REPTANS (Bugle)
ALLIARIA PETIOLATA (Garlic Mustard)
ALOPECURUS PRATENSIS (Meadow Foxtail)
ANISANTHA STERILIS (Barren Brome)
ANTHOXANTHUM ODORATUM (Sweet Vernal-grass)
ANTHRISCUS SYLVESTRIS (Cow Parsley)
ARABIDOPSIS THALIANA (Thale Cress)
ARCTIUM LAPPA (Greater Burdock)
MINUS (Lesser Burdock)
ARENARIA SERPYLLIFOLIA (Thyme-leaved Sandwort)
ARRHENATHERUM ELATIUS (False Oat)
ARUM MACULATUM (Lords-and-Ladies)
ASPLENIUM ADIANTUM-NIGRUM (Black Spleenwort)
RUTA-MURARIA (Wall-rue)
TRICHOMANES (Maidenhair S)
BALLOTA NIGRA (Black Horehound)
BELLIS PERENNIS (Daisy)
BRACHYPODIUM SYLVATICUM (False Brome)
BRIZA MEDIA (Quaking-grass)
BROMUS MOLLIS (Soft-brome)
CALYSTEGIA SEPIUM (Hedge Bindweed)
SYLVATICA (Large B.)
CAPSELLA BURSA-PASTORIS (Shepherds purse)
CARDAMINE HIRSUTA (Hairy Bitter-cress)
PRATENSIS (Cuckooflower)
CARLINA ACANTHOIDES (Welted Thistle)
CAREX FLACCA (Carnation Grass)
CENTAURIA NIGRA (Knapweed)
SCABIOSA (Greater K)
CERASTIUM GLOMERATUM (Sticky mouse-ear)
HOLOSTEOIDES (Common M)
CHAMAENERION ANGUSTIFOLIUM (Rosebay Willowherb)
CHELIDONIUM MAJUS (Greater Celandine)
CHRYSANTHEMUM LEUCANTHEMUM (Oxeye Daisy)
PARTHENIUM (Feverfew)
CIRCAEA LUTETIANA (Enchanter's Nightshade)
CIRSIUM ACAULE (Dwarf Thistle)
ARVENSE (Creeping Thistle)
VULGARE (Spear Thistle)
CLEMATIS VITALBA (Traveller's-joy)
CONVOLVULUS ARVENSIS (Bindweed)
CORYDALIS LUTEA (Yellow Corydalis)
CORYLUS AVELLANA (Hazel)
CRATAEGUS MONOGYNA (Hawthorn)
CREPIS CAPILLARIS (Smooth Hawksbeard)
VESICARIA (Beaked Hawksbeard)
CYMBALARIA MURALIS (Ivy-leaved Toadflax)
CYNOSURUS CRISTATUS (Crested Dogstail)
DACTYLIS GLOMERATA (Cock's-foot)
DAUCUS CAROTA (Wild Carrot)
DESCHAMPSIA CESPITOSA (Tufted Hair-grass)
DIGITALIS PURPUREA (Foxglove)
DRYOPTERIS FILIX-MAS (Male Fern)
ENDYMION NONSCRIPTUS (Bluebell)
EPILOBIUM ANGUSTIFOLIUM (American Willow-herb)
HIRSUTUM (Great Willow-herb)
MONTANUM (Broad-leaved W)
EQUISETUM ARVENSE (Field Horsetail)
EROPHILA VERNA (Common Whitlow-grass)
EUPHORBIA HELIOSCOPIA (Sun Spurge)
PEPLUS (Petty Spurge)
FAGUS SYLVATICA (Beech)
FESTUCA ARUNDINACEA (Tall Fescue)
GIGANTEA (Giant Fescue)
PRATENSIS (Meadow Fescue)
RUBRA (Red Fescue)
FRAGARIA VESCA (Wild Strawberry)
FRAXINUS EXCELSIOR (Ash)
GALEOPSIS TETRAHIT (Common Hempnettle)
GALIUM APARINE (Goosegrass)
MOLLUGO (Hedge Bedstraw)
VERUM (Lady's Bedstraw)
GERANIUM DISSECTUM (Cut-leaved Crane's-bill)
MOLLE (Dove's-foot C)
PRATENSE (Meadow C)
PYRENAICUM (Hedgerow C)
ROBERTIANUM (Herb Robert)
GEUM URBANUM (Wood Avens)
GLECHOMA HEDERACEA (Ground Ivy)
HEDERA HELIX (Ivy)
HELIANTHEMUM CHAMAECISTUS (Rock Rose)
HERACLEUM SPHONDYLIUM (Hogweed)
HIERACIUM PILOSELLA (Mouse-ear Hawkweed)
HOLCUS LANATUS (Yorkshire Fog)
MOLLIS (Creeping Soft-grass)
HORDEUM MURINUM (Wall Barley)
SECALINUM (Meadow Barley)
HYPERICUM PERFORATUM (Perforate St John's-wort)
HYPOCHOERIS RADICATA (Cat's-ear)
ILEX AQUIFOLIUM (Holly)
LAMIUM ALBUM (White Deadnettle)
PURPUREUM (Red Deadnettle)
LAPSANA COMMUNIS (Nipplewort)
LATHYRUS PRATENSIS (Meadow Vetchling)
LEONTODON AUTUMNALIS (Autumn Hawkbit)
HISPIDUS (Rough Hawkbit)
TARAXACOIDES (Lesser H)
LIGUSTRUM VULGARE (Privet)
OVALIFOLIUM (Garden Privet)
LINARIA VULGARIS (Common Toadflax)
LOLIUM PERENNE (Perennial Rye-grass)
LOTUS CORNICULATUS (Common Bird's-foot Trefoil)
LUZULA CAMPESTRIS (Field Woodrush)
LYSIMACHIA NUMMULARIA (Creeping Jenny)
MAHONIA AQUIFOLIUM (Oregon-grape)
MALVA SYLVESTRIS (Common Mallow)
MATRICARIA MATRICARIOIDES (Pineappleweed)
RECUTITA (Scented Mayweed)
MEDICAGO LUPULINA (Black Medick)
MELANDRIUM ALBUM (White Campion)
RUBRUM (Red Campion)
MELICA UNIFLORA (Wood Melick)
MERCURIALIS PERENNIS (Dog's Mercury)
MYCELIS MURALIS (Wall Lettuce)
MYOSOTIS ARVENSIS (Field Forget-me-not)
PAPAVER DUBIUM (Long-headed Poppy)
RHOEAS (Common Poppy)
PARIETARIA DIFFUSA (Pellitory-of-the-wall)
PASTINACA SATIVA (Parsnip)
PHLEUM PRATENSE (Timothy)
PHYLLITIS SCOLOPENDRIUM (Hart's-tongue)
PICRIS ECHIOIDES (Bristly Ox-tongue)
HIERACIOIDES (Hawkweed O)
PIMPINELLA SAXIFRAGA (Burnet saxifrage)
PINUS SYLVESTRIS (Scot's Pine)
PLANTAGO LANCEOLATA (Ribwort Plantain)
MAJOR (Greater Plantain)
MEDIA (Hoary Plantain)
POA ANNUA (Annual Meadow-grass)
COMPRESSUS (Flattened M)
PRATENSIS (Smooth M)
TRIVIALIS (Rough M)
POLYGONUM AVICULARE (Knot Grass)
POTENTILLA ANSERINA (Silverweed)
REPTANS (Cinquefoil)
POTERIUM SANGUISORBA (Salad Burnet)
PRIMULA VERIS (Cowslip)
VULGARIS (Primrose)
PRUNELLA VULGARIS (Selfheal)
PTERIDIUM AQUILINUM (Bracken)
QUERCUS ROBUR (Pedunculate Oak)
RANUNCULUS ACRIS (Meadow Buttercup)
AURICOMUS (Goldilocks)
BULBOSUS (Bulbous B)
FICARIA (Lesser Celandine)
REPENS (Creeping B'cup)
ROSA ARVENSIS (Field Rose)
CANINA (Dog Rose)
RUBUS FRUTICOSUS (Bramble)
RUMEX ACETOSA (Sorrel)
ACETOSELLA (Sheep's Sorrel)
CRISPUS (Curled Dock)
OBTUSIFOLIUS (Broad-leaved D)
SANGUINEUS (Wood Dock)
SAGINA APETALA (Annual Pearlwort)
PROCUMBENS (Procumbent P)
SAMBUCUS NIGRA (Elder)
SEDUM ACRE (Biting Stonecrop)
REFLEXUM (Reflexed Stonecrop)
TELEPHIUM (Orpine)
SENECIO ERUCIFOLIUS (Hoary Ragwort)
JACOBAEA (Common Ragwort)
SQUALIDUS (Oxford Ragwort)
VULGARIS (Groundsel)
SISYMBRIUM OFFICINALE (Hedge Mustard)
SOLANUM DULCAMARA (Bittersweet)
NIGRUM (Black Nightshade)
SONCHUS ASPER (Prickly Sow-thistle)
OLERACEUS (Smooth Sow-thistle)
SORBUS ARIA (Whitebeam)
STACHYS SYLVATICA (Hedge Woundwort)
STELLARIA GRAMINEA (Lesser Stitchwort)
HOLOSTEA (Greater S)
MEDIA (Common Chickweed)
SYMPHORICARPOS RIVULARIS (Snowberry)
TARAXACUM OFFICINALE (Dandelion)
TAXUS BACCATA (Yew)
THELYCRANIA SANGUINEA (Dogwood)
TILIA VULGARIS (Lime)
TORILIS JAPONICA (Upright Hedge Parsley)
TRAGOPOGON PRATENSIS (Goat's-beard)
TRIFOLIUM CAMPESTRE (Hop Trefoil)
DUBIUM (Lesser Trefoil)
PRATENSE (Red Clover)
REPENS (White Clover)
TRIPLEUROSPERMUM MARITIMUM (Scentless Mayweed)
TRISETUM FLAVESCENS (Yellow Oat-grass)
TUSSILAGO FARFARA (Colt's-foot)
ULMUS GLABRA (Wych Elm)
PROCERA (English Elm)
URTICA DIOICA (Stinging Nettle)
VERBASCUM THAPSUS (Great Mullein)
VERONICA ARVENSIS (Wall Speedwell)
CHAMAEDRYS (Germander S)
FILIFORMIS (Slender S)
HEDERIFOLIA (Ivy-leaved S)
OFFICINALIS (Heath S)
PERSICA (Common Field-S)
SERPYLLIFOLIA (Thyme-leaved S)
VIBURNUM LANTANA (Wayfaring Tree)
OPULUS (Guelder Rose)
VICIA CRACCA (Tufted Vetch)
HIRSUTA (Hairy Tare)
SATIVA (Common Vetch)
SEPIUM (Bush Vetch)
TETRASPERMA (Smooth Tare)
VIOLA HIRTA (Hairy Violet)
ODORATA (Sweet Violet)
RIVINIANA (Common Violet)
ZERNA ERECTA (Upright Brome)
LAMOSA (Hairy Brome)

APPENDIX II

BUCKINGHAMSHIRE CHURCHYARD SURVEY

OBVERSE OF B.S.B.I. NETWORK RESEARCH PROJECT FORM

GRID REF | ALTITUDE | SURVEYOR | ACREAGE | DATE | VICE COUNTY | INCUMBENT | TOWN/PARISH | NAME OF CHURCH

BSBI NETWORK RESEARCH PROJECT ON CHURCHYARDS & OTHER BURIAL GROUNDS

GENERAL COMMENTS

Standard BRC (or Trust) Vascular Plant Record Cards should be used to list the species.

TOTAL NUMBER OF NATIVE AND NATURALISED VASCULAR PLANTS excluding any obviously planted and not spreading. ☐

Assessment on a scale of 0 - 5 as follows:-
0 - 5 = 0; 50 - 69 = 1; 70 - 89 = 2; 90 - 109 = 3; 110 - 129 = 4; 130+ = 5 ☐

TYPES OF HABITAT PRESENT - including boundaries
(Tick as appropriate - write in others)

Grassland - short i.e. regularly mown	☐	Marsh	☐ Others
Grassland - rough i.e. mown once or twice a year	☐	Tombstones	☐
Scrub	☐	Paths	☐ Total number of Habitats: ☐
Woodland i.e. woodland species present	☐	Walls	☐
Pond	☐	Hedges	☐

Assessment (i) Quality of grassland (0 - 10)
No interest = 0; some marginal value = 2; of considerable interest = 6; of outstanding local importance = 10. ☐

Assessment (ii) Types of habitat present (1 - 5)
1 - 2 = 1; 3 - 4 = 2; 5 - 6 = 3; 7 - 8 = 4; 9+ = 5 ☐

NOTEWORTHY SPECIES - any known from 15 or fewer localities in v.c.
(Best filled in by v.c. Recorder)

Give assessment for each:- ☐

1.
2.
3.
4.

Assessment should take account of the presence of species otherwise rare in the county. (If a species which was apparently native and not recorded elsewhere in the v.c. was present, this would probably make the churchyard of sufficient importance to be included in the selected list forthis reason alone). Otherwise assess as follows:-

	Naturalised	Native
For every species known from 1 - 2 localities in the v.c.	= 4	= 8
" " " " " 3 - 5 " " " "	= 3	= 6
" " " " " 6 - 10 " " " "	= 2	= 4
" " " " " 11 - 15 " " " "	= 1	= 2

ASSESSMENT TOTAL carried forward ☐

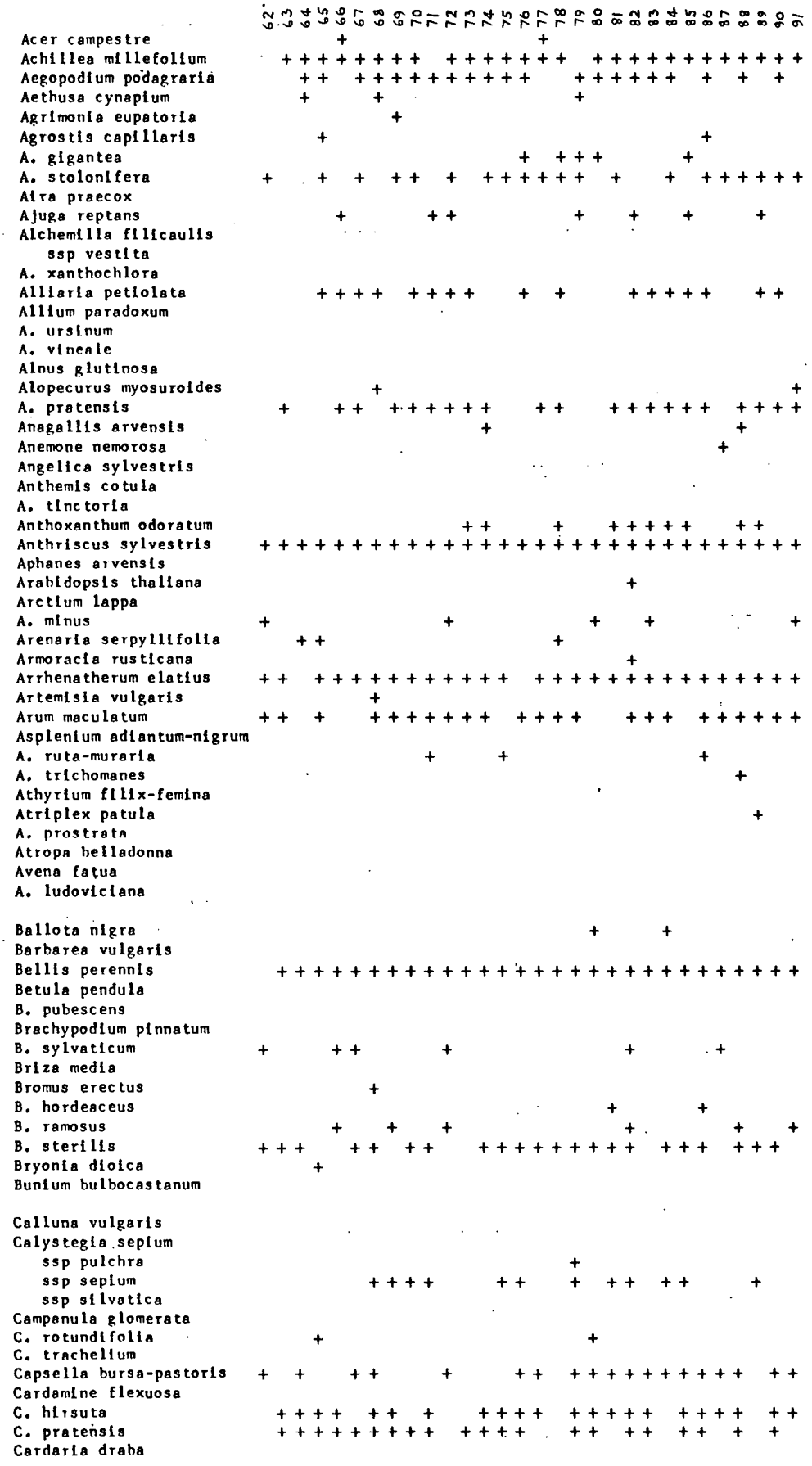
APPENDIX III

SPECIES CHECKLISTS to

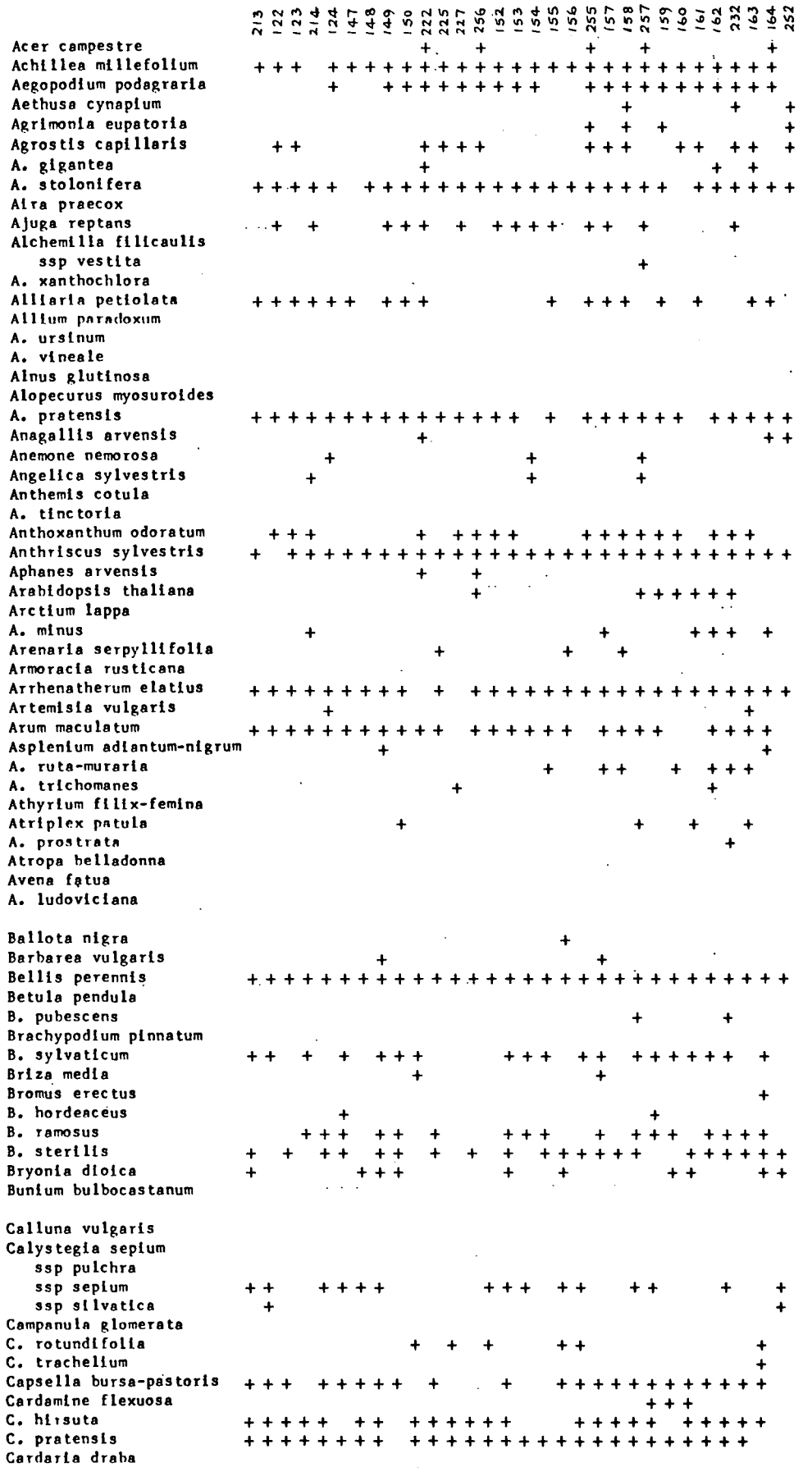
BUCKINGHAMSHIRE CHURCHYARD SITES

	1	2	3	4	5	6	7	8	9	10	11	12	13	217	218	14	15	16	17	18	19	20	21	22	23	25	26	27	28	29
Acer campestre		+							+					+																
Achillea millefolium	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.	+	+	+
Aegopodium podagraria			+			+			+									+	+		+	+			+	+			+
Aethusa cynapium				+			+	+	+				+								+				+				
Agrimonia eupatoria											+																		
Agrostis capillaris										+													+						
A. gigantea															+														
A. stolonifera	+		+		+	+	+	+	+	+				+	+	+		+			+	+					+	+	+
Aira praecox																													
Ajuga reptans			+						+			+		+	+								+				+		
Alchemilla filicaulis ssp vestita																													
A. xanthochlora																													
Alliaria petiolata		+	+	+		+	+	+	+		+	+	+	+	+		+	+	+	+	+	+	+			+	+		+	+
Allium paradoxum																													
A. ursinum																													
A. vineale																													
Alnus glutinosa																													
Alopecurus myosuroides													+		+				+								+		
A. pratensis		+			+				+	+	+		+	+	+	+		+	+	+	+					+			+	+
Anagallis arvensis																													
Anemone nemorosa																												+		
Angelica sylvestris																													
Anthemis cotula																													
A. tinctoria																													
Anthoxanthum odoratum					+				+									+											
Anthriscus sylvestris	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Aphanes arvensis																													
Arabidopsis thaliana																													
Arctium lappa																													
A. minus											+	+		+				+								+		+	
Arenaria serpyllifolia	+	+	+	+	+	+	+	+				+	+	+		+						+							+
Armoracia rusticana																													
Arrhenatherum elatius	+	+	+	+	+	+	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+		+	+	+	+	+
Artemisia vulgaris			+		+														+		+						+		+	
Arum maculatum	+	+	+	+		+	+	+	+		+	+	+	+		+	+	+	+			+	+	+		+	+		+	+	+
Asplenium adiantum-nigrum																														
A. ruta-muraria																														
A. trichomanes																														
Athyrium filix-femina																														
Atriplex patula																					+								
A. prostrata																													
Atropa belladonna											+																		
Avena fatua								+		+																			
A. ludoviciana										+																			
Ballota nigra	+	+	+	+		+		+		+	+				+		+	+	+	+		+				+		+	
Barbarea vulgaris																				+		+							
Bellis perennis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Betula pendula					+																								
B. pubescens																													
Brachypodium pinnatum																													
B. sylvaticum				+			+				+			+	+				+				+						
Briza media																													
Bromus erectus	+	+									+																		
B. hordeaceus						+										+													
B. ramosus				+							+		+	+				+	+	+						+			
B. sterilis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+			+	+	+	+	+
Bryonia dioica	+		+	+	+	+	+	+				+	+	+			+	+			+	+	+			+			
Bunium bulbocastanum																														
Calluna vulgaris																														
Calystegia sepium ssp pulchra																														
ssp sepium		+							+			+			+							+	+	+					+
ssp silvatica							+			+										+									
Campanula glomerata																														
C. rotundifolia																														
C. trachelium																														
Capsella bursa-pastoris	+	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+			+	+	+	+		+	+
Cardamine flexuosa																														
C. hirsuta			+	+	+	+		+				+	+			+			+	+		+	+	+		+	+		+	+
C. pratensis	+	+	+		+	+		+	+	+	+	+	+			+	+	+		+			+	+	+	+				
Cardaria draba																														

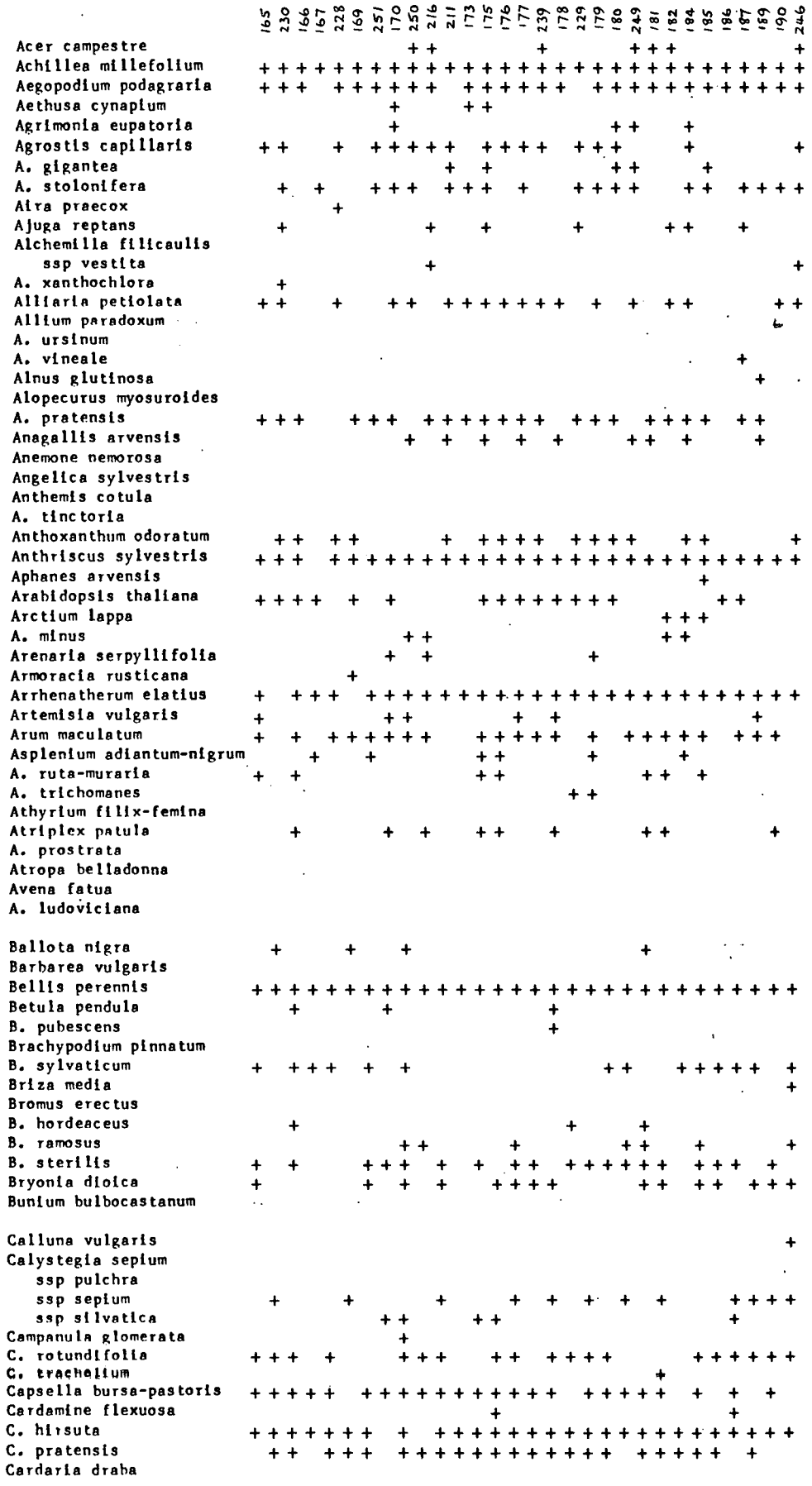
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	50	51	52	53	54	55	57	219	58	59	61
Acer campestre															+	+										+				
Achillea millefolium	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+
Aegopodium podagraria		+					+	+	+	+	+				+	+			+	+		+			+	+	+	+	+	
Aethusa cynapium		+								+																				
Agrimonia eupatoria				+								+			+															
Agrostis capillaris		+							+											+	+									
A. gigantea																					+									
A. stolonifera	+	+		+	+		+		+	+		+				+			+	+	+	+	+	+	+	+		+	+	+
Aira praecox																														
Ajuga reptans							+		+		+		+	+	+											+	+			+
Alchemilla filicaulis ssp vestita																														
A. xanthochlora																														
Alliaria petiolata	+	+	+	+		+		+	+	+	+		+	+	+	+	+	+	+					+	+	+			+	+
Allium paradoxum																														
A. ursinum																														
A. vineale																														
Alnus glutinosa																														
Alopecurus myosuroides										+														+						
A. pratensis	+	+	+	+	+	+		+		+		+		+	+		+	+	+			+	+	+	+	+		+	+	+
Anagallis arvensis																														
Anemone nemorosa										+										+								+		
Angelica sylvestris																														
Anthemis cotula		+																												
A. tinctoria																														
Anthoxanthum odoratum	+														+	+					+				+					+
Anthriscus sylvestris	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+
Aphanes arvensis	+																													
Arabidopsis thaliana		+								+	+	+			+						+		+	+					
Arctium lappa																														
A. minus			+				+	+			+			+	+										+		+		
Arenaria serpyllifolia	+	+				+															+									
Armoracia rusticana																														
Arrhenatherum elatius	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Artemisia vulgaris																														
Arum maculatum	+		+	+		+	+	+	+	+	+	+	+	+	+		+	+	+			+	+	+	+	+	+	+	+	+
Asplenium adiantum-nigrum											+																			
A. ruta-muraria																														
A. trichomanes																											+			
Athyrium filix-femina																														
Atriplex patula																								+						
A. prostrata																														
Atropa belladonna														+																
Avena fatua					+																									
A. ludoviciana																														
Ballota nigra		+	+										+				+	+			+									+
Barbarea vulgaris																														
Bellis perennis	+	+	+		+	+	+		+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	
Betula pendula																					+									
B. pubescens																														
Brachypodium pinnatum																														
B. sylvaticum						+	+		+			+		+	+	+			+		+			+			+		+	
Briza media																														+
Bromus erectus					+																									+
B. hordeaceus	+					+									+		+		+											+
B. ramosus									+						+			+						+		+	+			
B. sterilis	+	+	+	+	+	+	+							+	+	+	+	+	+		+	+	+			+		+	+	+
Bryonia dioica									+																			+		
Bunium bulbocastanum																														
Calluna vulgaris																					+									
Calystegia sepium																														
ssp pulchra																+														
ssp sepium			+			+			+			+			+			+	+			+		+				+		+
ssp silvatica	+																													
Campanula glomerata																														
C. rotundifolia											+										+									
C. trachelium																														
Capsella bursa-pastoris	+	+	+	+	+	+	+		+	+		+		+	+	+	+	+	+	+	+	+	+	+				+	+	+
Cardamine flexuosa																														
C. hirsuta		+		+	+	+	+		+	+	+	+	+		+	+		+	+	+	+				+		+	+	+	+
C. pratensis		+				+	+		+	+	+		+	+	+	+		+		+		+	+	+	+		+	+	+	+
Cardaria draba																														


62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91
Acer campestre
Achillea millefolium
Aegopodium podagraria
Aethusa cynapium
Agrimonia eupatoria
Agrostis capillaris
A. gigantea
A. stolonifera
Aira praecox
Ajuga reptans
Alchemilla filicaulis ssp vestita
A. xanthochlora
Alliaria petiolata
Allium paradoxum
A. ursinum
A. vineale
Alnus glutinosa
Alopecurus myosuroides
A. pratensis
Anagallis arvensis
Anemone nemorosa
Angelica sylvestris
Anthemis cotula
A. tinctoria
Anthoxanthum odoratum
Anthriscus sylvestris
Aphanes arvensis
Arabidopsis thaliana
Arctium lappa
A. minus
Arenaria serpyllifolia
Armoracia rusticana
Arrhenatherum elatius
Artemisia vulgaris
Arum maculatum
Asplenium adiantum-nigrum
A. ruta-muraria
A. trichomanes
Athyrium filix-femina
Atriplex patula
A. prostrata
Atropa belladonna
Avena fatua
A. ludoviciana
Ballota nigra
Barbarea vulgaris
Bellis perennis
Betula pendula
B. pubescens
Brachypodium pinnatum
B. sylvaticum
Briza media
Bromus erectus
B. hordeaceus
B. ramosus
B. sterilis
Bryonia dioica
Bunium bulbocastanum
Calluna vulgaris
Calystegia sepium ssp pulchra
ssp sepium
ssp silvatica
Campanula glomerata
C. rotundifolia
C. trachelium
Capsella bursa-pastoris
Cardamine flexuosa
C. hirsuta
C. pratensis
Cardaria draba

	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	111	245	112	113	114	115	116	117	118	231	119	120	121
Acer campestre													+																	
Achillea millefolium		+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+		+	+	+
Aegopodium podagraria										+	+			+		+	+			+		+	+		+	+			+	
Aethusa cynapium		+		+							+												+	+					+	
Agrimonia eupatoria													+																	+
Agrostis capillaris		+										+											+							
A. gigantea																				+										
A. stolonifera			+		+		+	+		+	+	+				+	+		+	+			+	+		+		+		+
Aira praecox								+					+						+	+										+
Ajuga reptans																														
Alchemilla filicaulis ssp vestita																														
A. xanthochlora																														
Alliaria petiolata		+	+		+			+	+	+	+		+	+	+			+	+	+	+	+	+		+					+
Allium paradoxum																														
A. ursinum																														
A. vineale																														
Alnus glutinosa																														
Alopecurus myosuroides											+																			
A. pratensis		+		+	+	+	+	+	+	+		+	+	+		+	+	+	+	+		+	+	+			+	+	+	+
Anagallis arvensis			+				+												+											
Anemone nemorosa																														
Angelica sylvestris																														
Anthemis cotula																														
A. tinctoria																														
Anthoxanthum odoratum		+	+				+						+					+												+
Anthriscus sylvestris		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Aphanes arvensis																														
Arabidopsis thaliana		+					+		+		+		+		+		+	+										+	
Arctium lappa							+																							
A. minus						+	+													+						+				
Arenaria serpyllifolia						+																							+	
Armoracia rusticana																														
Arrhenatherum elatius		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+
Artemisia vulgaris																														
Arum maculatum		+	+	+				+	+	+		+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+
Asplenium adiantum-nigrum																							+	+						
A. ruta-muraria														+									+							
A. trichomanes																														
Athyrium filix-femina																														
Atriplex patula																														
A. prostrata																														
Atropa belladonna																														
Avena fatua																														
A. ludoviciana																														
Ballota nigra											+			+										+	+					
Barbarea vulgaris																														
Bellis perennis		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+		+
Betula pendula				+																										
B. pubescens																														
Brachypodium pinnatum																														
B. sylvaticum				+			+		+				+	+				+	+	+			+		+					
Briza media																														
Bromus erectus														+									+							
B. hordeaceus					+	+		+						+				+												
B. ramosus				+			+		+				+	+	+		+		+		+								+	+
B. sterilis		+		+	+	+	+	+	+	+			+	+		+	+	+				+	+	+	+	+				+
Bryonia dioica					+	+			+				+	+			+							+		+				
Bunium bulbocastanum														+																
Calluna vulgaris																														
Calystegia sepium																														
ssp pulchra																														
ssp sepium				+				+	+	+	+						+		+	+					+					
ssp silvatica																														
Campanula glomerata																														
C. rotundifolia														+																
C. trachelium																														
Capsella bursa-pastoris		+	+				+	+		+	+	+	+	+	+	+	+	+		+		+	+	+		+			+	
Cardamine flexuosa																														
C. hirsuta		+	+	+	+		+	+	+	+	+		+		+	+	+	+	+	+	+	+	+	+		+		+	+	+
C. pratensis		+	+	+	+		+	+		+	+		+		+	+	+	+	+		+	+				+		+		
Cardaria draba														+																


213 122 123 214 124 147 148 149 150 222 225 227 256 152 153 154 155 156 255 157 158 257 159 160 161 162 232 163 164 252
Acer campestre
Achillea millefolium
Aegopodium podagraria
Aethusa cynapium
Agrimonia eupatoria
Agrostis capillaris
A. gigantea
A. stolonifera
Aira praecox
Ajuga reptans
Alchemilla filicaulis
ssp vestita
A. xanthochlora
Alliaria petiolata
Allium paradoxum
A. ursinum
A. vineale
Alnus glutinosa
Alopecurus myosuroides
A. pratensis
Anagallis arvensis
Anemone nemorosa
Angelica sylvestris
Anthemis cotula
A. tinctoria
Anthoxanthum odoratum
Anthriscus sylvestris
Aphanes arvensis
Arabidopsis thaliana
Arctium lappa
A. minus
Arenaria serpyllifolia
Armoracia rusticana
Arrhenatherum elatius
Artemisia vulgaris
Arum maculatum
Asplenium adiantum-nigrum
A. ruta-muraria
A. trichomanes
Athyrium filix-femina
Atriplex patula
A. prostrata
Atropa belladonna
Avena fatua
A. ludoviciana
Ballota nigra
Barbarea vulgaris
Bellis perennis
Betula pendula
B. pubescens
Brachypodium pinnatum
B. sylvaticum
Briza media
Bromus erectus
B. hordeaceus
B. ramosus
B. sterilis
Bryonia dioica
Bunium bulbocastanum
Calluna vulgaris
Calystegia sepium
ssp pulchra
ssp sepium
ssp silvatica
Campanula glomerata
C. rotundifolia
C. trachelium
Capsella bursa-pastoris
Cardamine flexuosa
C. hirsuta
C. pratensis
Cardaria draba

	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	224	213	140	141	220	142	143	144	145	146
Acer campestre					+			+								+									+
Achillea millefolium	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+
Aegopodium podagraria	+	+	+	+		+	+	+	+				+	+	+	+	+	+					+		+
Aethusa cynapium								+															+		+
Agrimonia eupatoria	+		+						+																
Agrostis capillaris	+															+	+								
A. gigantea																+							+		
A. stolonifera	+	+	+	+		+	+	+	+	+	+	+	+		+	+	+	+	+			+	+		
Aira praecox																									
Ajuga reptans	+															+	+	+		+					
Alchemilla filicaulis ssp vestita																									
A. xanthochlora																									
Alliaria petiolata	+			+		+	+	+	+			+				+		+		+			+	+	+
Allium paradoxum					+																				
A. ursinum																									
A. vineale																									
Alnus glutinosa																									
Alopecurus myosuroides			+																						
A. pratensis	+	+		+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	
Anagallis arvensis																+						+			
Anemone nemorosa					+																				
Angelica sylvestris																									
Anthemis cotula																									
A. tinctoria																									
Anthoxanthum odoratum	+					+						+				+	+							+	
Anthriscus sylvestris	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Aphanes arvensis																+									
Arabidopsis thaliana	+					+	+						+		+	+		+				+			
Arctium lappa																									
A. minus					+								+		+	+				+		+			
Arenaria serpyllifolia	+	+									+				+										
Armoracia rusticana										+											+				
Arrhenatherum elatius	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Artemisia vulgaris																									
Arum maculatum	+	+		+	+	+	+	+	+	+	+		+		+	+	+	+	+			+	+	+	+
Asplenium adiantum-nigrum							+								+										
A. ruta-muraria																									
A. trichomanes						+									+										
Athyrium filix-femina																									
Atriplex patula																		+							
A. prostrata																									
Atropa belladonna																									
Avena fatua																									
A. ludoviciana																									
Ballota nigra											+		+										+		+
Barbarea vulgaris																									
Bellis perennis	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Betula pendula																									
B. pubescens																									
Brachypodium pinnatum																									
B. sylvaticum	+	+		+	+	+	+	+	+				+					+	+	+		+	+		+
Briza media					+		+																		
Bromus erectus																			+						
B. hordeaceus										+													+	+	
B. ramosus					+			+		+							+		+	+			+		+
B. sterilis	+	+	+	+	+	+		+	+	+			+	+	+		+	+	+	+	+	+	+		
Bryonia dioica	+			+	+	+	+	+		+		+	+		+					+	+	+	+		+
Bunium bulbocastanum																									
Calluna vulgaris																									
Calystegia sepium																									
ssp pulchra																									
ssp sepium	+		+	+		+	+	+	+								+	+		+		+	+	+	+
ssp silvatica												+													
Campanula glomerata																			+						
C. rotundifolia	+																		+						
C. trachelium																									
Capsella bursa-pastoris	+		+	+	+	+		+			+	+	+	+	+	+		+		+	+	+	+		+
Cardamine flexuosa																									
C. hirsuta		+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+				+
C. pratensis	+	+	+		+	+	+	+	+	+	+		+		+	+	+	+		+					+
Cardaria draba																									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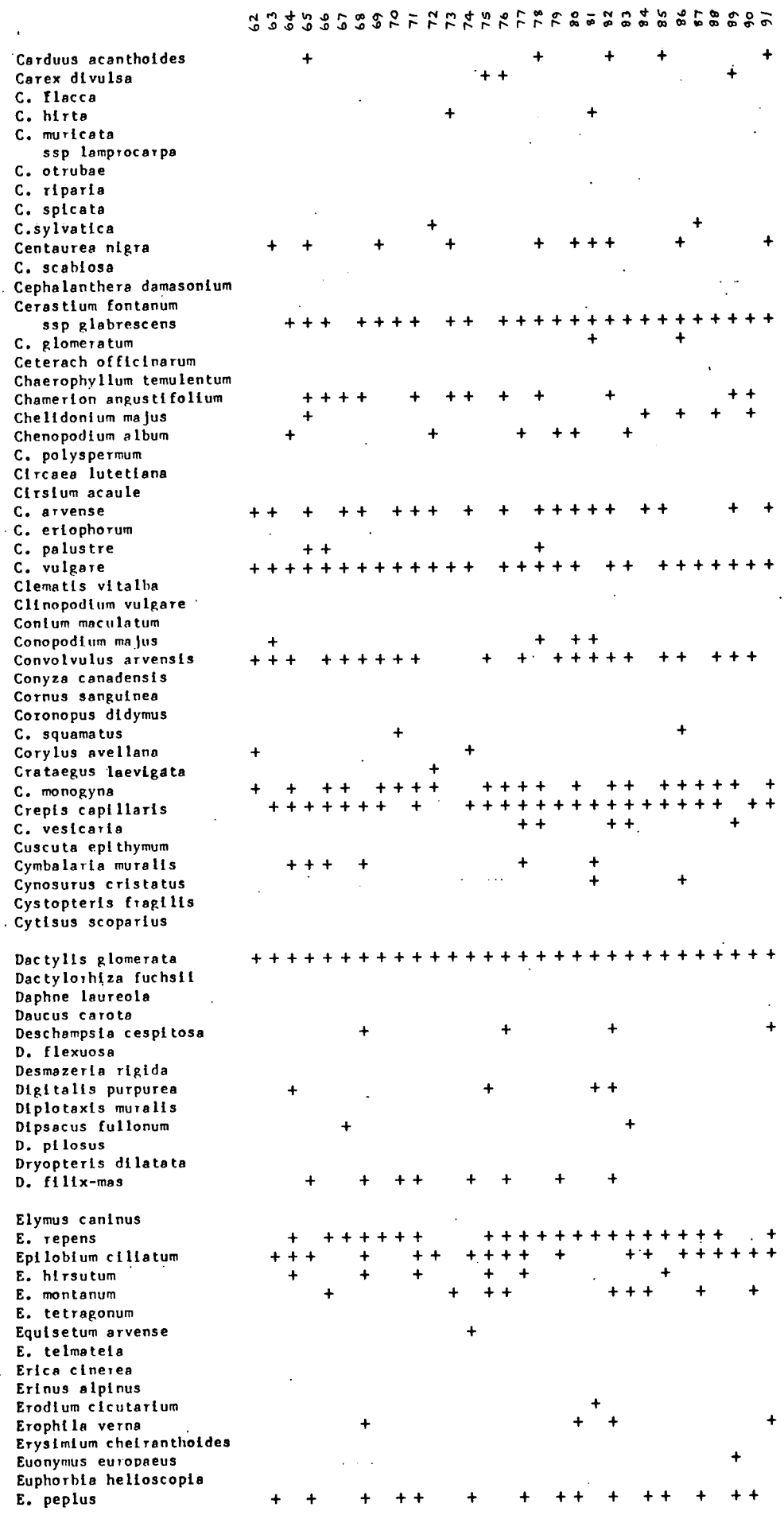
Acer campestre
Achillea millefolium
Aegopodium podagraria
Aethusa cynapium
Agrimonia eupatoria
Agrostis capillaris
A. gigantea
A. stolonifera
Aira praecox
Ajuga reptans
Alchemilla filicaulis
ssp vestita
A. xanthochlora
Alliaria petiolata
Allium paradoxum
A. ursinum
A. vineale
Alnus glutinosa
Alopecurus myosuroides
A. pratensis
Anagallis arvensis
Anemone nemorosa
Angelica sylvestris
Anthemis cotula
A. tinctoria
Anthoxanthum odoratum
Anthriscus sylvestris
Aphanes arvensis
Arabidopsis thaliana
Arctium lappa
A. minus
Arenaria serpyllifolia
Armoracia rusticana
Arrhenatherum elatius
Artemisia vulgaris
Arum maculatum
Asplenium adiantum-nigrum
A. ruta-muraria
A. trichomanes
Athyrium filix-femina
Atriplex patula
A. prostrata
Atropa belladonna
Avena fatua
A. ludoviciana
Ballota nigra
Barbarea vulgaris
Bellis perennis
Betula pendula
B. pubescens
Brachypodium pinnatum
B. sylvaticum
Briza media
Bromus erectus
B. hordeaceus
B. ramosus
B. sterilis
Bryonia dioica
Bunium bulbocastanum
Calluna vulgaris
Calystegia sepium
ssp pulchra
ssp sepium
ssp silvatica
Campanula glomerata
C. rotundifolia
C. trachelium
Capsella bursa-pastoris
Cardamine flexuosa
C. hirsuta
C. pratensis
Cardaria draba

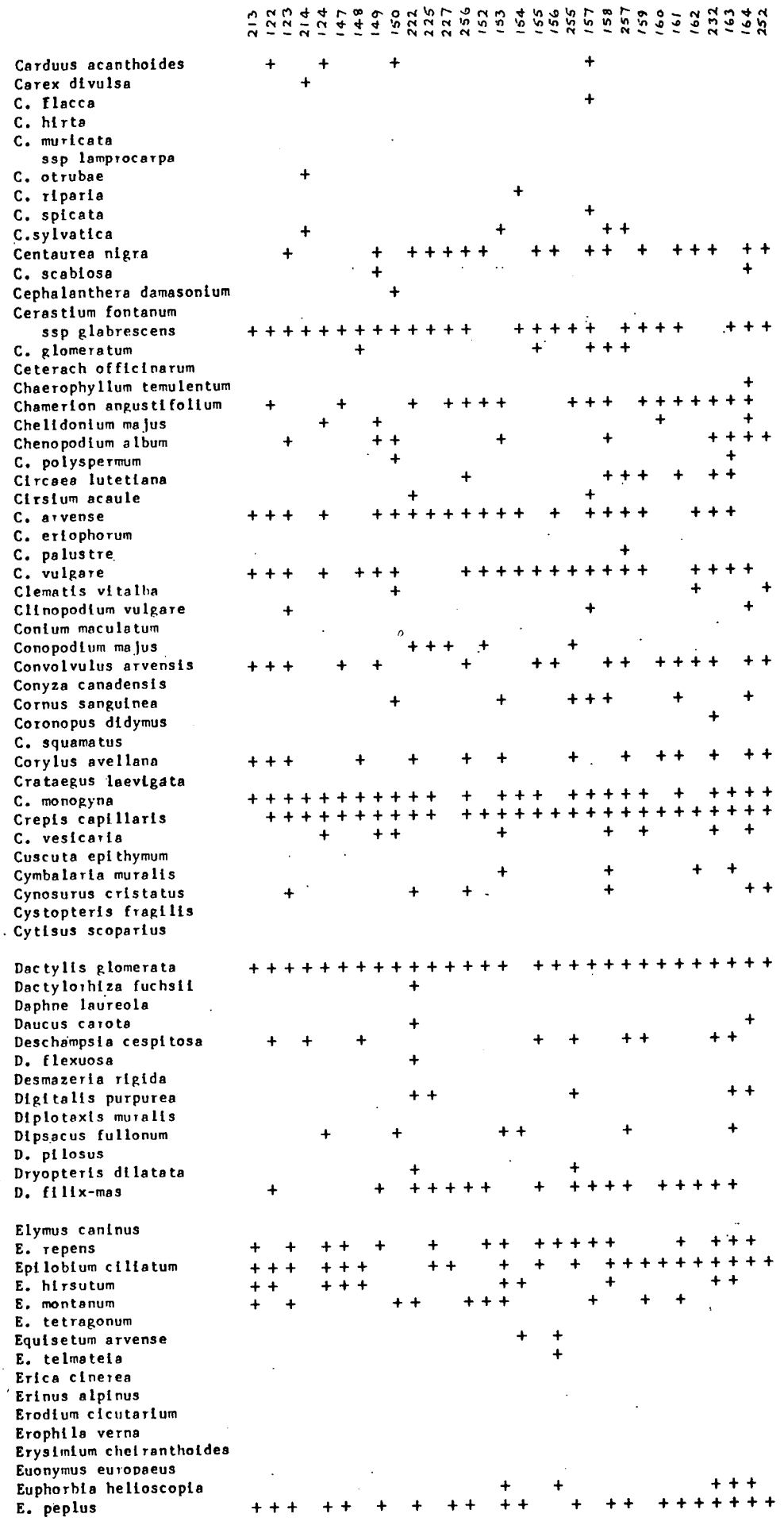
	191	192	193	194	253	254	221	195	196	197	215	198	199	200	201	202	203	204	205	206	207	258	209	208	244	210
Acer campestre	+																									
Achillea millefolium	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+
Aegopodium podagraria	+	+	+	+		+	+	+	+			+	+	+	+	+			+	+	+	+	+	+		
Aethusa cynapium																									+	
Agrimonia eupatoria				+											+											
Agrostis capillaris	+	+		+			+	+	+	+	+	+			+											
A. gigantea							+			+		+	+								+			+		+
A. stolonifera	+		+	+	+	+	+	+		+	+		+	+	+	+			+	+	+	+	+	+	+	+
Aira praecox																										
Ajuga reptans	+	+																				+				
Alchemilla filicaulis ssp vestita																										
A. xanthochlora																										
Alliaria petiolata			+	+	+		+	+		+	+	+	+	+	+	+		+		+	+	+		+	+	+
Allium paradoxum																										
A. ursinum														+												
A. vineale				+							+						+	+								
Alnus glutinosa																										
Alopecurus myosuroides																										
A. pratensis	+	+	+	+		+		+	+		+	+	+	+	+		+	+	+	+	+	+	+	+		+
Anagallis arvensis					+				+		+						+					+	+			
Anemone nemorosa		+					+		+																	
Angelica sylvestris							+																			
Anthemis cotula																										
A. tinctoria																										
Anthoxanthum odoratum	+	+		+				+		+	+	+	+	+	+		+				+		+		
Anthriscus sylvestris	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+
Aphanes arvensis																	+		+							
Arabidopsis thaliana		+	+	+	+	+	+	+	+	+	+	+			+	+				+			+	+		
Arctium lappa																										
A. minus						+	+		+			+		+					+		+			+		
Arenaria serpyllifolia							+						+				+									+
Armoracia rusticana			+																							
Arrhenatherum elatius	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+
Artemisia vulgaris														+	+				+	+		+		+		
Arum maculatum	+		+	+		+	+	+	+	+	+		+	+	+				+	+	+	+		+		+
Asplenium adiantum-nigrum		+					+		+		+			+		+										
A. ruta-muraria		+					+			+			+													
A. trichomanes										+						+										
Athyrium filix-femina														+												
Atriplex patula										+								+						+		
A. prostrata	+																			+	+					
Atropa belladonna																										
Avena fatua																										
A. ludoviciana																										
Ballota nigra			+				+		+	+	+	+					+	+					+		+	+
Barbarea vulgaris																										
Bellis perennis	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Betula pendula										+			+		+											
B. pubescens																										
Brachypodium pinnatum																	+									
B. sylvaticum	+	+	+			+	+	+	+		+	+				+						+	+	+		
Briza media		+				+																				
Bromus erectus																										
B. hordeaceus						+			+	+		+	+	+												
B. ramosus	+					+	+				+		+											+		+
B. sterilis	+	+		+	+		+	+	+	+	+	+	+	+			+	+	+		+	+	+	+		+
Bryonia dioica	+					+			+	+	+	+	+			+		+		+		+	+	+	+	+
Bunium bulbocastanum																										
Calluna vulgaris																										
Calystegia sepium																										
ssp pulchra																										
ssp sepium							+	+		+					+			+	+				+		+	
ssp silvatica										+											+					
Campanula glomerata																										
C. rotundifolia	+	+				+	+				+	+	+		+											
C. trachelium																										
Capsella bursa-pastoris		+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+
Cardamine flexuosa			+	+																	+					
C. hirsuta	+	+	+	+		+	+	+	+	+	+	+	+	+			+	+		+		+		+	+	+
C. pratensis	+	+	+	+		+	+	+	+	+		+		+	+		+				+	+				
Cardaria draba														+								+				

	1	2	3	4	5	6	7	8	9	10	11	12	13	217	218	14	15	16	17	18	19	20	21	22	23	25	26	27	28	29
Carduus acanthoides										+										+										
Carex divulsa																														
C. flacca																														
C. hirta		+																												
C. muricata																														
ssp lamprocarpa																														
C. otrubae																														
C. riparia																														
C. spicata																														
C.sylvatica									+															+						
Centaurea nigra	+	+	+	+		+		+	+	+	+	+	+	+	+	+	+	+		+	+	+	+			+				
C. scabiosa																														
Cephalanthera damasonium																														
Cerastium fontanum																														
ssp glabrescens	+	+			+			+	+	+		+	+	+		+	+	+	+	+		+	+					+	+	+
C. glomeratum										+									+											+
Ceterach officinarum																														
Chaerophyllum temulentum																														
Chamerion angustifolium	+			+	+	+			+		+					+					+	+				+	+	+	+
Chelidonium majus			+	+					+			+				+			+				+			+			+
Chenopodium album			+	+		+			+	+					+			+			+	+				+			
C. polyspermum																														
Circaea lutetiana								+	+																			+		
Cirsium acaule																														
C. arvense	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				+	+	+	+	+
C. eriophorum																														
C. palustre																														
C. vulgare	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+
Clematis vitalba									+																				+	+
Clinopodium vulgare																														
Conium maculatum								+										+												
Conopodium majus																														
Convolvulus arvensis		+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+
Conyza canadensis																														
Cornus sanguinea																														
Coronopus didymus																														
C. squamatus																				+										
Corylus avellana																														
Crataegus laevigata																														
C. monogyna	+		+		+	+	+	+	+	+			+				+		+	+	+		+		+	+				+
Crepis capillaris	+	+	+	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C. vesicaria	+	+	+	+	+	+	+	+	+	+	+								+	+							+		+	+
Cuscuta epithymum																														
Cymbalaria muralis	+			+	+		+		+							+					+	+							
Cynosurus cristatus			+											+	+															
Cystopteris fragilis																														
Cytisus scoparius																														
Dactylis glomerata	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Dactylorhiza fuchsii																														
Daphne laureola																														
Daucus carota																														
Deschampsia cespitosa																					+							+	+	
D. flexuosa																														
Desmazeria rigida					+											+						+								
Digitalis purpurea									+																			+		
Diplotaxis muralis																														
Dipsacus fullonum							+												+					+		+				
D. pilosus																														
Dryopteris dilatata																														
D. filix-mas									+										+			+						+		
Elymus caninus																														
E. repens		+	+	+	+	+	+		+	+	+			+	+	+		+	+		+							+	+	+
Epilobium ciliatum		+	+		+		+		+				+	+		+		+	+	+	+		+			+	+	+	
E. hirsutum				+		+								+				+	+		+				+		+		
E. montanum	+			+				+			+								+						+			+		
E. tetragonum																														
Equisetum arvense																														
E. telmateia																														
Erica cinerea																														
Erinus alpinus																														
Erodium cicutarium																														
Erophila verna		+	+	+	+			+												+		+	+	+					+	
Erysimium cheiranthoides																														
Euonymus europaeus																														
Euphorbia helioscopia										+										+	+									
E. peplus		+	+		+	+	+	+	+	+					+		+	+	+	+		+	+	+	+		+		+	

	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	50	51	52	53	54	55	57	219	58	59	61
Carduus acanthoides				+							+		+		+															
Carex divulsa											+																			
C. flacca																														
C. hirta																														
C. muricata ssp lamprocarpa																														
C. otrubae																														
C. riparia																														
C. spicata									+																					
C.sylvatica					+	+			+	+	+																			
Centaurea nigra			+	+	+				+			+	+	+					+	+	+		+	+	+	+			+
C. scabiosa																														
Cephalanthera damasonium																														
Cerastium fontanum ssp glabrescens	+	+	+	+	+	+	+		+		+		+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	
C. glomeratum	+	+													+	+			+	+										+
Ceterach officinarum																														
Chaerophyllum temulentum																					+									
Chamerion angustifolium				+	+				+	+	+	+				+		+	+	+	+			+	+			+		
Chelidonium majus	+									+																	+		+	
Chenopodium album		+			+		+					+								+				+						
C. polyspermum												+			+															
Circaea lutetiana											+																			
Cirsium acaule																	+													
C. arvense		+	+	+	+	+	+		+	+				+	+	+		+	+	+	+	+	+					+	+	+
C. eriophorum				+																										
C. palustre																														
C. vulgare	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+				+
Clematis vitalba																														
Clinopodium vulgare																														+
Conium maculatum																		+												
Conopodium majus																				+	+									
Convolvulus arvensis	+	+	+	+	+	+	+		+	+		+	+	+	+	+	+	+	+	+		+	+		+	+	+	+	+	+
Conyza canadensis																														
Cornus sanguinea																														
Coronopus didymus																														
C. squamatus												+																		
Corylus avellana																										+				
Crataegus laevigata																														
C. monogyna	+		+	+	+		+		+	+			+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+
Crepis capillaris	+	+	+	+	+	+			+		+	+	+	+	+	+	+	+	+	+	+	+	+	+		+		+		+
C. vesicaria	+	+	+	+	+													+	+			+					+		+	+
Cuscuta epithymum																														
Cymbalaria muralis		+	+			+		+			+		+				+													
Cynosurus cristatus			+																+					+						
Cystopteris fragilis																														
Cytisus scoparius																					+									
Dactylis glomerata	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+
Dactylorhiza fuchsii																														
Daphne laureola																														
Daucus carota																							+							
Deschampsia cespitosa															+	+		+									+	+		+
D. flexuosa																					+									
Desmazeria rigida																														
Digitalis purpurea									+														+							
Diplotaxis muralis																														
Dipsacus fullonum																														
D. pilosus																														
Dryopteris dilatata								+																						
D. filix-mas								+	+		+		+		+		+	+				+				+			+	
Elymus caninus																														
E. repens	+	+		+	+	+	+			+			+	+	+	+	+	+		+	+		+	+		+			+	+
Epilobium ciliatum	+	+			+				+	+	+			+		+		+		+	+	+	+	+			+	+		
E. hirsutum		+	+	+	+				+					+				+	+	+				+	+	+		+		+
E. montanum								+			+							+				+	+		+					+
E. tetragonum																														
Equisetum arvense																														
E. telmateia																														
Erica cinerea																														
Erinus alpinus																														
Erodium cicutarium																														
Erophila verna	+				+	+										+									+				+	
Erysimium cheiranthoides																														
Euonymus europaeus																														
Euphorbia helioscopia												+			+															
E. peplus		+			+	+		+	+		+	+			+				+	+	+	+				+	+	+	+	+


62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91
Carduus acanthoides
Carex divulsa
C. flacca
C. hirta
C. muricata
ssp lamprocarpa
C. otrubae
C. riparia
C. spicata
C.sylvatica
Centaurea nigra
C. scabiosa
Cephalanthera damasonium
Cerastium fontanum
ssp glabrescens
C. glomeratum
Ceterach officinarum
Chaerophyllum temulentum
Chamerion angustifolium
Chelidonium majus
Chenopodium album
C. polyspermum
Circaea lutetiana
Cirsium acaule
C. arvense
C. eriophorum
C. palustre
C. vulgare
Clematis vitalba
Clinopodium vulgare
Conium maculatum
Conopodium majus
Convolvulus arvensis
Conyza canadensis
Cornus sanguinea
Coronopus didymus
C. squamatus
Corylus avellana
Crataegus laevigata
C. monogyna
Crepis capillaris
C. vesicaria
Cuscuta epithymum
Cymbalaria muralis
Cynosurus cristatus
Cystopteris fragilis
Cytisus scoparius
Dactylis glomerata
Dactylorhiza fuchsii
Daphne laureola
Daucus carota
Deschampsia cespitosa
D. flexuosa
Desmazeria rigida
Digitalis purpurea
Diplotaxis muralis
Dipsacus fullonum
D. pilosus
Dryopteris dilatata
D. filix-mas
Elymus caninus
E. repens
Epilobium ciliatum
E. hirsutum
E. montanum
E. tetragonum
Equisetum arvense
E. telmateia
Erica cinerea
Erinus alpinus
Erodium cicutarium
Erophila verna
Erysimium cheiranthoides
Euonymus europaeus
Euphorbia helioscopia
E. peplus

	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	111	245	112	113	114	115	116	117	118	231	119	120	121
Carduus acanthoides								+																	+	+			+	+
Carex divulsa																														
C. flacca																														
C. hirta													+																	
C. muricata																														
ssp lamprocarpa																														
C. otrubae																														
C. riparia																														
C. spicata																														
C.sylvatica																														
Centaurea nigra		+		+				+			+		+	+	+										+	+				
C. scabiosa														+																
Cephalanthera damasonium																														
Cerastium fontanum																														
ssp glabrescens		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+		+	+			+	+	+		+	+	+
C. glomeratum		+							+																					
Ceterach officinarum																														
Chaerophyllum temulentum																														
Chamerion angustifolium		+		+				+	+	+	+			+	+			+		+	+		+	+		+			+
Chelidonium majus										+														+						
Chenopodium album		+								+		+				+		+		+		+	+					+		
C. polyspermum						+												+	+											
Circaea lutetiana																				+						+				
Cirsium acaule																														
C. arvense		+	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+	+		+	+	+	+	+			+	
C. eriophorum																														
C. palustre																														
C. vulgare		+	+		+	+	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+		+	+	+	+	+
Clematis vitalba																														
Clinopodium vulgare																			+					+						
Conium maculatum								+																						
Conopodium majus												+			+															
Convolvulus arvensis		+		+	+	+		+	+	+	+			+		+	+	+				+	+	+	+	+			+	+
Conyza canadensis																														
Cornus sanguinea																														
Coronopus didymus			+																											
C. squamatus																														
Corylus avellana																														
Crataegus laevigata													+																	
C. monogyna		+	+		+	+		+	+		+	+		+	+		+	+	+		+		+	+	+	+	+			+
Crepis capillaris			+	+	+		+	+	+	+	+	+		+		+	+	+	+	+	+	+	+	+		+		+	+	+
C. vesicaria				+	+	+	+	+	+					+	+			+						+		+		+		
Cuscuta epithymum																														
Cymbalaria muralis						+				+														+				+		
Cynosurus cristatus								+					+																	
Cystopteris fragilis																														
Cytisus scoparius																														
Dactylis glomerata		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+
Dactylorhiza fuchsii																														
Daphne laureola														+																
Daucus carota														+																
Deschampsia cespitosa		+									+				+	+			+	+			+	+						+
D. flexuosa																														
Desmazeria rigida																														
Digitalis purpurea											+																			
Diplotaxis muralis																														
Dipsacus fullonum								+	+				+											+					
D. pilosus																														
Dryopteris dilatata																														
D. filix-mas				+											+									+		+				
Elymus caninus																			+											
E. repens		+	+	+	+	+	+	+	+		+	+	+		+	+	+		+	+		+	+	+	+	+	+		+	+	+
Epilobium ciliatum		+							+	+		+	+		+	+			+	+	+			+		+				
E. hirsutum		+		+						+	+			+				+	+					+		+		+		
E. montanum									+	+	+	+				+		+		+				+		+	+			
E. tetragonum																														
Equisetum arvense													+																	
E. telmateia																														
Erica cinerea																														
Erinus alpinus																														
Erodium cicutarium																														
Erophila verna																	+	+											+	
Erysimium cheiranthoides																														
Euonymus europaeus													+																	
Euphorbia helioscopia		+									+									+				+						
E. peplus		+	+			+				+		+	+	+	+	+				+				+	+	+				


213 122 123 214 124 147 148 149 150 222 225 227 256 152 153 154 155 156 255 157 158 257 159 160 161 162 232 163 164 252
Carduus acanthoides
Carex divulsa
C. flacca
C. hirta
C. muricata
ssp lamprocarpa
C. otrubae
C. riparia
C. spicata
C.sylvatica
Centaurea nigra
C. scabiosa
Cephalanthera damasonium
Cerastium fontanum
ssp glabrescens
C. glomeratum
Ceterach officinarum
Chaerophyllum temulentum
Chamerion angustifolium
Chelidonium majus
Chenopodium album
C. polyspermum
Circaea lutetiana
Cirsium acaule
C. arvense
C. eriophorum
C. palustre
C. vulgare
Clematis vitalba
Clinopodium vulgare
Conium maculatum
Conopodium majus
Convolvulus arvensis
Conyza canadensis
Cornus sanguinea
Coronopus didymus
C. squamatus
Corylus avellana
Crataegus laevigata
C. monogyna
Crepis capillaris
C. vesicaria
Cuscuta epithymum
Cymbalaria muralis
Cynosurus cristatus
Cystopteris fragilis
Cytisus scoparius
Dactylis glomerata
Dactylorhiza fuchsii
Daphne laureola
Daucus carota
Deschampsia cespitosa
D. flexuosa
Desmazeria rigida
Digitalis purpurea
Diplotaxis muralis
Dipsacus fullonum
D. pilosus
Dryopteris dilatata
D. filix-mas
Elymus caninus
E. repens
Epilobium ciliatum
E. hirsutum
E. montanum
E. tetragonum
Equisetum arvense
E. telmateia
Erica cinerea
Erinus alpinus
Erodium cicutarium
Erophila verna
Erysimium cheiranthoides
Euonymus europaeus
Euphorbia helioscopia
E. peplus

	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	224	223	140	141	220	142	143	144	145	146
Carduus acanthoides	+				+		+						+					+		+					
Carex divulsa																									
C. flacca																									
C. hirta																									
C. muricata																									
ssp lamprocarpa																									
C. otrubae																									
C. riparia																									
C. spicata																									
C.sylvatica																		+							
Centaurea nigra	+	+			+		+	+		+							+	+	+	+	+				
C. scabiosa																			+		+				
Cephalanthera damasonium																									
Cerastium fontanum																									
ssp glabrescens	+	+	+		+	+	+	+	+	+	+	+		+	+	+	+	+	+		+	+		+		
C. glomeratum						+																+			
Ceterach officinarum																		+							
Chaerophyllum temulentum																									
Chamerion angustifolium	+		+		+	+		+		+			+	+	+	+	+	+	+		+	+			
Chelidonium majus	+								+																+
Chenopodium album						+					+							+							
C. polyspermum																		+		+					
Circaea lutetiana			+			+														+					
Cirsium acaule																									
C. arvense			+	+	+	+	+	+					+				+	+	+	+		+			+
C. eriophorum																									
C. palustre																									
C. vulgare	+	+	+	+	+	+	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+
Clematis vitalba	+				+					+								+	+						
Clinopodium vulgare				+	+													+							
Conium maculatum																									
Conopodium majus																+	+								
Convolvulus arvensis	+	+		+		+	+	+		+	+	+		+	+			+	+	+	+	+	+	+	+
Conyza canadensis			+																						
Cornus sanguinea				+	+	+												+							
Coronopus didymus																									
C. squamatus					+			+													+		+		
Corylus avellana	+							+								+	+	+		+					
Crataegus laevigata																									
C. monogyna	+	+	+		+			+	+	+		+		+	+	+	+	+	+	+	+	+	+	+	+
Crepis capillaris	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+
C. vesicaria					+					+	+		+		+			+			+				
Cuscuta epithymum																									
Cymbalaria muralis	+		+							+	+												+		
Cynosurus cristatus																									
Cystopteris fragilis																									
Cytisus scoparius																									
Dactylis glomerata	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Dactylorhiza fuchsii																									
Daphne laureola																									
Daucus carota																									
Deschampsia cespitosa					+													+							
D. flexuosa																									
Desmazeria rigida										+									+						
Digitalis purpurea																+									
Diplotaxis muralis																									
Dipsacus fullonum	+					+				+															
D. pilosus																									
Dryopteris dilatata																+									
D. filix-mas			+			+	+	+		+			+	+		+				+					
Elymus caninus										+															
E. repens	+	+					+	+				+	+	+	+	+			+	+	+			+	
Epilobium ciliatum	+		+	+		+	+						+			+	+	+							
E. hirsutum	+		+			+	+	+			+		+		+		+	+		+				+	+
E. montanum	+			+		+		+	+	+	+		+		+	+	+	+		+	+				
E. tetragonum																									
Equisetum arvense	+						+																		
E. telmateia																									
Erica cinerea																									
Erinus alpinus																									
Erodium cicutarium																									
Erophila verna					+					+			+										+		
Erysimium cheiranthoides					+																				
Euonymus europaeus																			+						
Euphorbia helioscopia			+								+			+				+				+			
E. peplus	+		+	+	+	+				+	+	+	+		+	+	+	+	+		+	+			

	165	230	166	167	228	169	251	170	250	216	211	173	175	176	177	239	178	229	179	180	249	181	182	194	195	186	187	189	190	246
Carduus acanthoides													+		+							+		+			.	+		
Carex divulsa										+												+								
C. flacca																														
C. hirta																														
C. muricata																														
ssp lamprocarpa																														
C. otrubae																														
C. riparia																														
C. spicata																														
C.sylvatica									+				+											+						
Centaurea nigra	+	+	+		+		+	+	+		+	+	+	+	+	+	+	+		+	+	+		+						+
C. scabiosa									+														+	+						
Cephalanthera damasonium																														
Cerastium fontanum																														
ssp glabrescens		+	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+	+	+	+	+	+	+	+	+	+		+
C. glomeratum															+		+													
Ceterach officinarum														+				+		+										
Chaerophyllum temulentum									+																					
Chamerion angustifolium	+		+	+	+	+		+	+	+	+	+	+		+	+	+	+	+		+	+	+	+		+		+	+	+
Chelidonium majus									+					+	+				+				+		+		+			
Chenopodium album								+			+							+		+			+		+					
C. polyspermum																														
Circaea lutetiana									+	+		+	+				+			+			+	+	+		+	+	+	
Cirsium acaule																														
C. arvense			+			+	+	+	+			+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	
C. eriophorum																														
C. palustre																														
C. vulgare	+			+	+	+	+	+	+	+		+	+	+	+	+	+		+	+	+		+	+	+	+	+		+	
Clematis vitalba								+	+	+		+				+					+			+						
Clinopodium vulgare										+											+			+						
Conium maculatum																														
Conopodium majus		+	+		+	+								+		+			+											
Convolvulus arvensis							+	+	+				+	+	+		+	+	+		+	+	+	+	+	+	+	+	+	+
Conyza canadensis												+																	+	
Cornus sanguinea								+	+	+	+										+	+	+	+					+	
Coronopus didymus																														
C. squamatus																														
Corylus avellana	+	+					+		+			+				+	+				+	+		+						
Crataegus laevigata																														
C. monogyna	+	+	+		+	+	+	+	+	+		+	+	+		+			+	+	+	+	+	+		+	+	+	+
Crepis capillaris	+		+			+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+		+	+
C. vesicaria								+						+	+		+		+	+	+	+			+	+		+		
Cuscuta epithymum																														+
Cymbalaria muralis	+			+		+								+			+		+						+	+		+		
Cynosurus cristatus								+							+					+							+			
Cystopteris fragilis			+																											
Cytisus scoparius																														+
Dactylis glomerata	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+
Dactylorhiza fuchsii																														
Daphne laureola											+																			
Daucus carota								+							+															
Deschampsia cespitosa													+							+										
D. flexuosa																				+										+
Desmazeria rigida									+																		+			
Digitalis purpurea	+	+	+		+					+					+		+		+		+		+				+			
Diplotaxis muralis									+																					
Dipsacus fullonum							+	+			+														+					
D. pilosus										+																				
Dryopteris dilatata																														
D. filix-mas	+	+	+	+	+	+	+	+	+		+	+		+	+		+	+	+	+		+		+			+	+	+	+
Elymus caninus									+																					
E. repens	+			+									+		+		+	+	+	+	+						+	+	+	
Epilobium ciliatum	+	+	+		+		+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
E. hirsutum								+	+			+		+	+			+		+			+			+	+	+	+	
E. montanum	+		+			+	+	+	+	+	+		+	+	+	+			+		+	+		+			+	+	+	+	+
E. tetragonum																														
Equisetum arvense														+		+				+								+		
E. telmateia																														
Erica cinerea																														+
Erinus alpinus	+												+																	
Erodium cicutarium																														
Erophila verna																					+							+		
Erysimium cheiranthoides																														
Euonymus europaeus								+													+	+								
Euphorbia helioscopia								+	+					+				+												
E. peplus	+	+		+	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	

	191	192	193	194	253	254	221	195	196	197	215	198	199	200	201	202	203	204	205	206	207	258	209	208	244	210
Carduus acanthoides							+								+											
Carex divulsa																										
C. flacca																										
C. hirta				+														+								
C. muricata ssp lamprocarpa								+																		
C. otrubae																										
C. riparia																										
C. spicata											+															
C.sylvatica	+		+																							
Centaurea nigra	+	+				+						+	+	+	+				+	+	+	+				+
C. scabiosa																										
Cephalanthera damasonium																										
Cerastium fontanum ssp glabrescens	+		+	+		+	+		+	+	+	+	+	+	+			+	+	+		+	+			+
C. glomeratum			+									+	+		+		+		+				+			
Ceterach officinarum																										
Chaerophyllum temulentum														+												
Chamerion angustifolium	+	+		+			+	+		+	+	+	+	+	+			+	+	+	+	+	+			
Chelidonium majus			+				+	+				+								+	+			+	+	
Chenopodium album			+	+			+		+		+		+				+	+	+		+	+	+			+
C. polyspermum													+			+										
Circaea lutetiana								+				+		+		+				+					+	
Cirsium acaule						+																				
C. arvense	+	+	+			+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+
C. eriophorum																										
C. palustre							+																			
C. vulgare	+		+	+		+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Clematis vitalba						+	+	+											+							
Clinopodium vulgare														+												
Conium maculatum							+																			+
Conopodium majus	+	+		+								+			+											
Convolvulus arvensis	+		+	+			+	+	+	+	+	+	+	+				+	+	+	+	+	+	+		+
Conyza canadensis								+										+	+			+		+		
Cornus sanguinea	+																								+	
Coronopus didymus									+						+					+						
C. squamatus																										
Corylus avellana	+						+		+						+										+	
Crataegus laevigata																										
C. monogyna	+	+	+	+	+	+	+			+	+	+	+	+				+	+		+		+		+	
Crepis capillaris	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+		+
C. vesicaria	+								+				+					+	+	+		+	+	+		+
Cuscuta epithymum																										
Cymbalaria muralis		+								+												+	+			
Cynosurus cristatus	+					+														+						
Cystopteris fragilis																										
Cytisus scoparius																										
Dactylis glomerata	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+
Dactylorhiza fuchsii																										
Daphne laureola																										
Daucus carota														+												
Deschampsia cespitosa									+					+									+			
D. flexuosa		+																								
Desmazeria rigida						+																				
Digitalis purpurea				+										+	+					+	+				+	
Diplotaxis muralis																		+					+			
Dipsacus fullonum																+				+						
D. pilosus																										
Dryopteris dilatata																										
D. filix-mas	+	+		+			+	+	+	+		+		+		+			+	+	+	+	+	+		
Elymus caninus																										
E. repens	+		+	+	+			+			+			+	+					+	+	+	+	+		+
Epilobium ciliatum	+	+	+	+	+		+	+	+	+	+	+		+	+	+	+	+		+	+	+	+		+	+
E. hirsutum				+			+							+							+	+		+		
E. montanum			+	+		+					+	+	+								+		+		+	+
E. tetragonum						+																	+			
Equisetum arvense			+																			+	+			
E. telmateia																										
Erica cinerea																										
Erinus alpinus																										
Erodium cicutarium																										
Erophila verna				+		+									+		+									
Erysimium cheiranthoides										+																
Euonymus europaeus																										
Euphorbia helioscopia				+		+						+	+	+				+	+			+				
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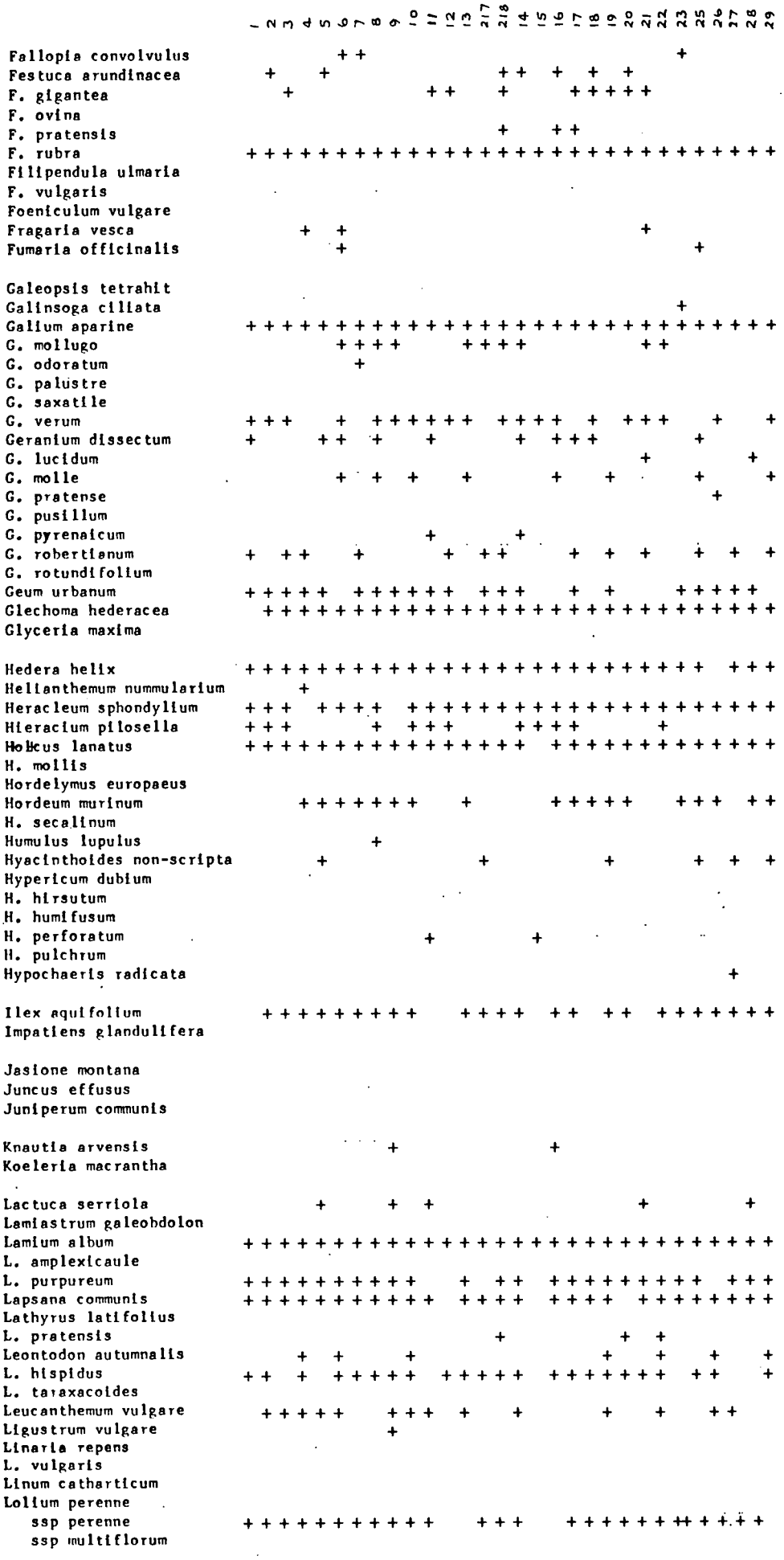
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F. pratensis
F. rubra
Filipendula ulmaria
F. vulgaris
Foeniculum vulgare
Fragaria vesca
Fumaria officinalis
Galeopsis tetrahit
Galinsoga ciliata
Galium aparine
G. mollugo
G. odoratum
G. palustre
G. saxatile
G. verum
Geranium dissectum
G. lucidum
G. molle
G. pratense
G. pusillum
G. pyrenaicum
G. robertianum
G. rotundifolium
Geum urbanum
Glechoma hederacea
Glyceria maxima
Hedera helix
Helianthemum nummularium
Heracleum sphondylium
Hieracium pilosella
Holcus lanatus
H. mollis
Hordelymus europaeus
Hordeum murinum
H. secalinum
Humulus lupulus
Hyacinthoides non-scripta
Hypericum dubium
H. hirsutum
H. humifusum
H. perforatum
H. pulchrum
Hypochaeris radicata
Ilex aquifolium
Impatiens glandulifera
Jasione montana
Juncus effusus
Juniperum communis
Knautia arvensis
Koeleria macrantha
Lactuca serriola
Lamiastrum galeobdolon
Lamium album
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L. purpureum
Lapsana communis
Lathyrus latifolius
L. pratensis
Leontodon autumnalis
L. hispidus
L. taraxacoides
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L. vulgaris
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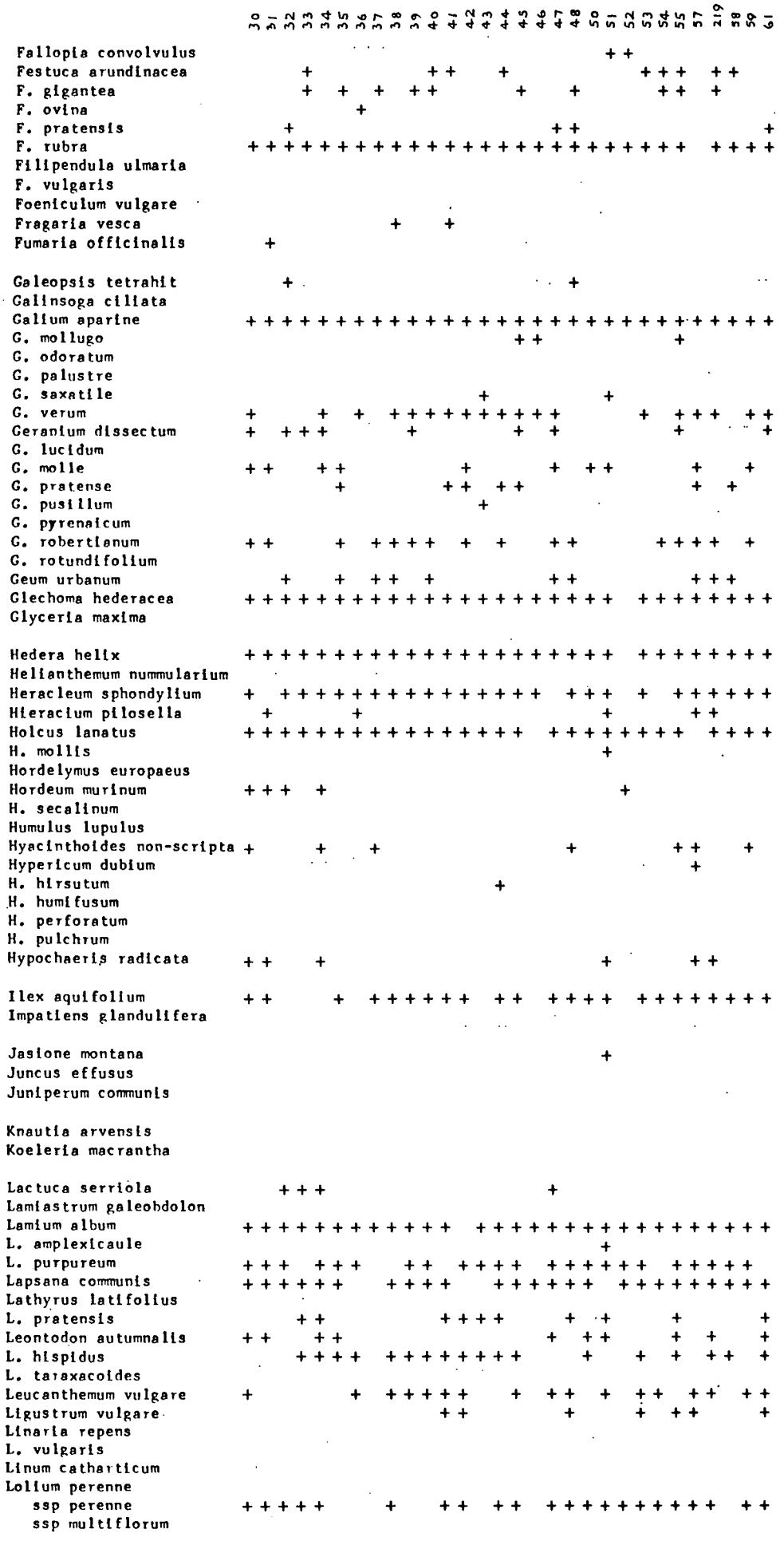
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Festuca arundinacea
F. gigantea
F. ovina
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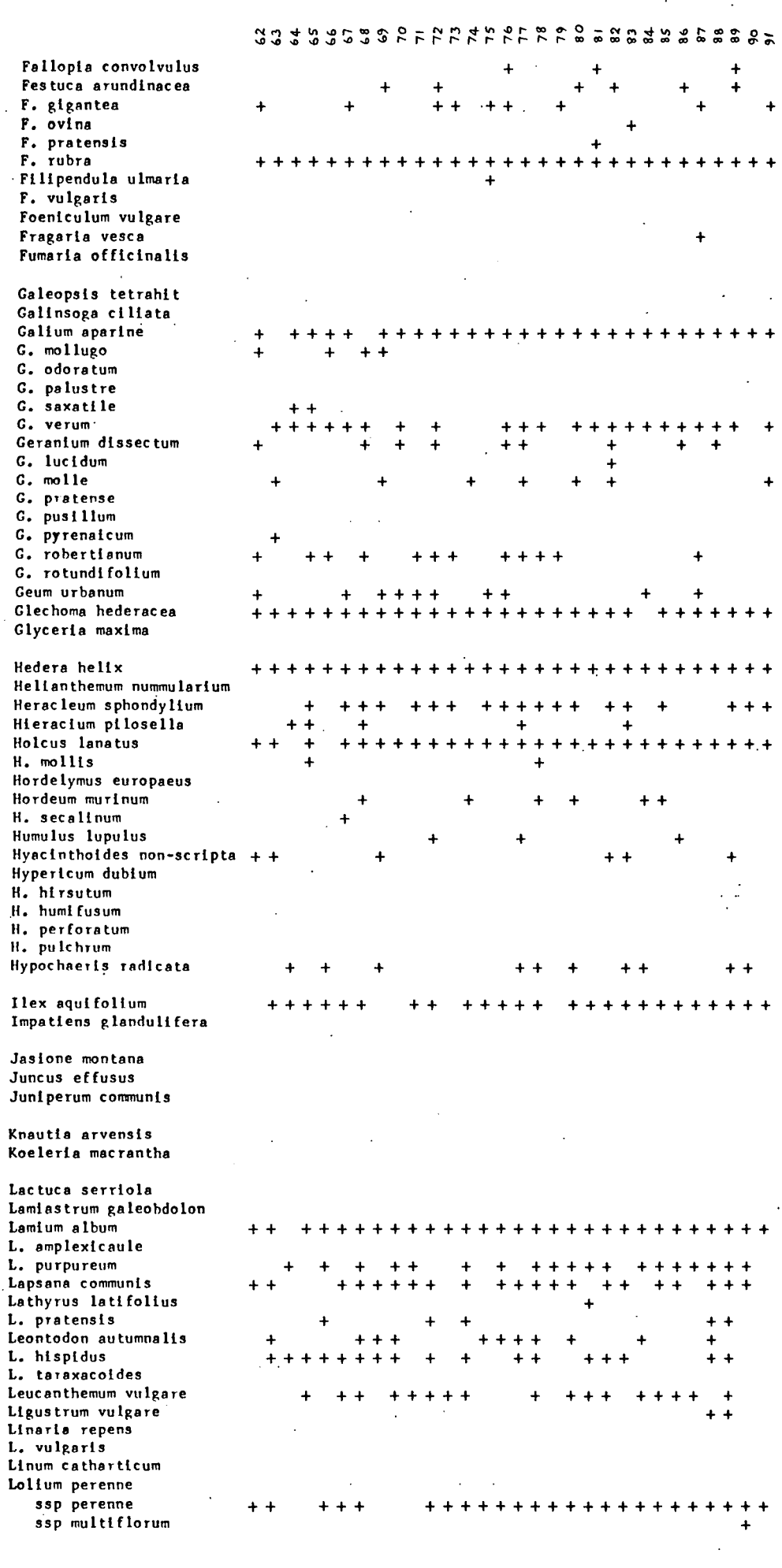
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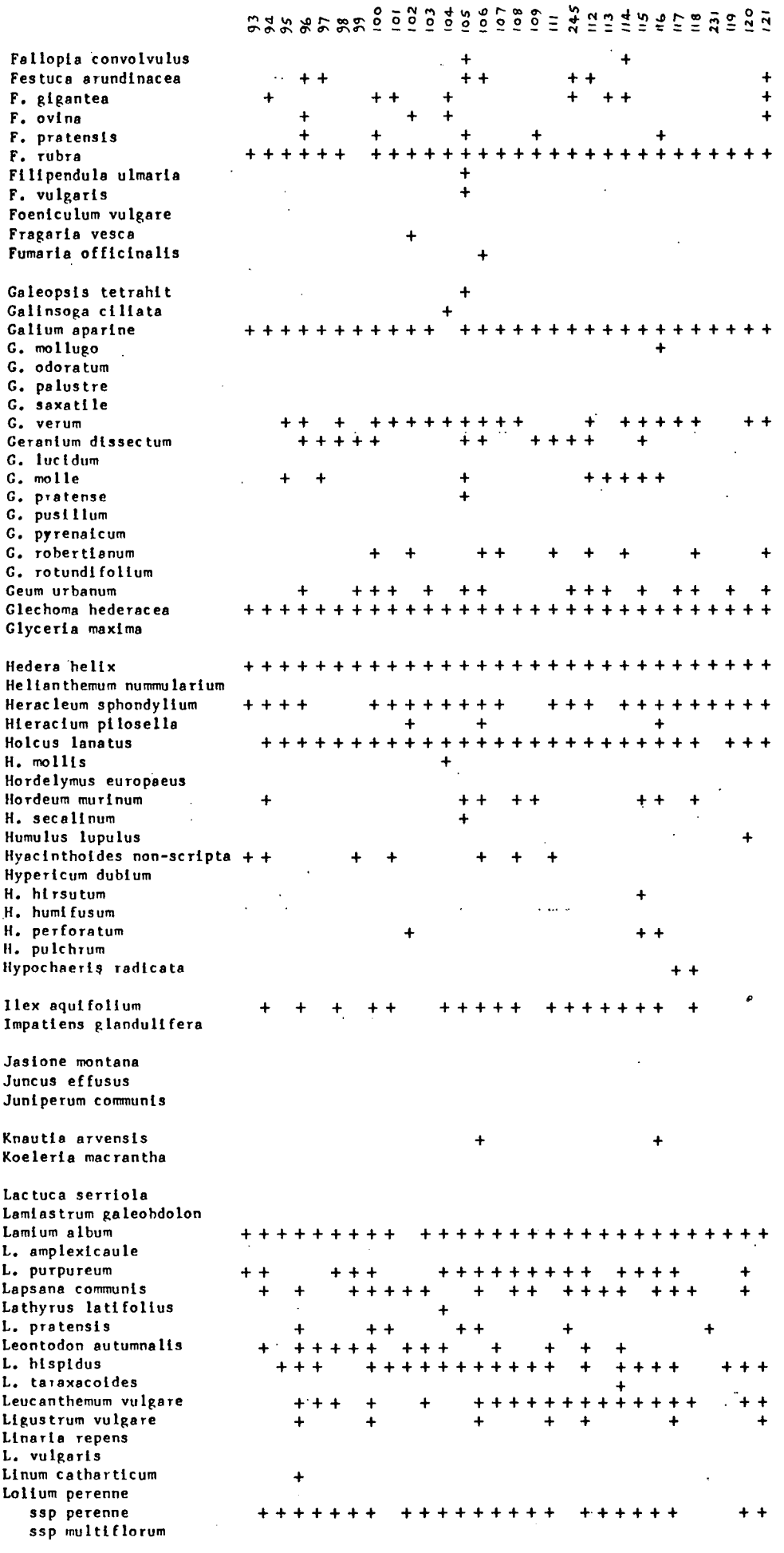
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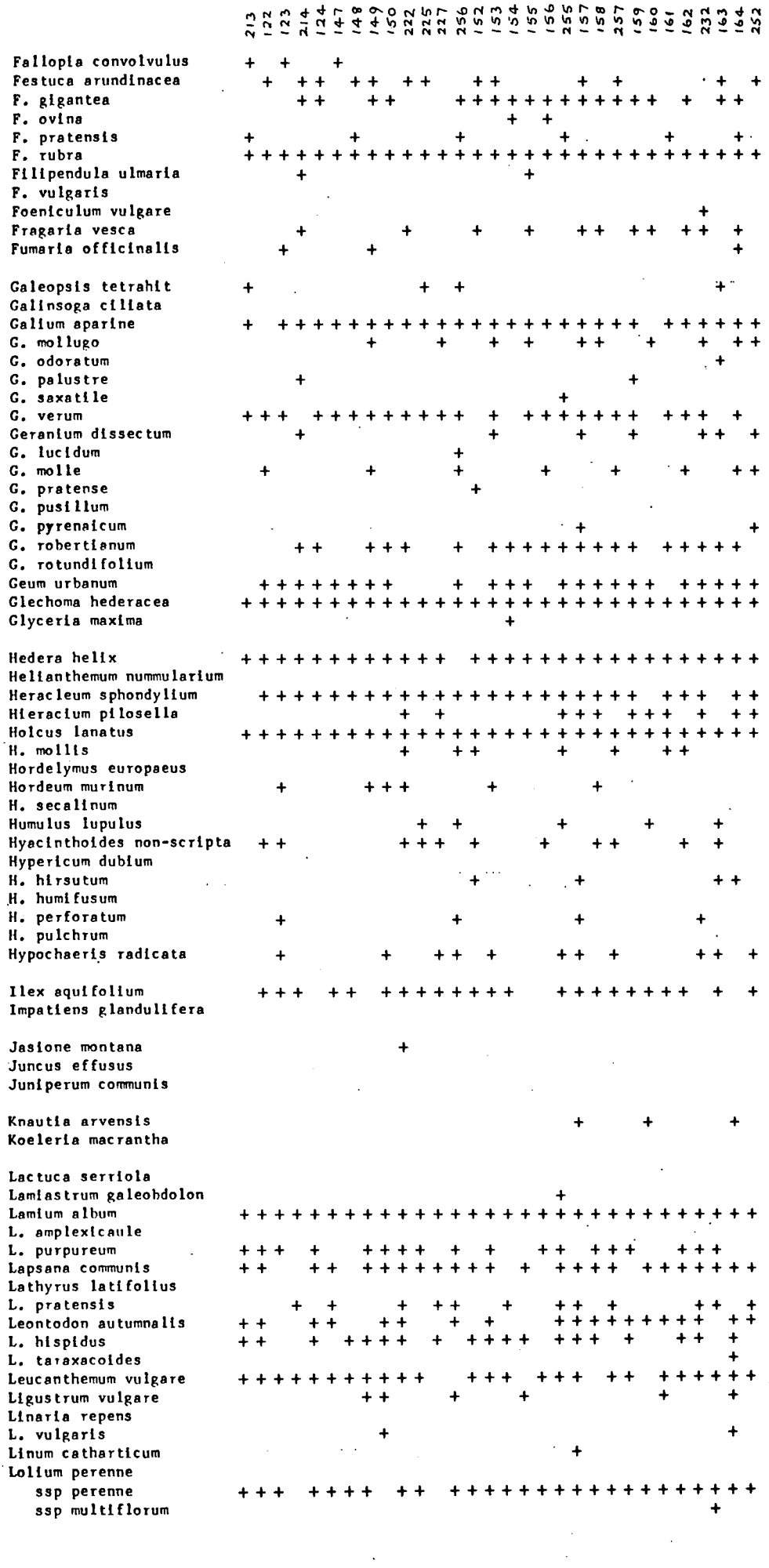
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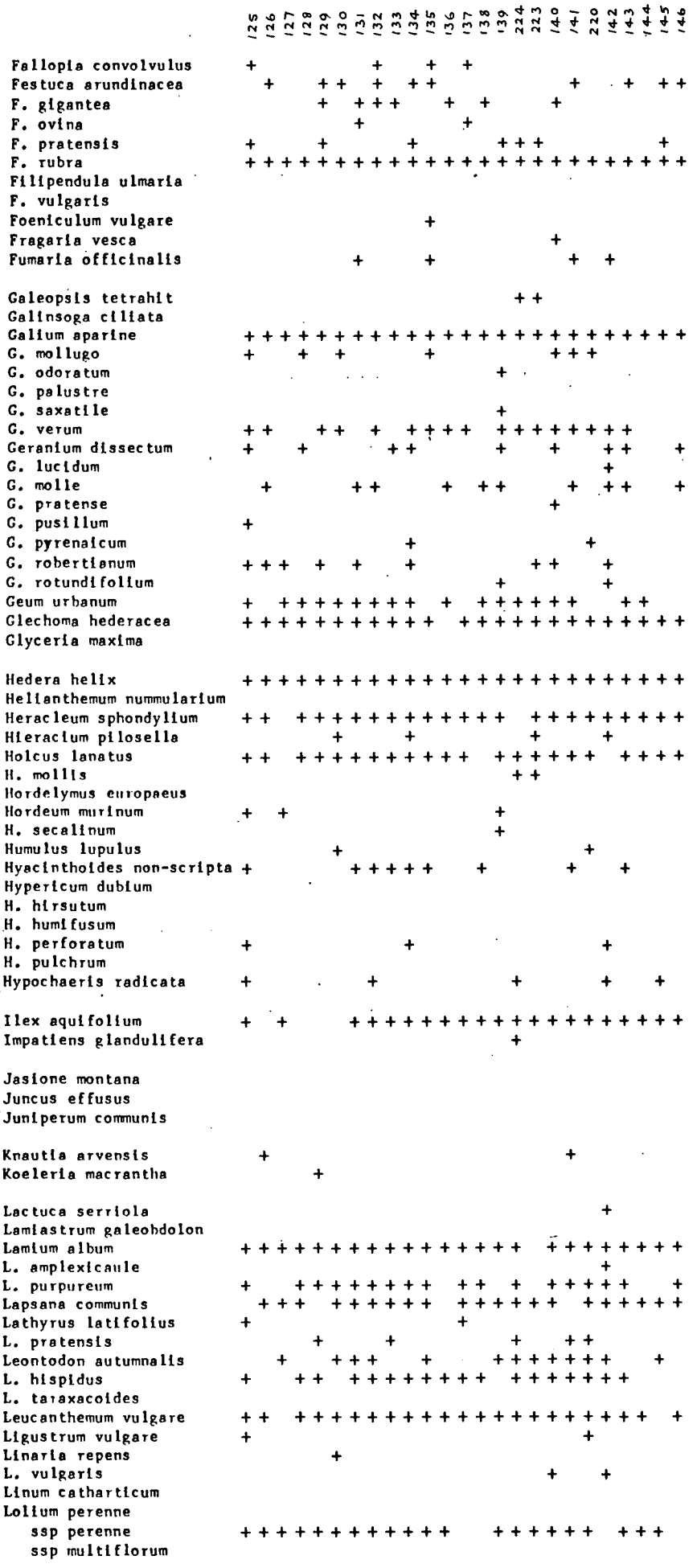
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Galium aparine
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Lathyrus latifolius
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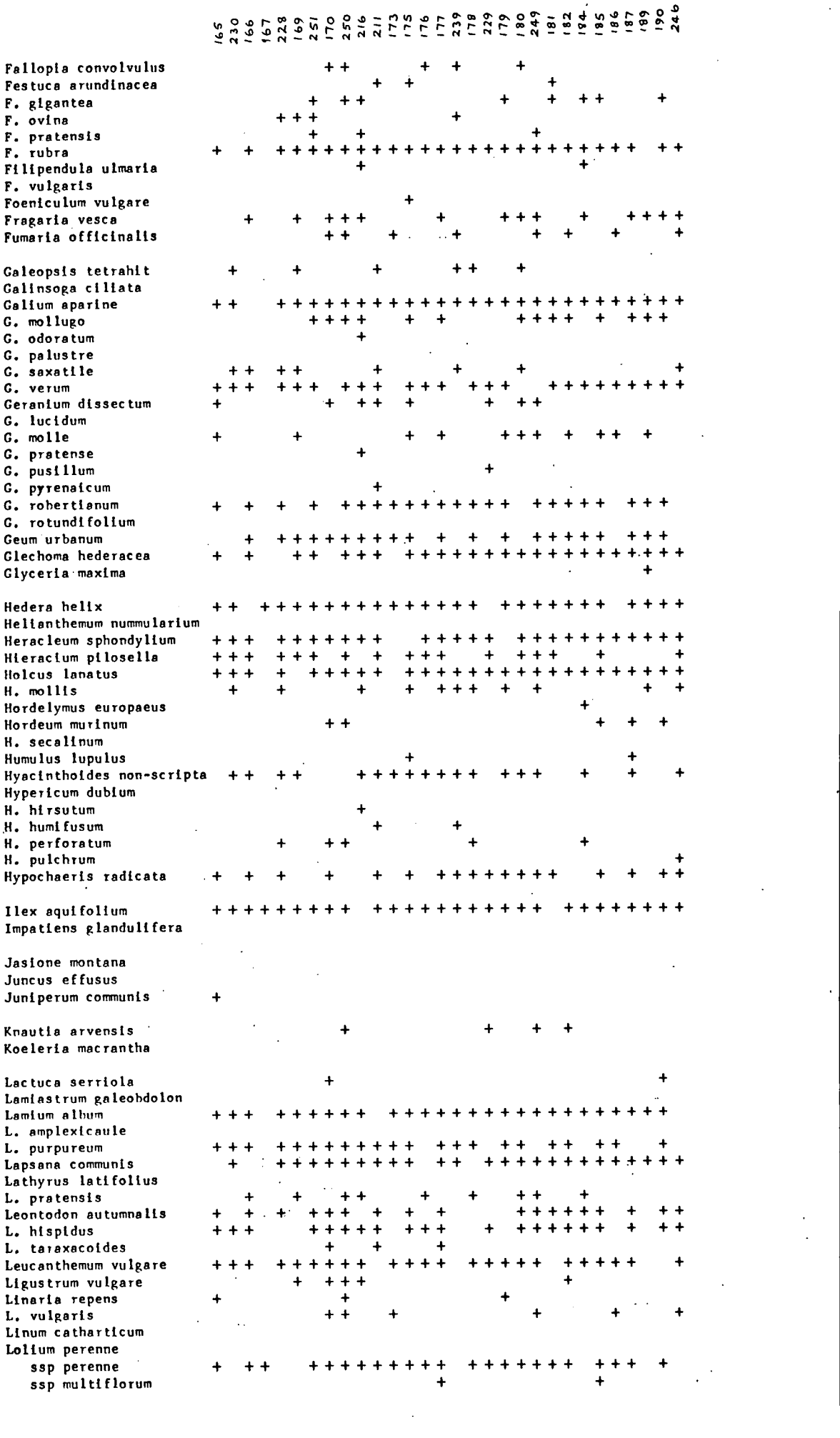
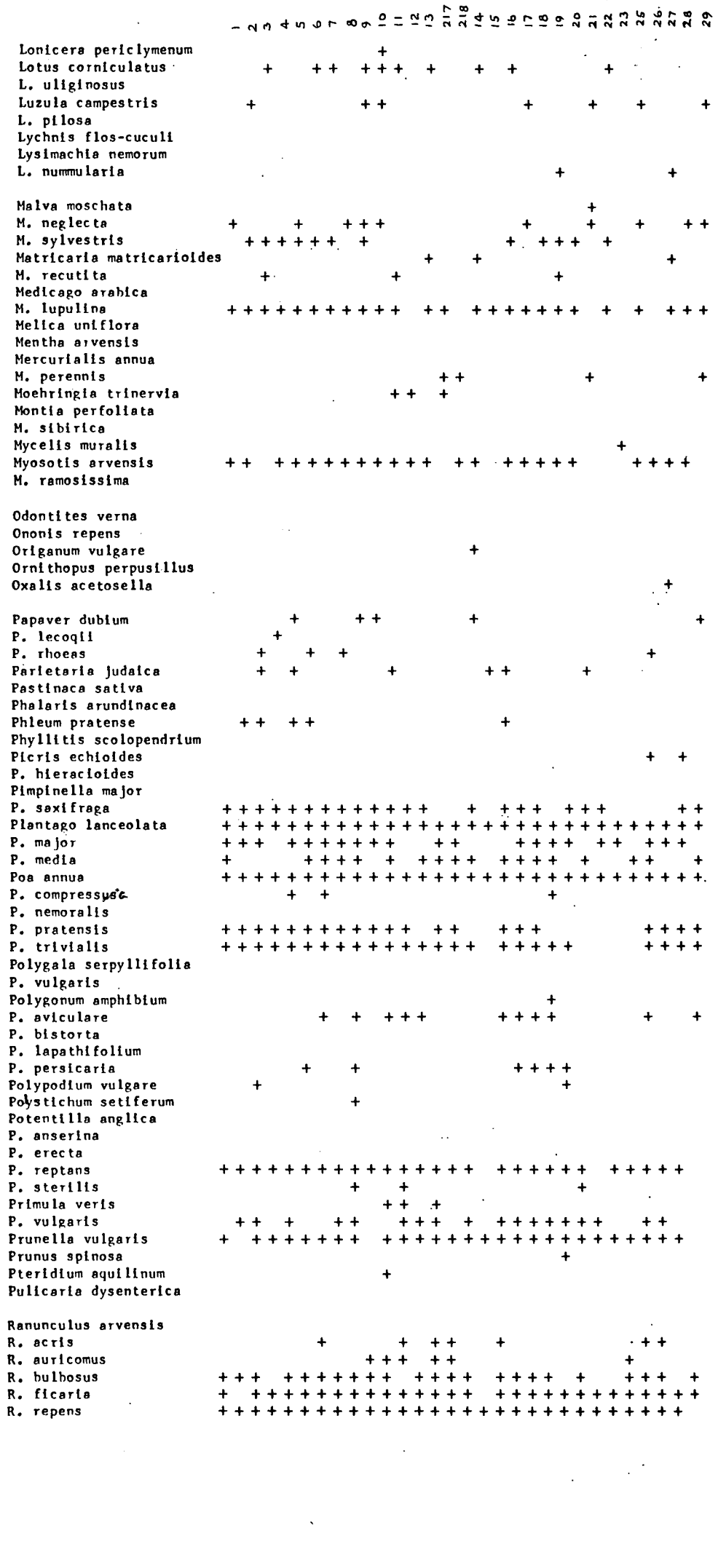
Lolium perenne
ssp perenne
ssp multiflorum

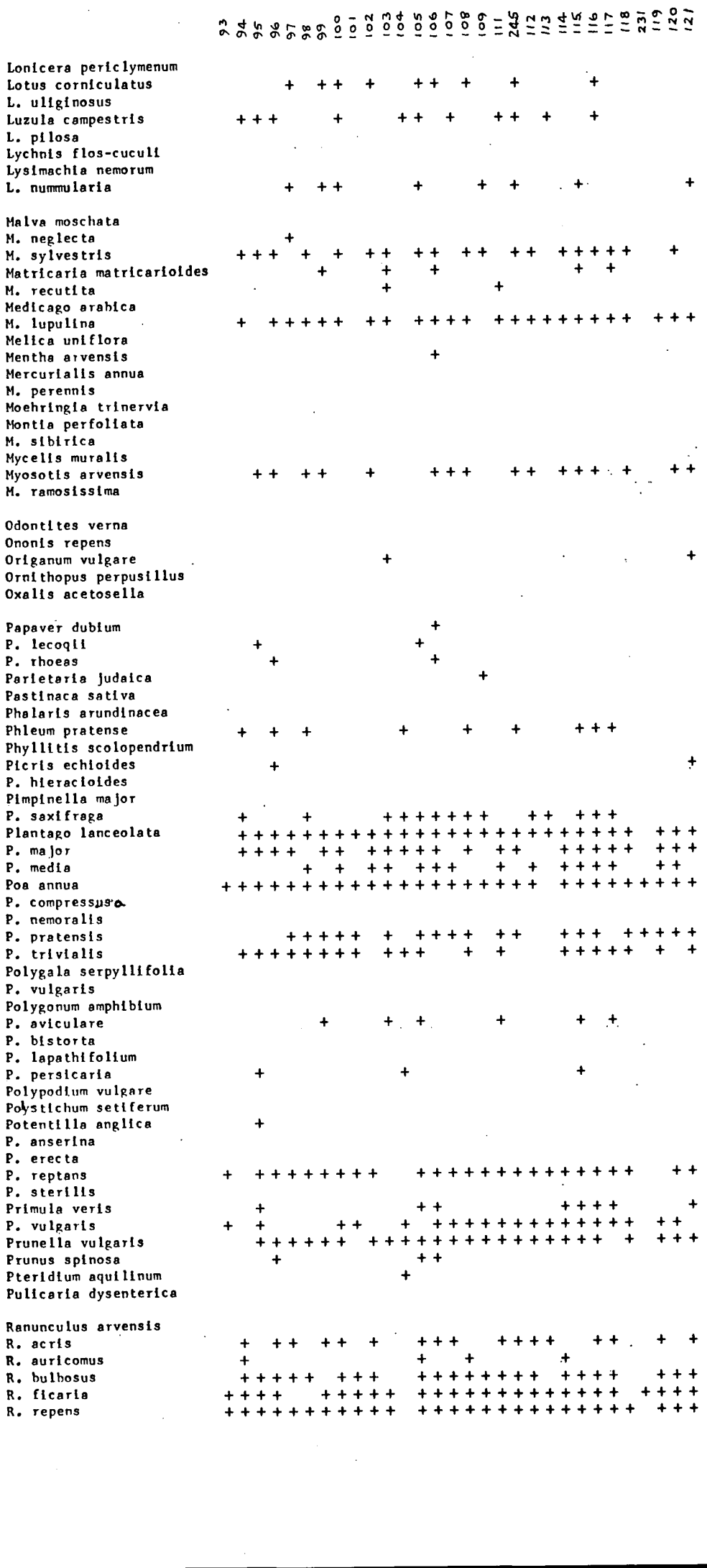

165 230 166 167 228 169 251 170 250 216 211 173 175 176 177 239 178 229 179 180 249 181 182 184 185 186 187 189 190 246
Fallopia convolvulus
Festuca arundinacea
F. gigantea
F. ovina
F. pratensis
F. rubra
Filipendula ulmaria
F. vulgaris
Foeniculum vulgare
Fragaria vesca
Fumaria officinalis
Galeopsis tetrahit
Galinsoga ciliata
Galium aparine
G. mollugo
G. odoratum
G. palustre
G. saxatile
G. verum
Geranium dissectum
G. lucidum
G. molle
G. pratense
G. pusillum
G. pyrenaicum
G. robertianum
G. rotundifolium
Geum urbanum
Glechoma hederacea
Glyceria maxima
Hedera helix
Helianthemum nummularium
Heracleum sphondylium
Hieracium pilosella
Holcus lanatus
H. mollis
Hordelymus europaeus
Hordeum murinum
H. secalinum
Humulus lupulus
Hyacinthoides non-scripta
Hypericum dubium
H. hirsutum
H. humifusum
H. perforatum
H. pulchrum
Hypochaeris radicata
Ilex aquifolium
Impatiens glandulifera
Jasione montana
Juncus effusus
Juniperum communis
Knautia arvensis
Koeleria macrantha
Lactuca serriola
Lamiastrum galeobdolon
Lamium album
L. amplexicaule
L. purpureum
Lapsana communis
Lathyrus latifolius
L. pratensis
Leontodon autumnalis
L. hispidus
L. taraxacoides
Leucanthemum vulgare
Ligustrum vulgare
Linaria repens
L. vulgaris
Linum catharticum
Lolium perenne
ssp perenne
ssp multiflorum

	191	192	193	194	253	254	221	195	196	197	215	198	199	200	201	202	203	204	205	206	207	258	209	208	244	210
Fallopia convolvulus											+		+		+		+					+				
Festuca arundinacea					+								+	+	+		+				+		+			
F. gigantea							+					+				+										
F. ovina		+	+												+											
F. pratensis																	+									
F. rubra	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+	+	+	+
Filipendula ulmaria							+																			
F. vulgaris																										
Foeniculum vulgare																										
Fragaria vesca	+	+		+		+	+	+				+							+							
Fumaria officinalis						+								+												
Galeopsis tetrahit															+		+									
Galinsoga ciliata																										
Galium aparine	+		+	+		+	+	+	+	+	+	+	+	+	+		+		+	+		+	+	+	+	+
G. mollugo				+		+	+								+											
G. odoratum														+												
G. palustre							+																			
G. saxatile		+																								
G. verum	+	+		+		+	+	+	+	+	+	+	+	+	+		+		+	+			+	+		+
Geranium dissectum	+		+	+	+						+	+		+	+		+		+		+	+	+		+
G. lucidum																										
G. molle							+		+	+	+	+		+	+		+	+			+		+		+	+
G. pratense																										
G. pusillum										+							+									
G. pyrenaicum			+							+	+				+		+	+	+						+	+
G. robertianum	+	+	+	+		+	+	+	+	+	+	+		+	+	+						+			+	
G. rotundifolium																										
Geum urbanum	+	+	+			+	+	+	+	+	+	+		+		+			+	+		+		+	+	+
Glechoma hederacea	+		+	+	+	+	+	+	+	+		+	+	+	+	+				+	+	+	+	+	+	+
Glyceria maxima																										
Hedera helix	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Helianthemum nummularium																										
Heracleum sphondylium	+	+	+			+	+	+	+		+	+	+	+	+	+			+	+	+		+	+	+	+
Hieracium pilosella	+	+	+	+	+	+	+	+	+		+	+	+		+					+			+			
Holcus lanatus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+		+
H. mollis	+	+	+				+			+	+		+	+					+	+	+	+				
Hordelymus europaeus																										
Hordeum murinum					+			+	+	+	+		+		+		+	+		+	+		+	+	+	+
H. secalinum																	+									
Humulus lupulus									+												+		+			
Hyacinthoides non-scripta	+	+	+	+			+		+	+	+		+	+				+	+	+			+			+
Hypericum dubium																										
H. hirsutum																										
H. humifusum																										
H. perforatum	+	+									+		+		+											
H. pulchrum																										
Hypochaeris radicata	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	
Ilex aquifolium	+	+	+	+		+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+
Impatiens glandulifera																										
Jasione montana																										
Juncus effusus							+																			
Juniperum communis																										
Knautia arvensis						+					+															
Koeleria macrantha																										
Lactuca serriola																			+							
Lamiastrum galeobdolon																										+
Lamium album	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+
L. amplexicaule																										
L. purpureum	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lapsana communis	+	+	+	+	+		+	+	+	+		+		+			+	+	+	+	+		+			+
Lathyrus latifolius		+																								
L. pratensis		+		+											+				+							
Leontodon autumnalis		+	+				+	+	+		+		+	+	+		+		+	+	+		+	+		+
L. hispidus	+	+				+	+	+																		
L. taraxacoides																										
Leucanthemum vulgare	+	+	+	+	+	+		+	+	+	+	+	+	+	+		+		+	+		+	+	+		
Ligustrum vulgare		+								+				+									+			
Linaria repens																										
L. vulgaris					+								+										+			+
Linum catharticum																										
Lolium perenne																										
ssp perenne	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+
ssp multiflorum																										


1 2 3 4 5 6 7 8 9 10 11 12 13 217 218 14 15 16 17 18 19 20 21 22 23 25 26 27 28 29
Lonicera periclymenum
Lotus corniculatus
L. uliginosus
Luzula campestris
L. pilosa
Lychnis flos-cuculi
Lysimachia nemorum
L. nummularia
Malva moschata
M. neglecta
M. sylvestris
Matricaria matricarioides
M. recutita
Medicago arabica
M. lupulina
Melica uniflora
Mentha arvensis
Mercurialis annua
M. perennis
Moehringia trinervia
Montia perfoliata
M. sibirica
Mycelis muralis
Myosotis arvensis
M. ramosissima
Odontites verna
Ononis repens
Origanum vulgare
Ornithopus perpusillus
Oxalis acetosella
Papaver dubium
P. lecoqii
P. rhoeas
Parietaria judaica
Pastinaca sativa
Phalaris arundinacea
Phleum pratense
Phyllitis scolopendrium
Picris echioides
P. hieracioides
Pimpinella major
P. saxifraga
Plantago lanceolata
P. major
P. media
Poa annua
P. compressa
P. nemoralis
P. pratensis
P. trivialis
Polygala serpyllifolia
P. vulgaris
Polygonum amphibium
P. aviculare
P. bistorta
P. lapathifolium
P. persicaria
Polypodium vulgare
Polystichum setiferum
Potentilla anglica
P. anserina
P. erecta
P. reptans
P. sterilis
Primula veris
P. vulgaris
Prunella vulgaris
Prunus spinosa
Pteridium aquilinum
Pulicaria dysenterica
Ranunculus arvensis
R. acris
R. auricomus
R. bulbosus
R. ficaria
R. repens

	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	50	51	52	53	54	55	57	219	58	59	61
Lonicera periclymenum																+														
Lotus corniculatus				+	+					+			+	+				+			+				+				+
L. uliginosus																														
Luzula campestris	+								+	+	+	+		+						+	+		+	+	+		+		+	+
L. pilosa																					+									
Lychnis flos-cuculi																														
Lysimachia nemorum																														
L. nummularia										+	+		+	+	+			+							+	+	+		+	+
Malva moschata																														
M. neglecta		+			+				+										+											
M. sylvestris	+		+	+	+		+							+					+	+			+						+
Matricaria matricarioides	+	+																												
M. recutita		+																												+
Medicago arabica																														
M. lupulina	+	+		+	+	+				+		+			+	+	+	+	+	+	+	+		+		+		+	+	+
Melica uniflora																														
Mentha arvensis																														
Mercurialis annua																														
M. perennis					+		+	+		+																	+			
Moehringia trinervia					+					+																				
Montia perfoliata																														
M. sibirica																														
Mycelis muralis																											+			
Myosotis arvensis		+	+	+	+	+		+	+	+				+		+	+	+	+			+		+	+			+	+
M. ramosissima																														
Odontites verna					+																									
Ononis repens																														
Origanum vulgare																														
Ornithopus perpusillus																					+									
Oxalis acetosella																														
Papaver dubium		+																												
P. lecoqii																														
P. rhoeas		+																												
Parietaria judaica		+																											+	
Pastinaca sativa																														
Phalaris arundinacea				+																										
Phleum pratense				+		+			+												+		+							
Phyllitis scolopendrium								+			+			+												+				
Picris echioides			+																						+					
P. hieracioides																														
Pimpinella major																														
P. saxifraga	+	+	+	+	+	+	+		+			+	+			+	+	+		+	+		+	+	+		+			+
Plantago lanceolata	+	+	+	+	+	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+
P. major		+		+	+	+	+			+	+	+		+	+	+	+	+	+			+		+	+	+	+			+
P. media					+		+		+	+		+	+			+			+					+	+		+	+	+	+
Poa annua	+	+	+	+	+	+	+		+	+	+	+		+	+	+		+	+	+		+	+	+	+	+	+	+	+	+
P. compressa																			+											
P. nemoralis																														
P. pratensis	+	+	+	+	+	+	+								+	+		+	+	+		+	+	+				+	+	+
P. trivialis	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+			+	+
Polygala serpyllifolia																														
P. vulgaris																														
Polygonum amphibium																+														
P. aviculare						+																+								
P. bistorta																														
P. lapathifolium																														
P. persicaria		+			+							+								+									
Polypodium vulgare																														
Polystichum setiferum																														
Potentilla anglica																														
P. anserina																														
P. erecta																														
P. reptans	+		+	+	+	+	+		+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+		+			+
P. sterilis								+	+		+	+															+			
Primula veris							+			+				+	+									+	+	+		+		+
P. vulgaris		+		+		+			+	+	+	+	+			+			+	+				+	+	+	+	+		
Prunella vulgaris					+	+	+		+	+	+	+		+	+	+		+		+		+	+	+	+		+			+
Prunus spinosa															+						+									
Pteridium aquilinum																					+									
Pulicaria dysenterica																														
Ranunculus arvensis																														
R. acris	+				+							+			+	+		+	+					+	+			+		+
R. auricomus				+					+				+		+			+						+	+	+		+		+
R. bulbosus	+	+	+	+	+	+				+			+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+
R. ficaria	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+		+	+	+	+			+	+	+	+	+	+	+
R. repens	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+

	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91
Lonicera periclymenum										+											+									
Lotus corniculatus			+		+		+	+													+						+		
L. uliginosus																														
Luzula campestris				+		+		+	+	+		+				+	+		+	+	+	+		+		+	+	+		+
L. pilosa																														
Lychnis flos-cuculi																														
Lysimachia nemorum																														
L. nummularia				+								+	+	+				+			+					+				
Malva moschata						+											+													
M. neglecta							+																							
M. sylvestris			+			+	+		+	+	+					+				+	+		+	+	+		+	+		
Matricaria matricarioides							+									+			+		+		+	+	+					
M. recutita																									+					
Medicago arabica																														
M. lupulina		+	+	+	+		+	+				+		+	+	+		+	+	+	+	+	+	+	+		+	+	+	+
Melica uniflora																														
Mentha arvensis																														
Mercurialis annua																														
M. perennis																					+									
Moehringia trinervia																														
Montia perfoliata				+																										
M. sibirica																														
Mycelis muralis																														
Myosotis arvensis	+						+		+	+	+			+	+			+		+	+			+		+			+	
M. ramosissima																														
Odontites verna																														
Ononis repens																														
Origanum vulgare							+																							
Ornithopus perpusillus																														
Oxalis acetosella																										+				
Papaver dubium			+							+									+											
P. lecoqii																														
P. rhoeas																														
Parietaria judaica			+											+						+										
Pastinaca sativa																														
Phalaris arundinacea																														
Phleum pratense			+					+					+											+			+	+		
Phyllitis scolopendrium																														
Picris echioides							+																							
P. hieracioides																														
Pimpinella major																				+										
P. saxifraga		+	+	+	+		+		+							+	+		+	+	+	+		+	+			+		+
Plantago lanceolata	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
P. major	+	+		+	+	+	+			+	+		+	+	+	+	+					+	+	+	+	+	+			
P. media		+				+	+	+	+				+				+				+	+			+			+		
Poa annua	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
P. compressus																														
P. nemoralis																														
P. pratensis	+				+	+	+	+			+	+	+	+		+	+	+		+	+	+			+	+			+	
P. trivialis	+				+	+			+	+	+	+		+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+
Polygala serpyllifolia																														
P. vulgaris																														
Polygonum amphibium																														
P. aviculare		+					+			+						+	+						+						
P. bistorta																														
P. lapathifolium																														
P. persicaria				+			+		+												+	+						+	+	
Polypodium vulgare																														
Polystichum setiferum																														
Potentilla anglica																														
P. anserina									+																					
P. erecta																														
P. reptans	+	+			+	+	+		+	+	+		+	+	+	+	+	+			+	+	+	+	+	+	+	+		
P. sterilis																														
Primula veris					+		+	+									+				+					+				
P. vulgaris	+	+	+	+	+		+	+	+	+	+		+		+	+	+				+	+	+	+	+	+		+	+	+
Prunella vulgaris	+	+	+	+	+		+	+	+	+	+		+	+	+			+			+	+	+	+	+	+	+	+		+
Prunus spinosa																	+													+
Pteridium aquilinum																														
Pulicaria dysenterica																														
Ranunculus arvensis																														
R. acris						+														+	+		+		+		+		+	
R. auricomus							+		+	+		+												+			+			
R. bulbosus		+	+			+	+	+	+		+	+	+			+	+			+	+	+	+	+	+			+	+	+
R. ficaria		+	+		+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+			+	+	+	+
R. repens	+		+	+	+	+	+		+	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+


93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 111 245 112 113 114 115 116 117 118 231 119 120 121
Lonicera periclymenum
Lotus corniculatus
L. uliginosus
Luzula campestris
L. pilosa
Lychnis flos-cuculi
Lysimachia nemorum
L. nummularia
Malva moschata
M. neglecta
M. sylvestris
Matricaria matricarioides
M. recutita
Medicago arabica
M. lupulina
Melica uniflora
Mentha arvensis
Mercurialis annua
M. perennis
Moehringia trinervia
Montia perfoliata
M. sibirica
Mycelis muralis
Myosotis arvensis
M. ramosissima
Odontites verna
Ononis repens
Origanum vulgare
Ornithopus perpusillus
Oxalis acetosella
Papaver dubium
P. lecoqii
P. rhoeas
Parietaria judaica
Pastinaca sativa
Phalaris arundinacea
Phleum pratense
Phyllitis scolopendrium
Picris echioides
P. hieracioides
Pimpinella major
P. saxifraga
Plantago lanceolata
P. major
P. media
Poa annua
P. compressa
P. nemoralis
P. pratensis
P. trivialis
Polygala serpyllifolia
P. vulgaris
Polygonum amphibium
P. aviculare
P. bistorta
P. lapathifolium
P. persicaria
Polypodium vulgare
Polystichum setiferum
Potentilla anglica
P. anserina
P. erecta
P. reptans
P. sterilis
Primula veris
P. vulgaris
Prunella vulgaris
Prunus spinosa
Pteridium aquilinum
Pulicaria dysenterica
Ranunculus arvensis
R. acris
R. auricomus
R. bulbosus
R. ficaria
R. repens

	213	122	123	214	124	147	148	149	150	222	225	227	256	152	153	154	155	156	255	157	158	257	159	160	161	162	232	163	164	252
Lonicera periclymenum										+												+								
Lotus corniculatus		+	+			+	+		+	+	+	+	+	+		+		+		+							+	+	+	+
L. uliginosus										+																	+			
Luzula campestris			+		+	+				+		+	+	+					+	+		+	+	+		+	+		+	
L. pilosa																						+								
Lychnis flos-cuculi																														
Lysimachia nemorum																														
L. nummularia	+	+		+		+										+	+						+							
Malva moschata																											+			
M. neglecta																														
M. sylvestris								+		+																+		+		
Matricaria matricarioides				+		+														+				+						
M. recutita																														
Medicago arabica																														
M. lupulina			+		+	+	+	+		+		+		+	+	+	+	+	+	+	+				+		+		+	
Melica uniflora																														
Mentha arvensis																														
Mercurialis annua																														
M. perennis														+					+	+				+	+	+	+		+	
Moehringia trinervia								+		+									+				+							
Montia perfoliata																														
M. sibirica			+																											
Mycelis muralis																				+			+	+		+	+			
Myosotis arvensis	+				+	+				+	+		+		+	+	+	+		+			+	+				+	+	+
M. ramosissima																														
Odontites verna																				+	+									
Ononis repens																														
Origanum vulgare					+	+		+												+									+	
Ornithopus perpusillus																														
Oxalis acetosella												+								+					+					
Papaver dubium																													+	
P. lecoqii																														
P. rhoeas													+																	+
Parietaria judaica						+														+				+						
Pastinaca sativa																														
Phalaris arundinacea																	+													
Phleum pratense			+			+							+							+			+		+				+	+
Phyllitis scolopendrium		+										+			+		+			+				+	+		+			
Picris echioides																														
P. hieracioides																												+		
Pimpinella major																														
P. saxifraga			+		+	+	+	+	+	+		+	+	+	+	+	+	+	+	+				+		+			+	+
Plantago lanceolata	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
P. major	+	+	+	+		+	+	+	+				+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	
P. media			+		+	+	+	+	+				+	+		+	+		+	+		+		+		+	+		+	
Poa annua	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+		
P. compressus																														
P. nemoralis																			+								+			
P. pratensis	+		+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+				+		+	+
P. trivialis	+	+	+		+	+	+	+	+			+		+	+				+	+	+				+	+	+	+	+
Polygala serpyllifolia																														
P. vulgaris										+																				
Polygonum amphibium																+														
P. aviculare	+	+	+		+															+		+		+	+		+	+	+	+
P. bistorta														+																
P. lapathifolium																														
P. persicaria			+							+	+																			
Polypodium vulgare															+					+							+			
Polystichum setiferum																														
Potentilla anglica																														
P. anserina			+																											
P. erecta										+										+										
P. reptans	+	+	+	+	+	+		+	+	+			+	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+
P. sterilis										+		+		+						+			+			+	+		+	
Primula veris								+	+	+			+			+							+						+	
P. vulgaris			+	+		+		+	+	+		+	+	+	+	+	+	+	+	+			+	+		+	+		+	
Prunella vulgaris	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Prunus spinosa																													+	
Pteridium aquilinum			+																			+								
Pulicaria dysenterica																														
Ranunculus arvensis										+																				
R. acris			+	+	+	+		+		+	+		+	+	+	+	+			+	+		+	+	+	+		+	+	+
R. auricomus				+	+									+						+				+			+			
R. bulbosus	+		+		+	+	+	+	+	+		+	+	+						+		+	+	+		+		+	+	+
R. ficaria		+	+	+	+	+		+	+	+	+		+	+	+	+	+	+	+	+		+	+	+		+	+	+	+	+
R. repens	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	224	223	140	141	220	142	143	144	145	146
Lonicera periclymenum																									
Lotus corniculatus	+									+		+	+				+		+	+	+	+		+	
L. uliginosus																+									
Luzula campestris		+			+	+				+		+		+		+	+			+				+	
L. pilosa																									
Lychnis flos-cuculi																									
Lysimachia nemorum																									
L. nummularia														+							+				+
Malva moschata																									
M. neglecta				+							+	+									+	+			
M. sylvestris	+		+		+		+		+					+	+						+				
Matricaria matricarioides	+							+					+		+						+				
M. recutita	+																								
Medicago arabica																									
M. lupulina	+	+		+	+	+				+	+	+	+	+	+			+	+	+	+	+			+
Melica uniflora																+									
Mentha arvensis																									
Mercurialis annua																									
M. perennis							+									+			+	+					
Moehringia trinervia																+		+							
Montia perfoliata																									
M. sibirica																									
Mycelis muralis			+			+		+																	
Myosotis arvensis	+		+			+	+	+	+		+			+	+	+	+	+			+	+			
M. ramosissima															+										
Odontites verna																									
Ononis repens																									
Origanum vulgare						+		+		+									+						
Ornithopus perpusillus																									
Oxalis acetosella																									
Papaver dubium	+						+											+	+		+				
P. lecoqii								+	+													+			
P. rhoeas																									+
Parietaria judaica											+							+							
Pastinaca sativa																									
Phalaris arundinacea																									
Phleum pratense	+						+			+					+				+					
Phyllitis scolopendrium						+	+	+			+														
Picris echioides																								+	
P. hieracioides																									
Pimpinella major																									
P. saxifraga	+			+	+	+	+	+		+	+				+			+	+	+	+	+			
Plantago lanceolata	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+
P. major	+		+		+	+	+	+		+	+	+	+	+	+			+	+		+	+	+	+	+
P. media	+			+	+	+	+	+		+	+	+	+	+	+		+	+	+	+	+	+			+
Poa annua	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
P. compressa														+				+		+					
P. nemoralis																									
P. pratensis	+	+			+	+	+		+	+	+	+	+	+		+		+	+	+	+	+	+		
P. trivialis	+	+	+			+	+			+	+		+		+	+	+	+	+	+	+	+	+	+	+
Polygala serpyllifolia																									
P. vulgaris																									
Polygonum amphibium																									
P. aviculare			+		+			+																	
P. bistorta																									
P. lapathifolium																									
P. persicaria						+		+								+									+
Polypodium vulgare															+										
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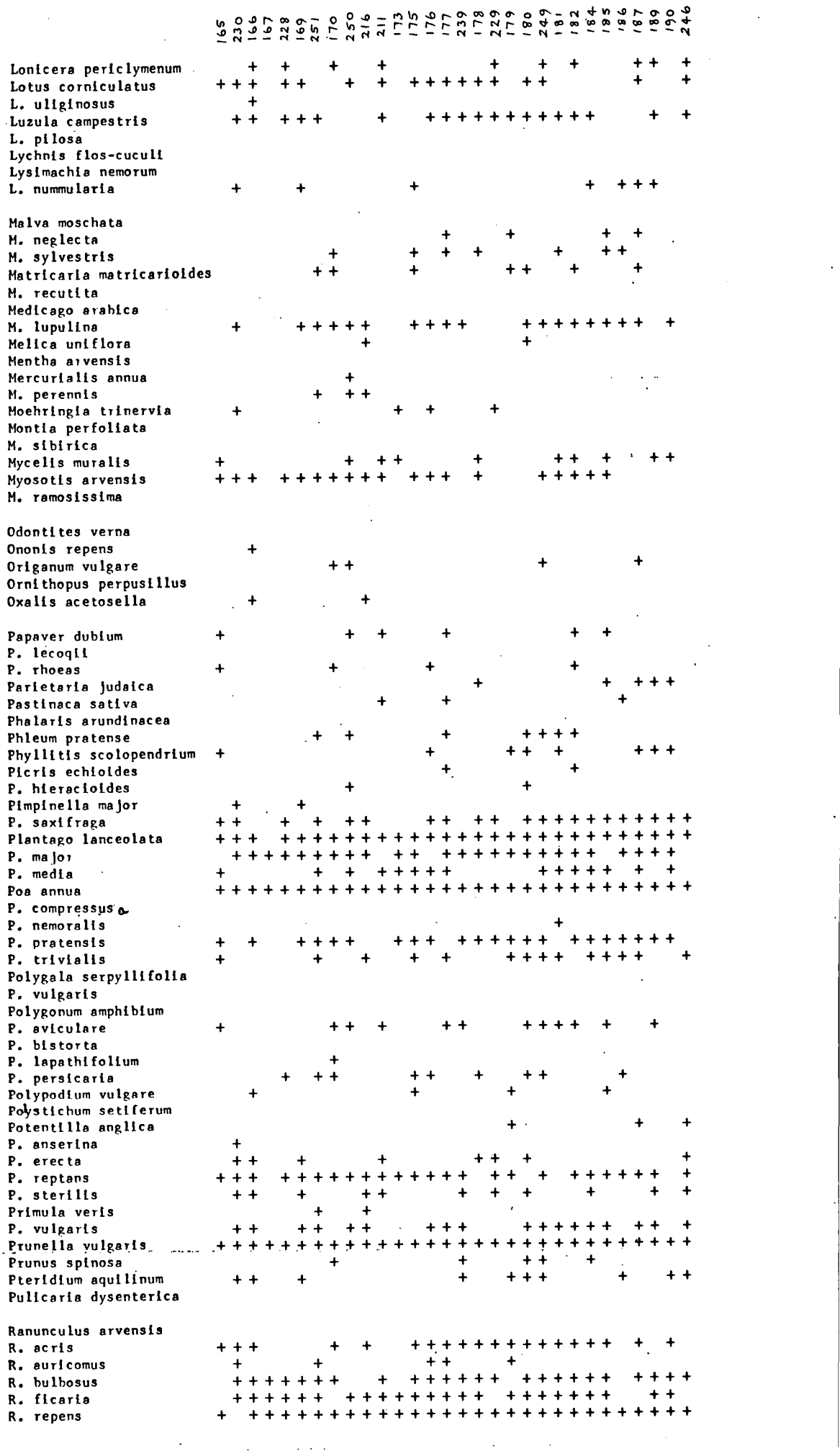
Potentilla anglica																									
P. anserina									+			+													
P. erecta																									
P. reptans						+		+	+	+	+	+	+		+		+		+	+	+	+	+	+	+
P. sterilis				+												+	+								
Primula veris						+				+				+					+	+	+				
P. vulgaris			+			+		+		+	+			+	+		+	+	+	+				+	+
Prunella vulgaris	+		+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+				+	+
Prunus spinosa	+							+																	+
Pteridium aquilinum																									
Pulicaria dysenterica																									
Ranunculus arvensis																									
R. acris	+			+						+	+			+		+	+		+				+	+	+
R. auricomus														+					+					+	
R. bulbosus	+	+		+	+	+	+			+	+	+	+		+				+	+	+	+	+	+	
R. ficaria	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
R. repens	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+		+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Luzula campestris
L. pilosa
Lychnis flos-cuculi
Lysimachia nemorum
L. nummularia
Malva moschata
M. neglecta
M. sylvestris
Matricaria matricarioides
M. recutita
Medicago arabica
M. lupulina
Melica uniflora
Mentha arvensis
Mercurialis annua
M. perennis
Moehringia trinervia
Montia perfoliata
M. sibirica
Mycelis muralis
Myosotis arvensis
M. ramosissima
Odontites verna
Ononis repens
Origanum vulgare
Ornithopus perpusillus
Oxalis acetosella
Papaver dubium
P. lecoqii
P. rhoeas
Parietaria judaica
Pastinaca sativa
Phalaris arundinacea
Phleum pratense
Phyllitis scolopendrium
Picris echioides
P. hieracioides
Pimpinella major
P. saxifraga
Plantago lanceolata
P. major
P. media
Poa annua
P. compressus
P. nemoralis
P. pratensis
P. trivialis
Polygala serpyllifolia
P. vulgaris
Polygonum amphibium
P. aviculare
P. bistorta
P. lapathifolium
P. persicaria
Polypodium vulgare
Polystichum setiferum
Potentilla anglica
P. anserina
P. erecta
P. reptans
P. sterilis
Primula veris
P. vulgaris
Prunella vulgaris
Prunus spinosa
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R. acris
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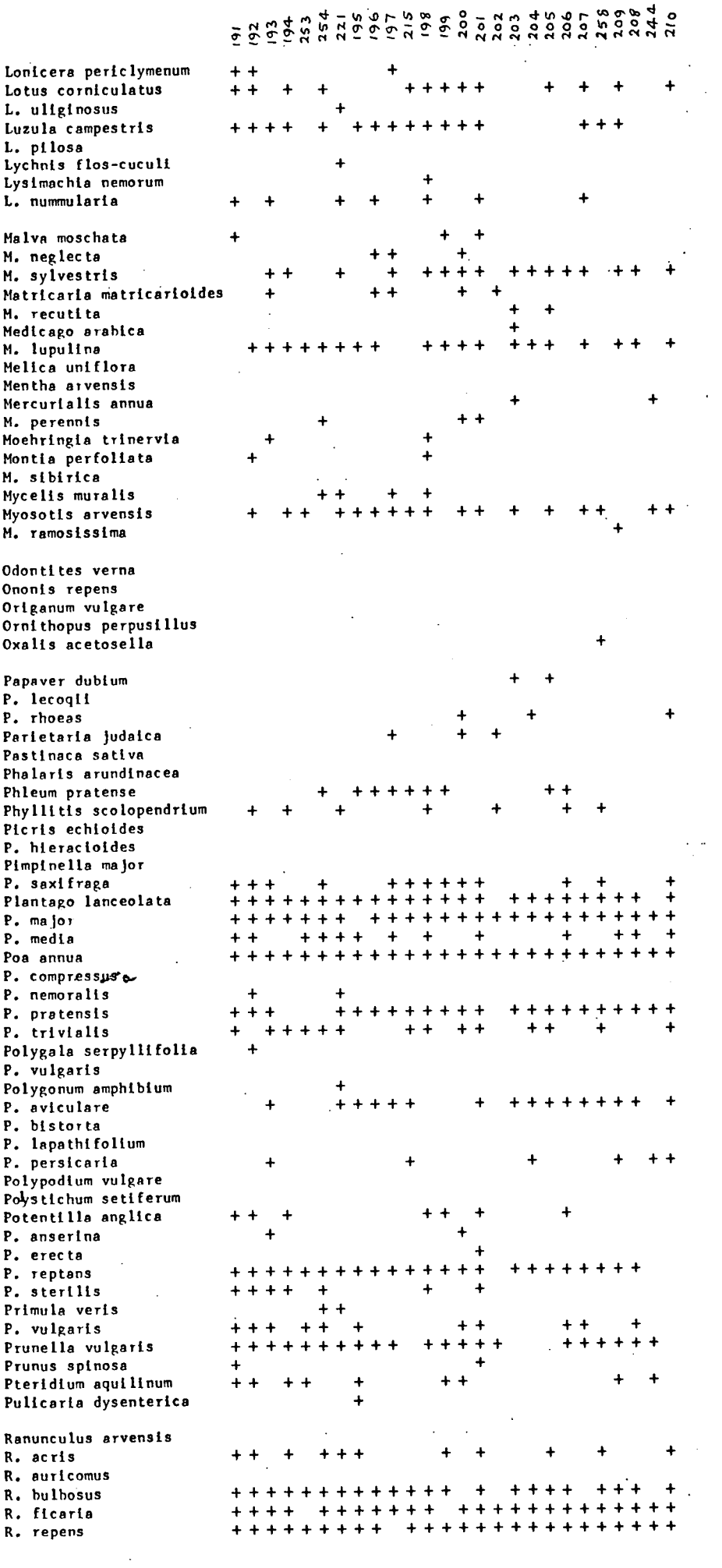
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Lonicera periclymenum
Lotus corniculatus
L. uliginosus
Luzula campestris
L. pilosa
Lychnis flos-cuculi
Lysimachia nemorum
L. nummularia
Malva moschata
M. neglecta
M. sylvestris
Matricaria matricarioides
M. recutita
Medicago arabica
M. lupulina
Melica uniflora
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Mercurialis annua
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Moehringia trinervia
Montia perfoliata
M. sibirica
Mycelis muralis
Myosotis arvensis
M. ramosissima
Odontites verna
Ononis repens
Origanum vulgare
Ornithopus perpusillus
Oxalis acetosella
Papaver dubium
P. lecoqii
P. rhoeas
Parietaria judaica
Pastinaca sativa
Phalaris arundinacea
Phleum pratense
Phyllitis scolopendrium
Picris echioides
P. hieracioides
Pimpinella major
P. saxifraga
Plantago lanceolata
P. major
P. media
Poa annua
P. compressus
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P. trivialis
Polygala serpyllifolia
P. vulgaris
Polygonum amphibium
P. aviculare
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P. lapathifolium
P. persicaria
Polypodium vulgare
Polystichum setiferum
Potentilla anglica
P. anserina
P. erecta
P. reptans
P. sterilis
Primula veris
P. vulgaris
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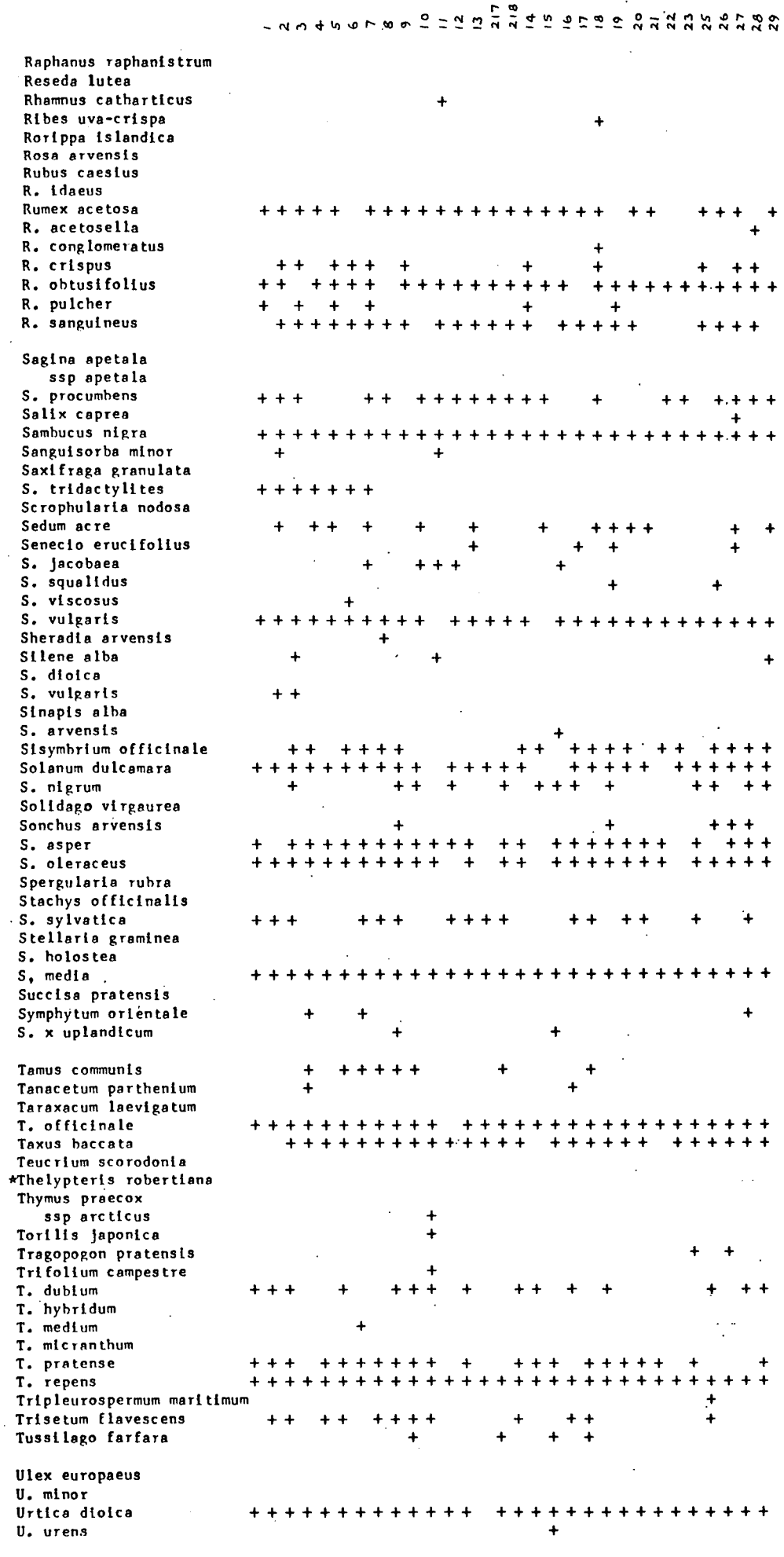
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Rhamnus catharticus
Ribes uva-crispa
Rorippa islandica
Rosa arvensis
Rubus caesius
R. idaeus
Rumex acetosa
R. acetosella
R. conglomeratus
R. crispus
R. obtusifolius
R. pulcher
R. sanguineus
Sagina apetala
ssp apetala
S. procumbens
Salix caprea
Sambucus nigra
Sanguisorba minor
Saxifraga granulata
S. tridactylites
Scrophularia nodosa
Sedum acre
Senecio erucifolius
S. jacobaea
S. squalidus
S. viscosus
S. vulgaris
Sheradia arvensis
Silene alba
S. dioica
S. vulgaris
Sinapis alba
S. arvensis
Sisymbrium officinale
Solanum dulcamara
S. nigrum
Solidago virgaurea
Sonchus arvensis
S. asper
S. oleraceus
Spergularia rubra
Stachys officinalis
S. sylvatica
Stellaria graminea
S. holostea
S, media
Succisa pratensis
Symphytum orientale
S. x uplandicum
Tamus communis
Tanacetum parthenium
Taraxacum laevigatum
T. officinale
Taxus baccata
Teucrium scorodonia
*Thelypteris robertiana
Thymus praecox
ssp arcticus
Torilis japonica
Tragopogon pratensis
Trifolium campestre
T. dubium
T. hybridum
T. medium
T. micranthum
T. pratense
T. repens
Tripleurospermum maritimum
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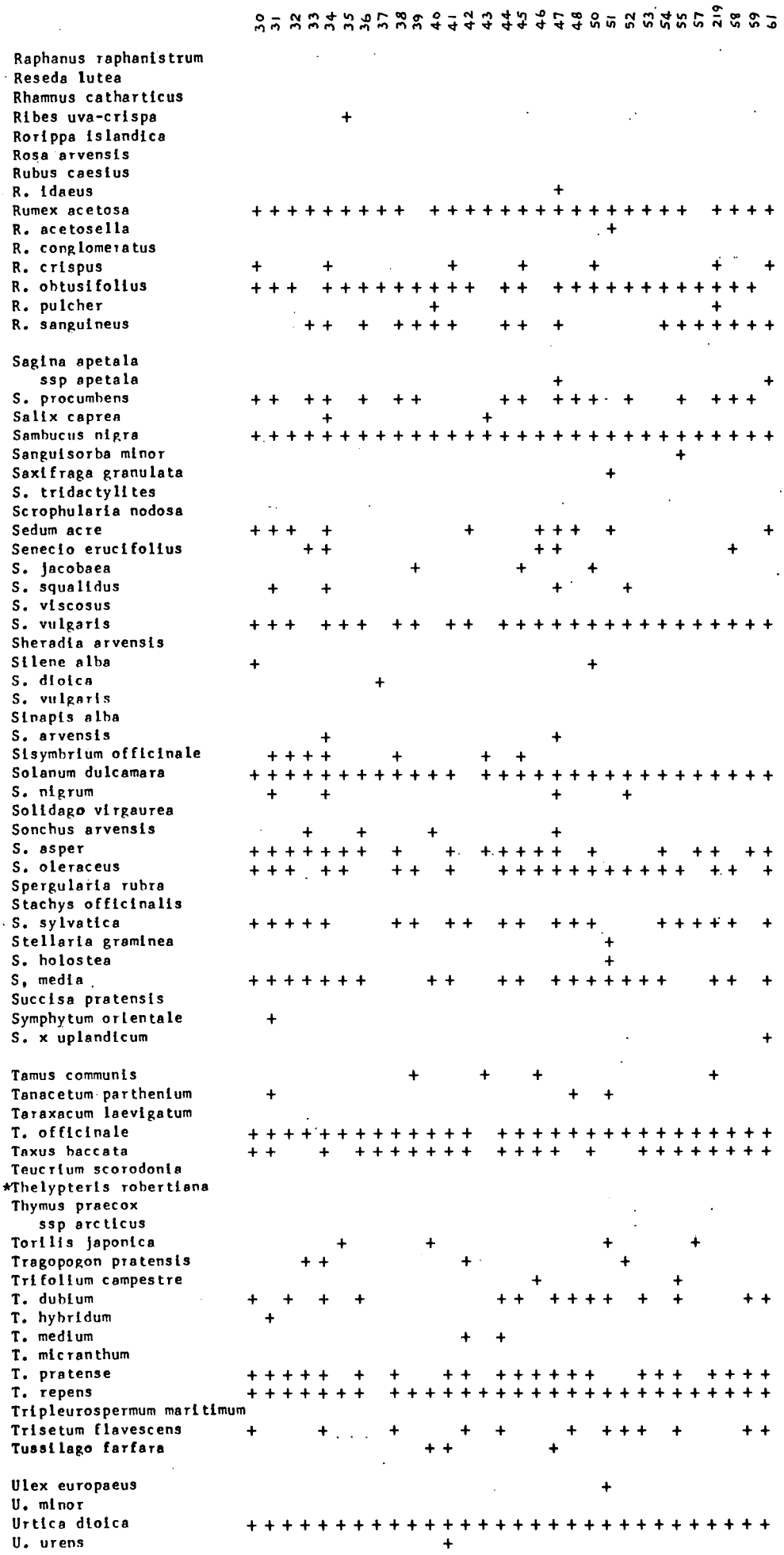
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Raphanus raphanistrum
Reseda lutea
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Rorippa islandica
Rosa arvensis
Rubus caesius
R. idaeus
Rumex acetosa
R. acetosella
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R. crispus
R. obtusifolius
R. pulcher
R. sanguineus
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Salix caprea
Sambucus nigra
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Scrophularia nodosa
Sedum acre
Senecio erucifolius
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Sheradia arvensis
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Sinapis alba
S. arvensis
Sisymbrium officinale
Solanum dulcamara
S. nigrum
Solidago virgaurea
Sonchus arvensis
S. asper
S. oleraceus
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S. holostea
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Succisa pratensis
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Tanacetum parthenium
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Thymus praecox
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Torilis japonica
Tragopogon pratensis
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T. dubium
T. hybridum
T. medium
T. micranthum
T. pratense
T. repens
Tripleurospermum maritimum
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Tussilago farfara
Ulex europaeus
U. minor
Urtica dioica
U. urens

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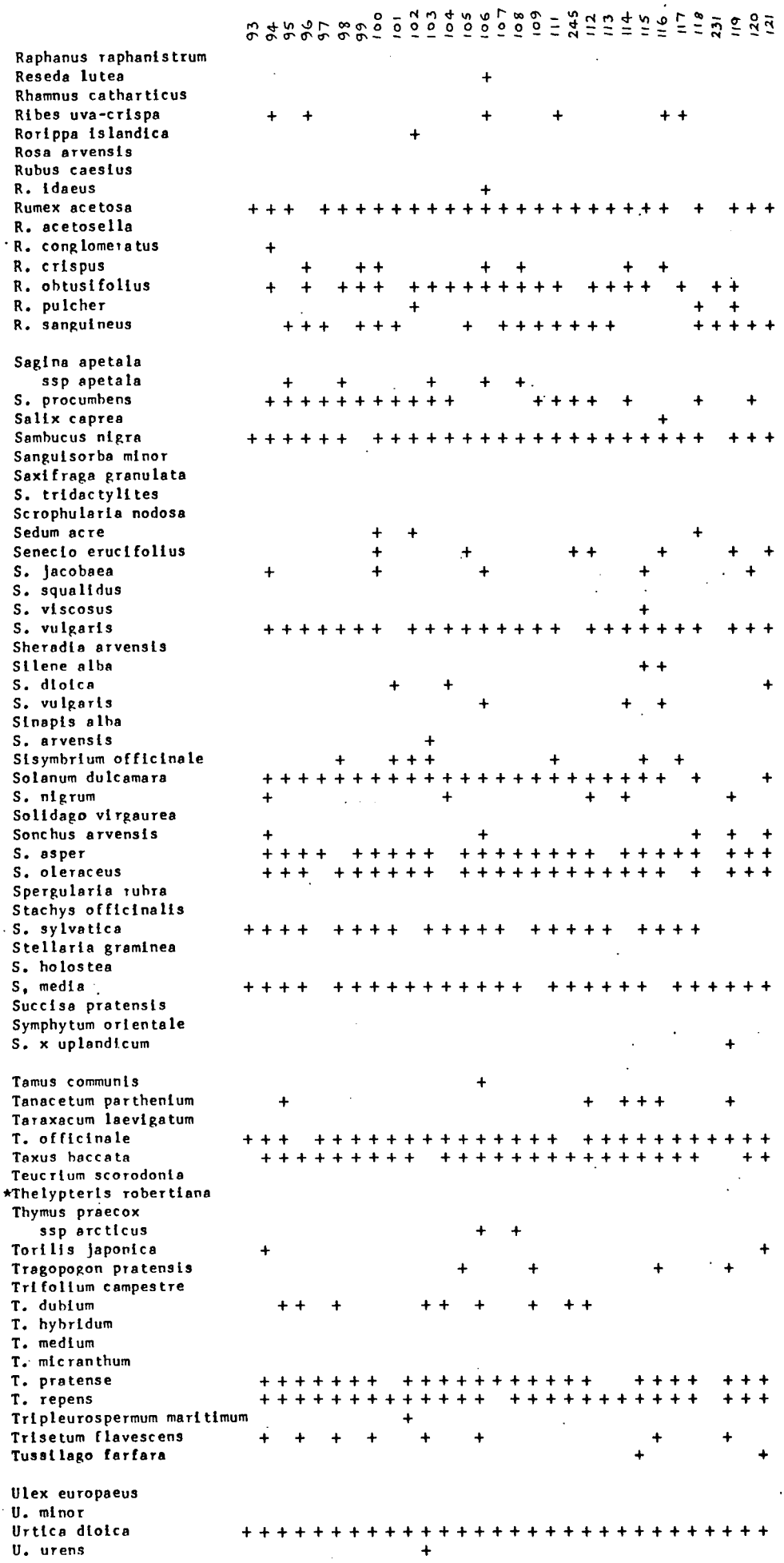
Raphanus raphanistrum																														
Reseda lutea																														
Rhamnus catharticus																														
Ribes uva-crispa	+																	+												
Rorippa islandica																														
Rosa arvensis																														
Rubus caesius																														
R. idaeus													+																	
Rumex acetosa		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
R. acetosella																			+											
R. conglomeratus																														
R. crispus							+														+				+			+	+	
R. obtusifolius		+				+	+	+	+		+	+		+	+		+	+	+	+	+	+	+	+	+		+			+
R. pulcher														+										+						
R. sanguineus	+	+			+			+	+	+	+	+			+	+					+	+			+				+	+
Sagina apetala																														
ssp apetala							+			+								+			+		+	+	+		+			
S. procumbens		+		+	+		+	+			+					+	+	+	+	+	+	+	+	+	+			+	+	+
Salix caprea																														
Sambucus nigra	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sanguisorba minor																														
Saxifraga granulata			+																+											
S. tridactylites																														
Scrophularia nodosa																														
Sedum acre							+									+	+	+	+	+			+				+	+	
Senecio erucifolius										+									+	+										
S. jacobaea			+	+		+																						+		
S. squalidus		+																												
S. viscosus																														
S. vulgaris		+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+
Sheradia arvensis																														
Silene alba			+														+		+					+					
S. dioica			+														+													
S. vulgaris																														
Sinapis alba																														
S. arvensis																														
Sisymbrium officinale						+	+								+												+			
Solanum dulcamara	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+
S. nigrum			+	+									+		+			+	+		+									
Solidago virgaurea																														
Sonchus arvensis											+										+	+								
S. asper		+		+	+		+			+	+		+	+	+		+	+	+	+	+	+	+	+			+	+		+
S. oleraceus	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+		
Spergularia rubra																														
Stachys officinalis																														
S. sylvatica				+	+	+		+	+	+	+	+	+	+			+	+			+	+			+			+		+
Stellaria graminea																			+		+				+					
S. holostea																														
S, media	+	+	+	+		+	+	+	+		+		+	+	+		+	+	+	+	+		+	+	+	+	+	+	+	+
Succisa pratensis																														
Symphytum orientale																														
S. x uplandicum														+																
Tamus communis		+							+	+																				+
Tanacetum parthenium		+														+				+										
Taraxacum laevigatum																														
T. officinale	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+
Taxus baccata	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+			+	+		+	+	+		+	+	+
Teucrium scorodonia																														
*Thelypteris robertiana																														
Thymus praecox																														
ssp arcticus																														
Torilis japonica	+		+																											
Tragopogon pratensis							+	+											+		+		+							
Trifolium campestre																														
T. dubium			+												+		+				+			+	+		+	+		
T. hybridum																														
T. medium																												+		
T. micranthum																														
T. pratense		+	+		+	+	+	+	+		+	+	+	+	+	+			+	+	+	+	+	+	+		+	+	+	+
T. repens	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tripleurospermum maritimum																														
Trisetum flavescens															+		+			+	+	+			+			+		+
Tussilago farfara		+			+											+														
Ulex europaeus																														
U. minor																														
Urtica dioica	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
U. urens																														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Rhamnus catharticus
Ribes uva-crispa
Rorippa islandica
Rosa arvensis
Rubus caesius
R. idaeus
Rumex acetosa
R. acetosella
R. conglomeratus
R. crispus
R. obtusifolius
R. pulcher
R. sanguineus
Sagina apetala
ssp apetala
S. procumbens
Salix caprea
Sambucus nigra
Sanguisorba minor
Saxifraga granulata
S. tridactylites
Scrophularia nodosa
Sedum acre
Senecio erucifolius
S. jacobaea
S. squalidus
S. viscosus
S. vulgaris
Sherardia arvensis
Silene alba
S. dioica
S. vulgaris
Sinapis alba
S. arvensis
Sisymbrium officinale
Solanum dulcamara
S. nigrum
Solidago virgaurea
Sonchus arvensis
S. asper
S. oleraceus
Spergularia rubra
Stachys officinalis
S. sylvatica
Stellaria graminea
S. holostea
S. media
Succisa pratensis
Symphytum orientale
S. x uplandicum
Tamus communis
Tanacetum parthenium
Taraxacum laevigatum
T. officinale
Taxus baccata
Teucrium scorodonia
*Thelypteris robertiana
Thymus praecox
ssp arcticus
Torilis japonica
Tragopogon pratensis
Trifolium campestre
T. dubium
T. hybridum
T. medium
T. micranthum
T. pratense
T. repens
Tripleurospermum maritimum
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Tussilago farfara
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U. minor
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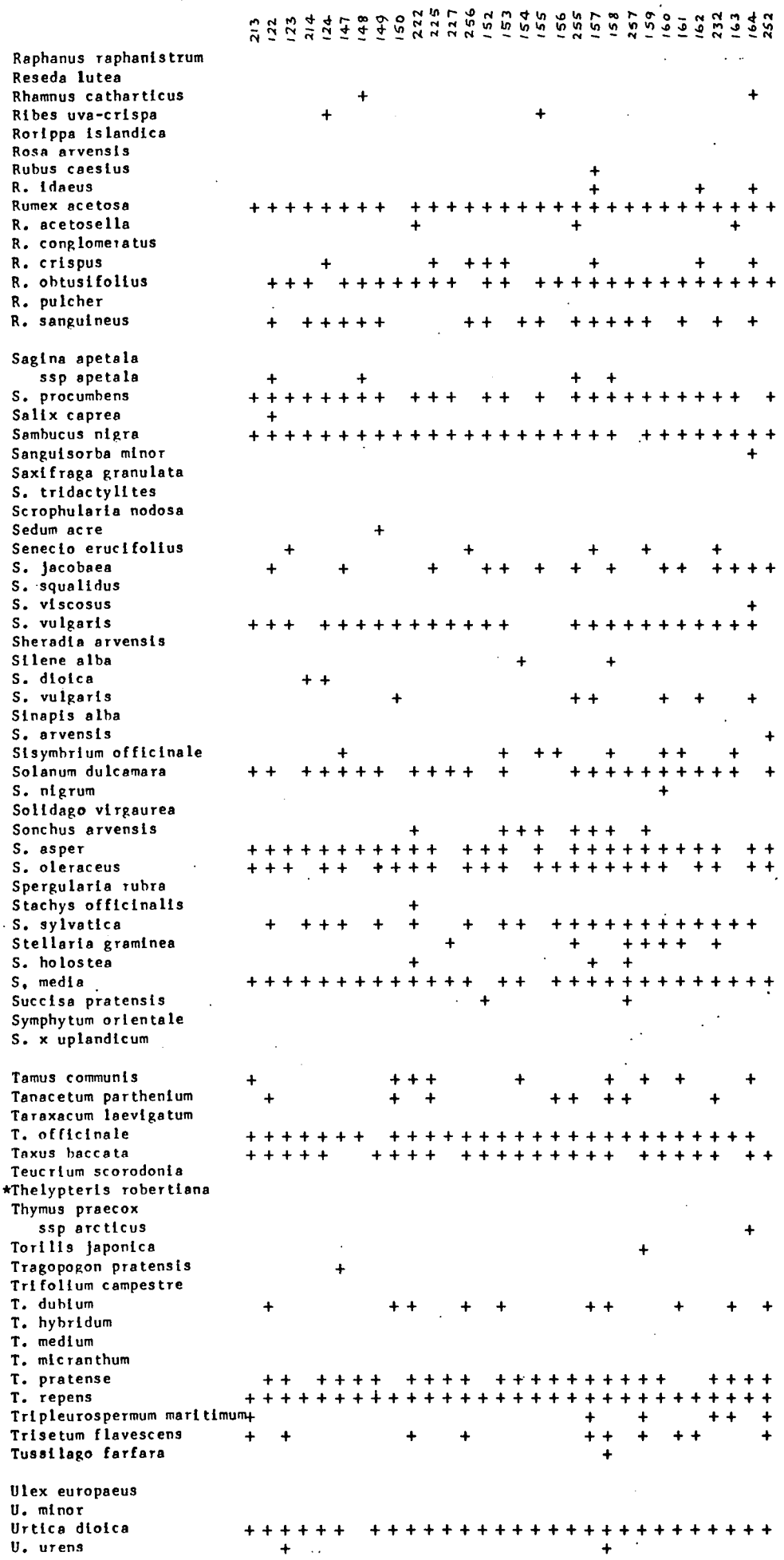
U. urens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Raphanus raphanistrum
Reseda lutea
Rhamnus catharticus
Ribes uva-crispa
Rorippa islandica
Rosa arvensis
Rubus caesius
R. idaeus
Rumex acetosa
R. acetosella
R. conglomeratus
R. crispus
R. obtusifolius
R. pulcher
R. sanguineus
Sagina apetala
ssp apetala
S. procumbens
Salix caprea
Sambucus nigra
Sanguisorba minor
Saxifraga granulata
S. tridactylites
Scrophularia nodosa
Sedum acre
Senecio erucifolius
S. jacobaea
S. squalidus
S. viscosus
S. vulgaris
Sheradia arvensis
Silene alba
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Sinapis alba
S. arvensis
Sisymbrium officinale
Solanum dulcamara
S. nigrum
Solidago virgaurea
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Spergularia rubra
Stachys officinalis
S. sylvatica
Stellaria graminea
S. holostea
S, media
Succisa pratensis
Symphytum orientale
S. x uplandicum
Tamus communis
Tanacetum parthenium
Taraxacum laevigatum
T. officinale
Taxus baccata
Teucrium scorodonia
*Thelypteris robertiana
Thymus praecox
ssp arcticus
Torilis japonica
Tragopogon pratensis
Trifolium campestre
T. dubium
T. hybridum
T. medium
T. micranthum
T. pratense
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U. minor
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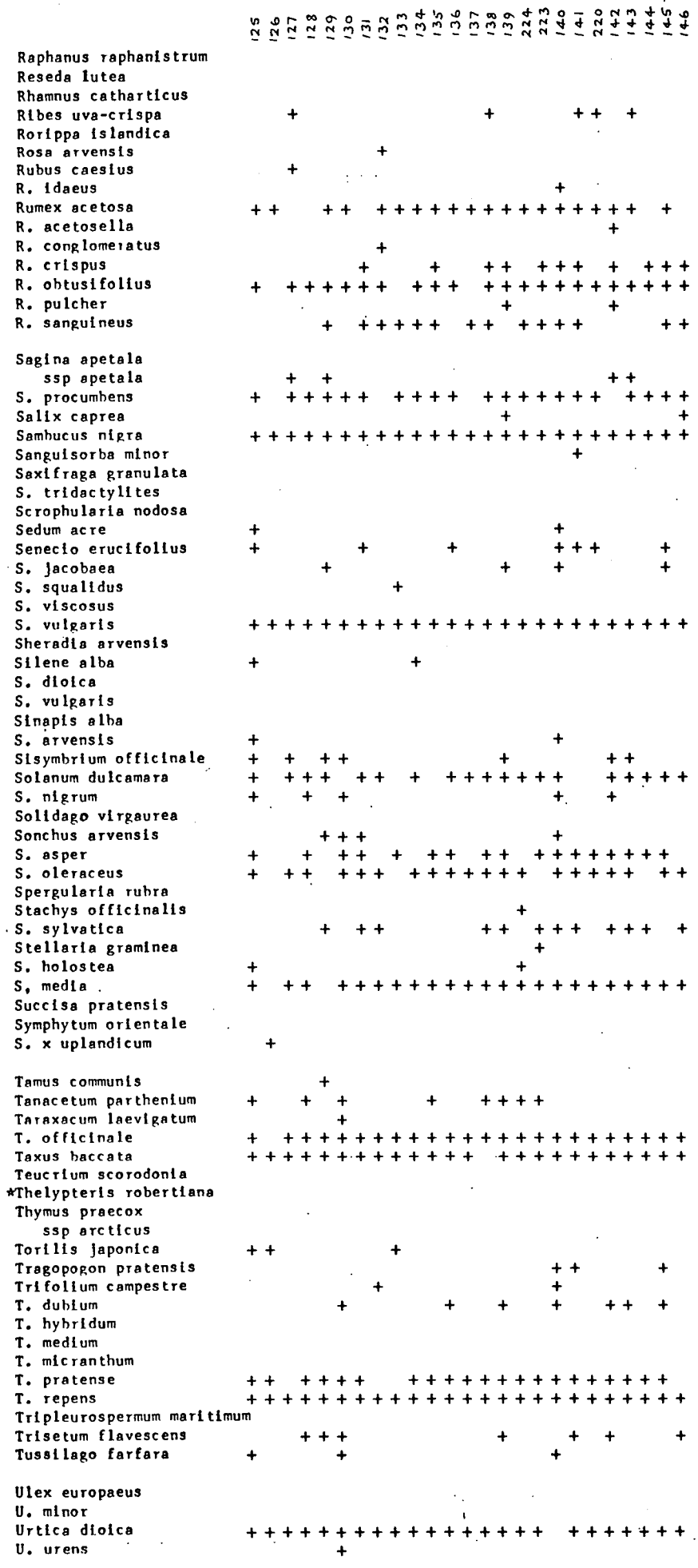
U. urens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Raphanus raphanistrum
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Rhamnus catharticus
Ribes uva-crispa
Rorippa islandica
Rosa arvensis
Rubus caesius
R. idaeus
Rumex acetosa
R. acetosella
R. conglomeratus
R. crispus
R. obtusifolius
R. pulcher
R. sanguineus
Sagina apetala
ssp apetala
S. procumbens
Salix caprea
Sambucus nigra
Sanguisorba minor
Saxifraga granulata
S. tridactylites
Scrophularia nodosa
Sedum acre
Senecio erucifolius
S. jacobaea
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S. viscosus
S. vulgaris
Sheradia arvensis
Silene alba
S. dioica
S. vulgaris
Sinapis alba
S. arvensis
Sisymbrium officinale
Solanum dulcamara
S. nigrum
Solidago virgaurea
Sonchus arvensis
S. asper
S. oleraceus
Spergularia rubra
Stachys officinalis
S. sylvatica
Stellaria graminea
S. holostea
S. media
Succisa pratensis
Symphytum orientale
S. x uplandicum
Tamus communis
Tanacetum parthenium
Taraxacum laevigatum
T. officinale
Taxus baccata
Teucrium scorodonia
*Thelypteris robertiana
Thymus praecox
ssp arcticus
Torilis japonica
Tragopogon pratensis
Trifolium campestre
T. dubium
T. hybridum
T. medium
T. micranthum
T. pratense
T. repens
Tripleurospermum maritimum
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Tussilago farfara
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U. minor
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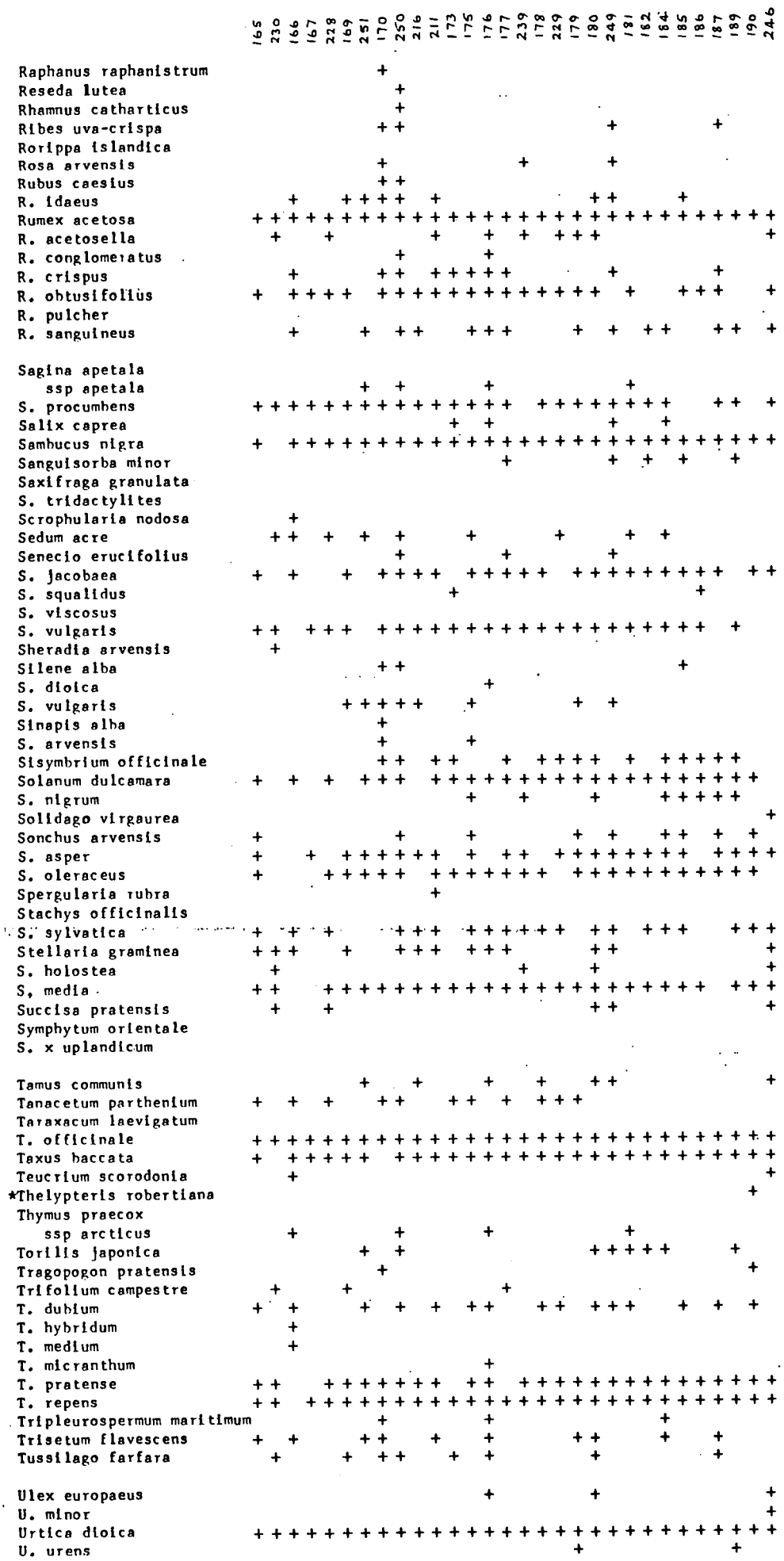
U. urens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Raphanus raphanistrum
Reseda lutea
Rhamnus catharticus
Ribes uva-crispa
Rorippa islandica
Rosa arvensis
Rubus caesius
R. idaeus
Rumex acetosa
R. acetosella
R. conglomeratus
R. crispus
R. obtusifolius
R. pulcher
R. sanguineus
Sagina apetala
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Sambucus nigra
Sanguisorba minor
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Scrophularia nodosa
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Senecio erucifolius
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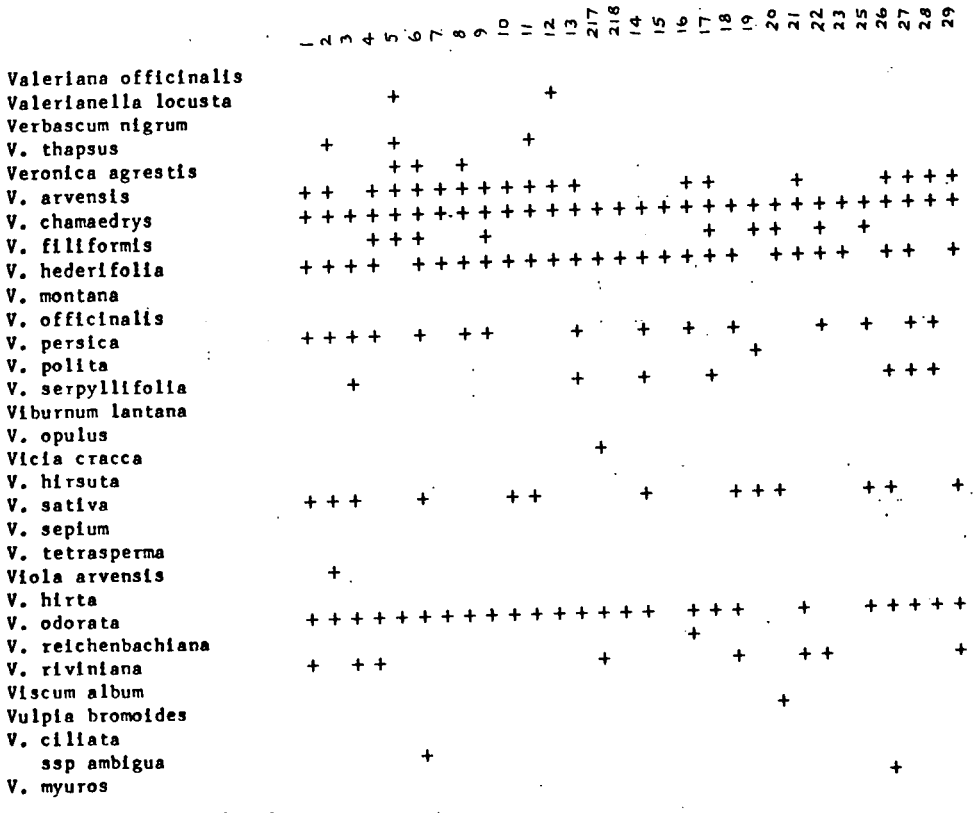
S. viscosus
S. vulgaris
Sheradia arvensis
Silene alba
S. dioica
S. vulgaris
Sinapis alba
S. arvensis
Sisymbrium officinale
Solanum dulcamara
S. nigrum
Solidago virgaurea
Sonchus arvensis
S. asper
S. oleraceus
Spergularia rubra
Stachys officinalis
S. sylvatica
Stellaria graminea
S. holostea
S. media
Succisa pratensis
Symphytum orientale
S. x uplandicum
Tamus communis
Tanacetum parthenium
Taraxacum laevigatum
T. officinale
Taxus baccata
Teucrium scorodonia
*Thelypteris robertiana
Thymus praecox
ssp arcticus
Torilis japonica
Tragopogon pratensis
Trifolium campestre
T. dubium
T. hybridum
T. medium
T. micranthum
T. pratense
T. repens
Tripleurospermum maritimum
Trisetum flavescens
Tussilago farfara
Ulex europaeus
U. minor
Urtica dioica
U. urens

	191	192	193	194	253	254	221	195	196	197	215	198	199	200	201	202	203	204	205	206	207	258	209	208	244	210
Raphanus raphanistrum																										
Reseda lutea																										
Rhamnus catharticus																										
Ribes uva-crispa										+									+							
Rorippa islandica																										
Rosa arvensis																										
Rubus caesius																										
R. idaeus						+							+	+					+							
Rumex acetosa	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+		+
R. acetosella	+	+			+						+	+	+	+	+		+									
R. conglomeratus														+												
R. crispus			+					+				+					+					+				+
R. obtusifolius	+	+	+	+			+	+		+	+	+	+	+	+	+	+	+	+	+	+		+	+		+
R. pulcher																										
R. sanguineus	+		+			+	+				+			+		+				+	+		+		+
Sagina apetala																										
ssp apetala										+									+							
S. procumbens		+	+	+	+		+	+		+		+	+	+	+	+			+		+	+		+	+	
Salix caprea							+															+				
Sambucus nigra	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+
Sanguisorba minor						+	+								+											
Saxifraga granulata																										
S. tridactylites																										
Scrophularia nodosa	+																									
Sedum acre				+				+	+	+	+	+			+								+			+
Senecio erucifolius								+		+								+	+		+		+	+		+
S. jacobaea	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+			+		+	+	+	+		
S. squalidus												+						+	+	+		+	+		+	
S. viscosus																										
S. vulgaris	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Sheradia arvensis																										
Silene alba							+																			+
S. dioica												+			+							+				
S. vulgaris	+																+									
Sinapis alba																										
S. arvensis														+												
Sisymbrium officinale			+				+	+		+	+		+	+				+	+		+		+	+	+	+
Solanum dulcamara	+	+	+		+	+	+	+	+	+	+	+	+	+					+	+	+	+			+	+	
S. nigrum			+				+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+
Solidago virgaurea																										
Sonchus arvensis					+	+	+					+							+	+	+			+		+
S. asper	+	+	+		+	+	+	+		+	+	+				+	+				+	+	+	+		+
S. oleraceus	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+
Spergularia rubra																										
Stachys officinalis	+	+													+											
S. sylvatica	+		+							+		+		+					+	+	+	+	+		+	
Stellaria graminea	+	+	+	+			+				+		+	+	+											
S. holostea	+	+		+									+		+							+				
S. media	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+
Succisa pratensis															+											
Symphytum orientale																										
S. x uplandicum			+				+																			
Tamus communis	+	+				+	+																+			
Tanacetum parthenium					+								+					+			+	+			+	
Taraxacum laevigatum																										
T. officinale	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+
Taxus baccata	+	+			+	+	+	+	+	+	+	+	+	+					+	+	+	+	+	+		+
Teucrium scorodonia		+																								
*Thelypteris robertiana																										
Thymus praecox																										
ssp arcticus												+														
Torilis japonica									+	+			+	+												
Tragopogon pratensis																			+							
Trifolium campestre												+			+											
T. dubium	+						+		+	+		+	+				+	+	+				+			
T. hybridum																										
T. medium																										
T. micranthum									+																	
T. pratense	+	+	+			+	+	+	+	+	+	+	+	+					+	+	+	+	+			+
T. repens	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tripleurospermum maritimum																										
Trisetum flavescens	+	+				+					+															
Tussilago farfara			+											+	+							+				
Ulex europaeus											+															
U. minor																										
Urtica dioica	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
U. urens								+	+																	



* = Gymnocarpium robertianum
Milium effusum

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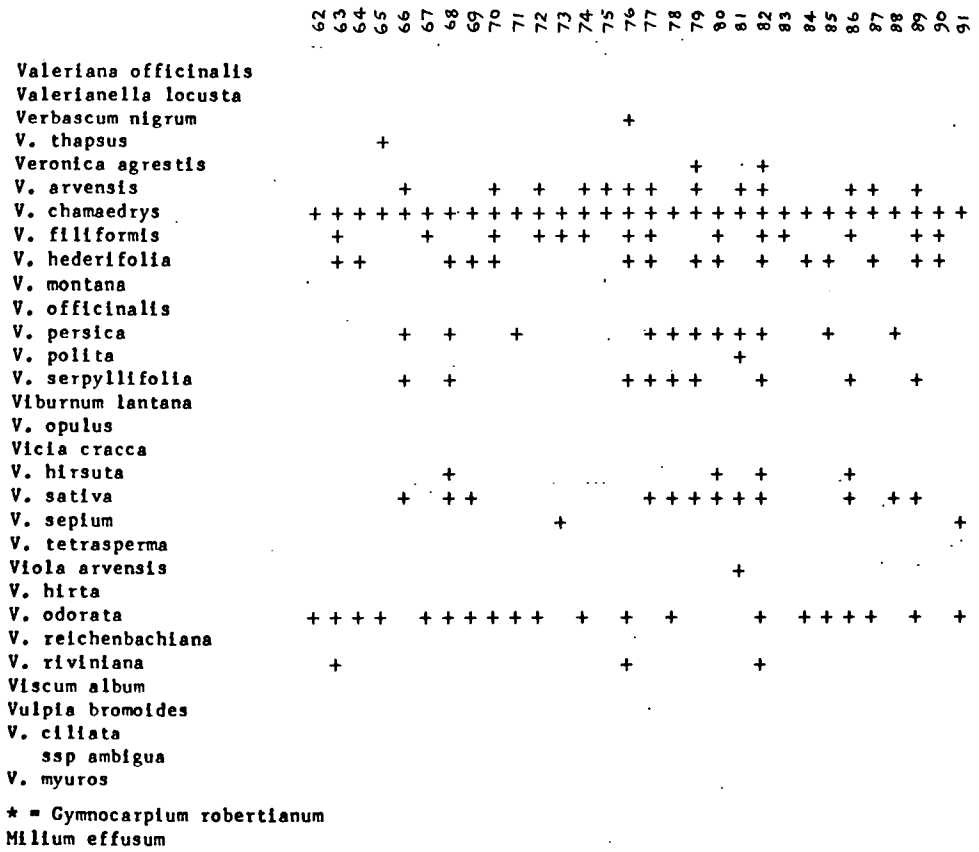
Valeriana officinalis																														
Valerianella locusta		+																												+
Verbascum nigrum																														
V. thapsus																							+						+	
Veronica agrestis				+								+						+												
V. arvensis	+	+	+			+	+			+						+					+	+	+		+			+	+	+
V. chamaedrys	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
V. filiformis		+			+	+			+	+		+		+	+	+				+			+	+	+					
V. hederifolia		+				+			+	+					+	+		+	+	+		+	+		+	+	+	+	+	
V. montana																														
V. officinalis																														
V. persica	+				+	+						+						+	+	+	+		+	+	+			+	+	
V. polita																														
V. serpyllifolia	+	+								+					+			+				+		+	+		+		+	
Viburnum lantana																														
V. opulus																														
Vicia cracca																														
V. hirsuta																														
V. sativa	+	+	+	+	+	+							+		+		+	+	+	+	+		+						+	
V. sepium																														
V. tetrasperma																														
Viola arvensis																														
V. hirta																														
V. odorata	+	+	+	+	+	+	+	+	+		+		+	+	+	+		+	+					+	+	+	+		+	+
V. reichenbachiana																														
V. riviniana								+					+			+									+					
Viscum album																														
Vulpia bromoides																														
V. ciliata ssp ambigua																														
V. myuros																														
* = Gymnocarpium robertianum																														
Milium effusum								+																						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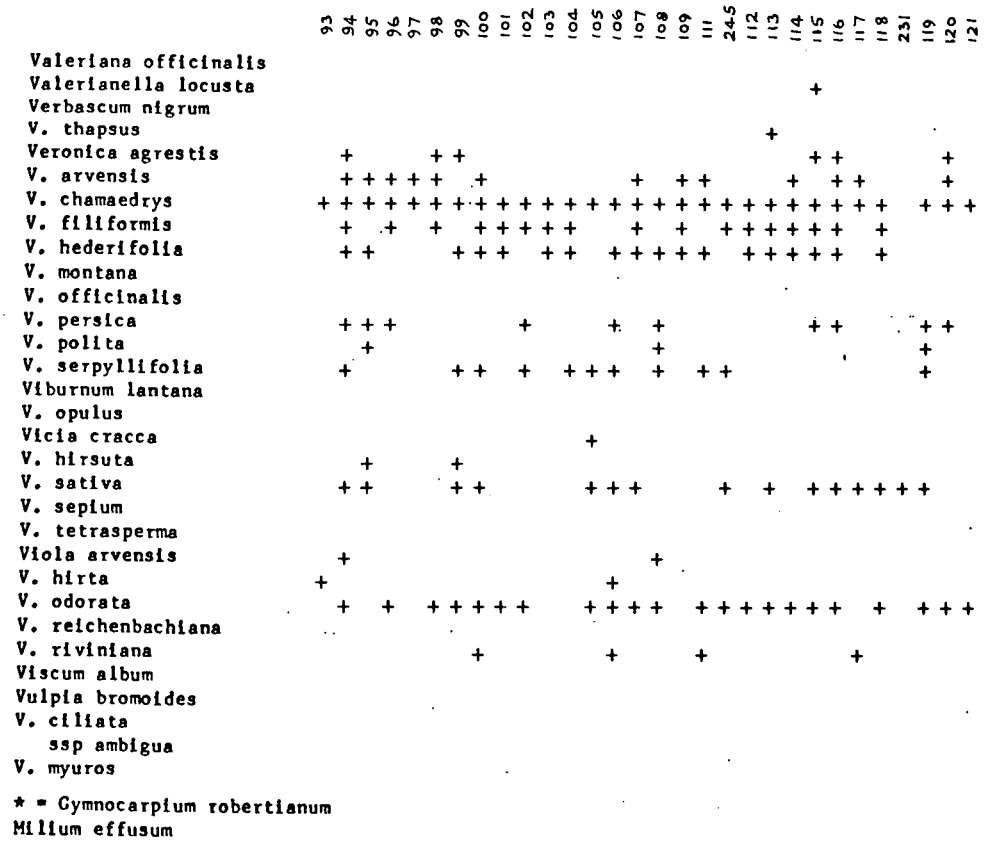
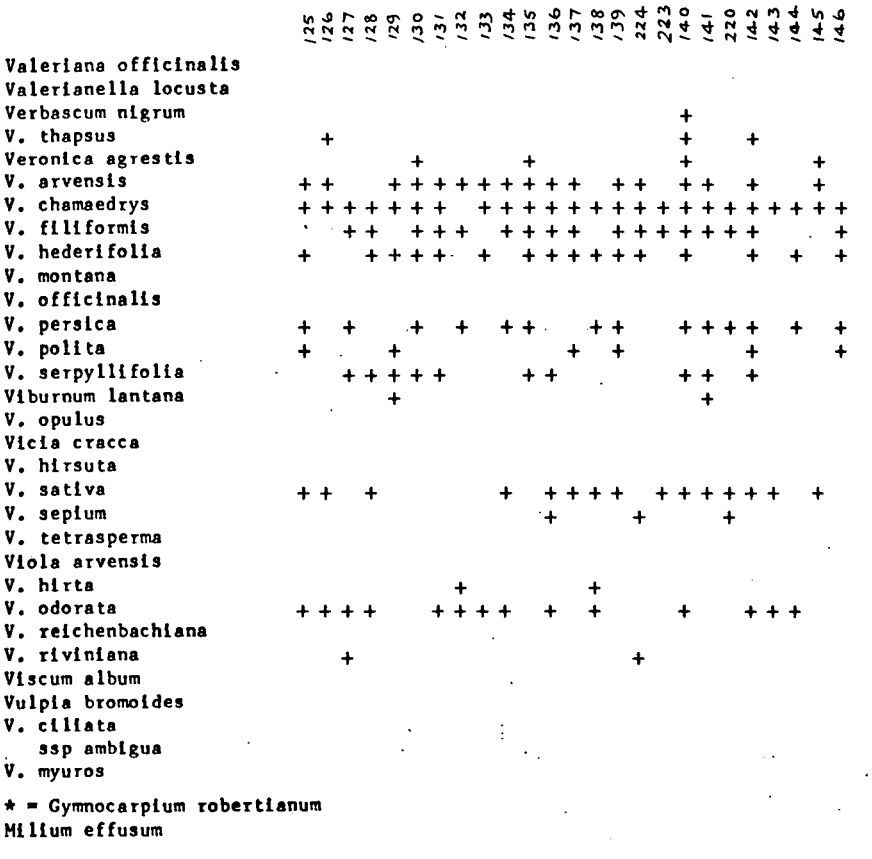
Valeriana officinalis
Valerianella locusta
Verbascum nigrum
V. thapsus
Veronica agrestis
V. arvensis
V. chamaedrys
V. filiformis
V. hederifolia
V. montana
V. officinalis
V. persica
V. polita
V. serpyllifolia
Viburnum lantana
V. opulus
Vicia cracca
V. hirsuta
V. sativa
V. sepium
V. tetrasperma
Viola arvensis
V. hirta
V. odorata
V. reichenbachiana
V. riviniana
Viscum album
Vulpia bromoides
V. ciliata
ssp ambigua
V. myuros
* = Gymnocarpium robertianum
Milium effusum


93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 111 245 112 113 114 115 116 117 118 231 119 120 121
Valeriana officinalis
Valerianella locusta
Verbascum nigrum
V. thapsus
Veronica agrestis
V. arvensis
V. chamaedrys
V. filiformis
V. hederifolia
V. montana
V. officinalis
V. persica
V. polita
V. serpyllifolia
Viburnum lantana
V. opulus
Vicia cracca
V. hirsuta
V. sativa
V. sepium
V. tetrasperma
Viola arvensis
V. hirta
V. odorata
V. reichenbachiana
V. riviniana
Viscum album
Vulpia bromoides
V. ciliata
ssp ambigua
V. myuros
* = Gymnocarpium robertianum
Milium effusum

	213	122	123	214	124	147	148	149	150	222	225	227	256	152	153	154	155	156	255	157	158	257	159	160	161	162	232	163	164	252
Valeriana officinalis																														
Valerianella locusta						+		+																						
Verbascum nigrum																										+			+	
V. thapsus																														
Veronica agrestis		+							+			+																+	+	
V. arvensis	+	+	+			+						+	+	+	+					+	+	+	+			+		+		
V. chamaedrys	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
V. filiformis	+			+		+	+	+	+	+	+		+	+	+		+	+	+	+	+	+	+		+	+	+	+	+	+
V. hederifolia	+	+	+	+		+		+	+	+			+		+					+	+	+		+		+	+	+	+	
V. montana																														
V. officinalis												+										+					+			
V. persica		+	+			+				+		+	+	+	+		+		+		+	+			+		+	+		+
V. polita	+		+												+				+											
V. serpyllifolia	+	+					+	+	+			+	+	+	+				+	+		+		+			+	+		
Viburnum lantana																													+	
V. opulus																														
Vicia cracca																														
V. hirsuta																			+											
V. sativa	+			+	+	+		+	+			+	+	+							+		+				+			+
V. sepium	+			+						+		+	+							+	+		+			+	+	+		+	+
V. tetrasperma																														
Viola arvensis																														
V. hirta										+										+										
V. odorata	+	+	+	+	+		+	+	+	+	+	+			+	+	+		+	+	+	+	+		+		+		+	
V. reichenbachiana							+							+																
V. riviniana				+		+			+			+			+	+	+	+	+	+		+	+		+		+		+	
Viscum album																														
Vulpia bromoides																														
V. ciliata ssp ambigua																														
V. myuros																				+										

* = Gymnocarpium robertianum
Milium effusum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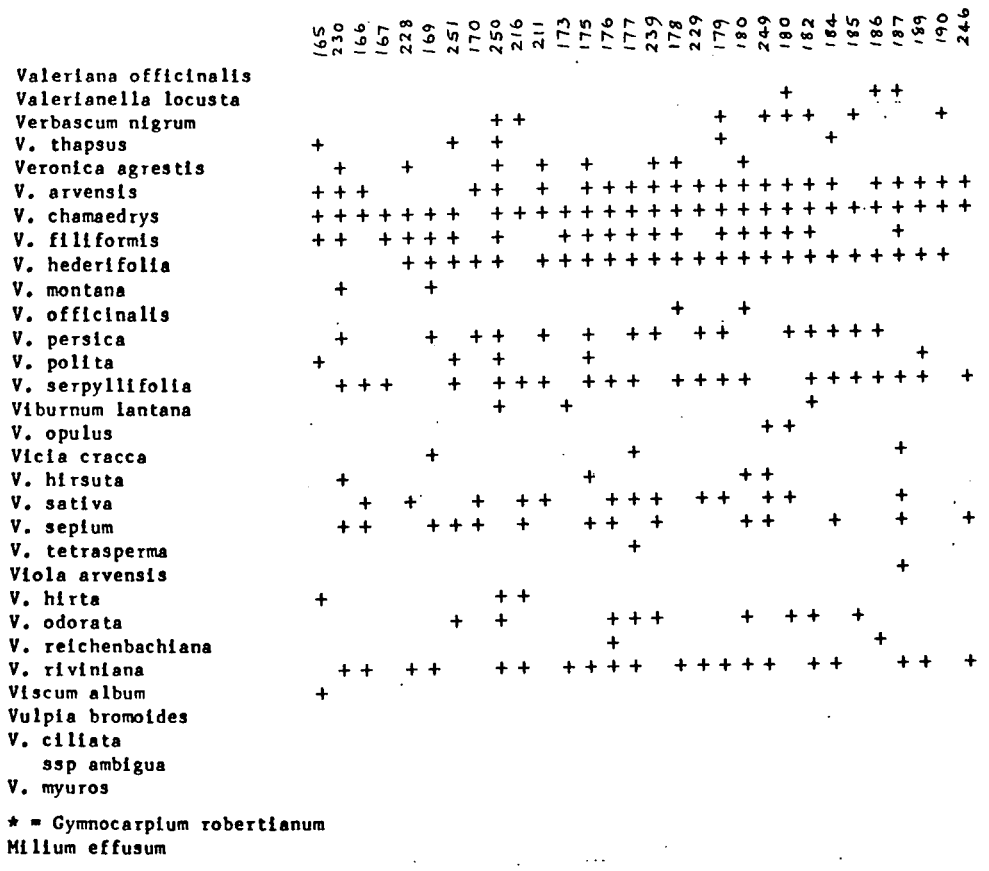
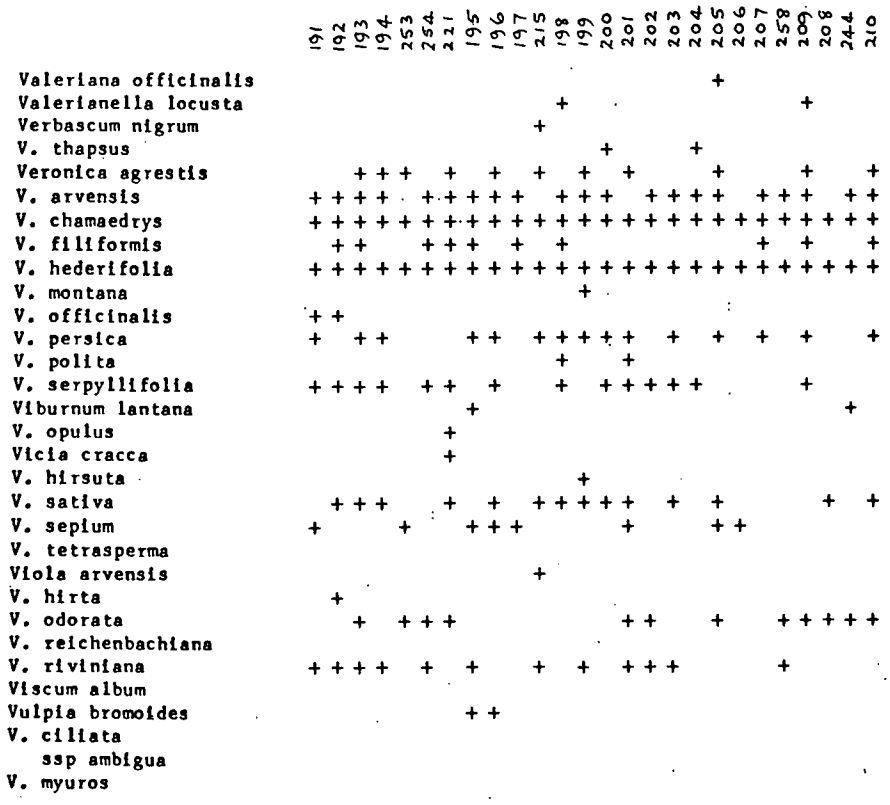
146
Valeriana officinalis
Valerianella locusta
Verbascum nigrum
V. thapsus
Veronica agrestis
V. arvensis
V. chamaedrys
V. filiformis
V. hederifolia
V. montana
V. officinalis
V. persica
V. polita
V. serpyllifolia
Viburnum lantana
V. opulus
Vicia cracca
V. hirsuta
V. sativa
V. sepium
V. tetrasperma
Viola arvensis
V. hirta
V. odorata
V. reichenbachiana
V. riviniana
Viscum album
Vulpia bromoides
V. ciliata
ssp ambigua
V. myuros
* = Gymnocarpium robertianum
Milium effusum



* = Gymnocarpium robertianum
Milium effusum



* = Gymnocarpium robertianum
Milium effusum

APPENDIX IV FREQUENCY of SPECIES in BUCKINGHAMSHIRE and its CHURCHYARD SITES

Species	Churchyards 231	%	County %	Index Value
Acer campestre	26	11	94	.027
Achillea millefolium	217	94	98	.009
Aegopodium podagraria	140	61	88	.056
Aethusa cynapium	28	12	69	.161
Agrimonia eupatoria	20	9	79	.102
Agrostis capillaris	55	24	64	.194
A. gigantea	25	11	34	.469
A. stolonifera	162	70	89	.051
Aira praecox	1		4	1.399
Ajuga reptans	58	25	57	.244
Alchemilla filicaulis ssp vestita	3	1	4	1.399
A. xanthochlora	1		3	1.523
Alliaria petiolata	147	64	96	.018
Allium paradoxum	1		1	2.000
A. ursinum	1		5	1.301
A. vineale	5	2	5	1.301
Alnus glutinosa	1		21	.678
Alopecurus myosuroides	10	4	56	.252
A. pratensis	175	76	90	.046
Anagallis arvensis	25	11	73	.137
Anemone nemorosa	9	4	24	.620
Angelica sylvestris	4	2	55	.260
Anthemis cotula	1		17	.766
A. tinctoria	1			2.301
Anthoxanthum odoratum	77	33	68	.167
Anthriscus sylvestris	224	97	99	.004
Aphanes arvensis	7	3	26	.585
Arabidopsis thaliana	67	29	31	.509
Arctium lappa	4	2	29	.538
A. minus	47	20	85	.071
Arenaria serpyllifolia	37	16	46	.337
Armoracia rusticana	5	2	53	.276
Arrhenatherum elatius	218	94	97	.013
Artemisia vulgaris	21	9	75	.125
Arum maculatum	181	78	93	.031
Asplenium adiantum-nigrum	19	8	14	.854
A. ruta-muraria	23	10	27	.569
A. trichomanes	10	4	10	1.000
Athyrium filix-femina	1		18	.745
Atriplex patula	19	8	63	.201
A. prostrata	4	2	39	.409
Atropa belladonna	2	1	3	1.523
Avena fatua	3	1	49	.310
A. ludoviciana	1		4	1.399
Ballota nigra	48	21	54	.268
Barbarea vulgaris	4	2	55	.260
Bellis perennis	220	95	98	.009
Betula pendula	10	4	42	.377
B. pubescens	3	1	18	.745
Brachypodium pinnatum	1		2	1.699
B. sylvaticum	96	42	90	.046
Briza media	8	3	38	.420
Bromus erectus	10	4	29	.538
B. hordeaceus	29	13	80	.097
B. ramosus	70	30	83	.081
B. sterilis	169	73	90	.046
Bryonia dioica	83	36	73	.137
Bunium bulbocastanum	1			2.699
Calluna vulgaris	2	1	11	.959
Calystegia sepium				
ssp pulchra	2	1	1	2.000
ssp sepium	90	39	82	.086
ssp silvatica	14	6	24	.620
Campanula glomerata	2	1	8	1.097
C. rotundifolia	40	17	19	.721
C. trachelium	2	1	11	.959
Capsella bursa-pastoris	177	77	97	.013
Cardamine flexuosa	8	3	18	.745
C. hirsuta	176	76	59	.229
C. pratensis	159	69	62	.208
Cardaria draba	3	1	13	.886

Species	Churchyards 231	%	County %	Index Value
Carduus acanthoides	32	14	66	.180
Carex divulsa	7	3	10	1.000
C. flacca	1		48	.319
C. hirta	6	3	66	.180
C. muricata ssp lamprocarpa	1		1	2.000
C. otrubae	1		47	.328
C. riparia	1		29	.538
C. spicata	3	1	31	.509
C.sylvatica	19	8	41	.387
Centaurea nigra	117	51	84	.076
C. scabiosa	8	3	37	.432
Cephalanthera damasonium	1		10	1.000
Cerastium fontanum ssp glabrescens	182	79	96	.018
C. glomeratum	30	13	42	.377
Ceterach officinarum	4	2	4	1.399
Chaerophyllum temulentum	4	2	53	.276
Chamerion angustifolium	129	56	92	.036
Chelidonium majus	42	18	34	.469
Chenopodium album	62	27	85	.071
C. polyspermum	11	5	32	.495
Circaea lutetiana	35	15	58	.237
Cirsium acaule	3	1	28	.553
C. arvense	168	73	98	.009
C. eriophorum	1		5	1.301
C. palustre	5	2	51	.292
C. vulgare	195	84	97	.013
Clematis vitalba	22	10	50	.301
Clinopodium vulgare	13	6	42	.377
Conium maculatum	6	3	38	.420
Conopodium majus	27	12	32	.495
Convolvulus arvensis	169	73	92	.036
Conyza canadensis	8	3	16	.796
Cornus sanguinea	22	10	81	.091
Coronopus didymus	5	2	8	1.097
C. squamatus	8	3	52	.284
Corylus avellana	38	16	83	.081
Crataegus laevigata	2	1	21	.678
C. monogyna	168	73	99	.004
Crepis capillaris	198	86	79	.102
C. vesicaria	81	35	54	.268
Cuscuta epithymum	1		1	2.000
Cymbalaria muralis	49	21	32	.495
Cynosurus cristatus	23	10	77	.114
Cystopteris fragilis	2	1		2.699
Cytisus scoparius	2	1	15	.824
Dactylis glomerata	225	97	98	.009
Dactylorhiza fuchsii	1		31	.509
Daphne laureola	2	1	13	.886
Daucus carota	7	3	55	.260
Deschampsia cespitosa	38	16	89	.051
D. flexuosa	5	2	11	.959
Desmazeria rigida	8	3	9	1.046
Digitalis purpurea	32	14	34	.469
Diplotaxis muralis	3	1	5	1.301
Dipsacus fullonum	25	11	62	.205
D. pilosus	1		1	2.000
Dryopteris dilatata	4	2	34	.469
D. filix-mas	91	39	69	.161
Elymus caninus	3	1	28	.553
E. repens	141	61	91	.041
Epilobium ciliatum	142	61	63	.201
E. hirsutum	79	34	92	.036
E. montanum	90	39	65	.187
E. tetragonum	2	1	17	.766
Equisetum arvense	13	6	77	.114
E. telmateia	1		9	1.046
Erica cinerea	1			2.155
Erinus alpinus	2	1	1	2.000
Erodium cicutarium	1		5	1.301
Erophila verna	33	14	17	.766
Erysimium cheiranthoides	2	1	13	.886
Euonymus europaeus	6	3	35	.456
Euphorbia helioscopia	32	14	59	.229
E. peplus	147	64	68	.167

Species	Churchyards 231	%	County %	Index Value
Fallopia convolvulus	27	12	77	.114
Festuca arundinacea	62	27	69	.161
F. gigantea	73	32	72	.143
F. ovina	17	7	16	.796
F. pratensis	30	13	48	.319
F. rubra	224	97	95	.022
Filipendula ulmaria	7	3	70	.155
F. vulgaris	1		5	1.301
Foeniculum vulgare	3	1	3	1.523
Fragaria vesca	41	18	53	.276
Fumaria officinalis	21	9	40	.398
Galeopsis tetrahit	17	7	42	.377
Galinsoga ciliata	2	1	4	1.399
Galium aparine	220	95	99	.004
G. mollugo	53	23	53	.276
G. odoratum	5	2	31	.509
G. palustre	3	1	34	.469
G. saxatile	15	6	13	.886
G. verum	165	71	80	.097
Geranium dissectum	78	34	87	.060
G. lucidum	5	2	3	1.523
G. molle	75	32	68	.167
G. pratense	12	5	25	.602
G. pusillum	5	2	3	1.523
G. pyrenaicum	17	7	14	.854
G. robertianum	118	51	87	.060
G. rotundifolium	2	1		2.301
Geum urbanum	136	59	88	.056
Glechoma hederacea	217	94	97	.013
Glyceria maxima	2	1	38	.420
Hedera helix	226	98	97	.013
Helianthemum nummularium	1		12	.921
Heracleum sphondylium	191	83	99	.004
Hieracium pilosella	72	31	49	.310
Holcus lanatus	216	94	98	.009
H. mollis	36	16	39	.409
Hordelymus europaeus	1		11	.959
Hordeum murinum	66	29	67	.174
H. secalinum	7	3	49	.310
Humulus lupulus	17	7	47	.328
Hyacinthoides non-scripta	79	34	61	.215
Hypericum dubium	1		6	1.222
H. hirsutum	7	3	41	.387
H. humifusum	2	1	5	1.301
H. perforatum	22	10	62	.208
H. pulchrum	1		11	.959
Hypochaeris radicata	76	33	45	.347
Ilex aquifolium	184	80	66	.180
Impatiens glandulifera	1		8	1.097
Jasione montana	2	1		2.301
Juncus effusus	1		71	.149
Juniperum communis	1		3	1.523
Knautia arvensis	15	6	47	.328
Koeleria macrantha	1		3	1.523
Lactuca serriola	13	6	19	.721
Lamiastrum galeobdolon	2	1	33	.481
Lamium album	220	95	97	.013
L. amplexicaule	2	1	9	1.046
L. purpureum	169	73	84	.076
Lapsana communis	179	77	94	.027
Lathyrus latifolius	5	2	5	1.301
L. pratensis	55	24	89	.051
Leontodon autumnalis	107	46	72	.143
L. hispidus	143	62	84	.076
L. taraxacoides	5	2	14	.854
Leucanthemum vulgare	160	69	79	.102
Ligustrum vulgare	34	15	71	.149
Linaria repens	4	2	4	1.399
L. vulgaris	14	6	23	.632
Linum catharticum	2	1	35	.456
Lolium perenne				
ssp perenne	193	84	97	.013
ssp multiflorum	4	2	62	.208

Species	Churchyards 231	%	County %	Index Value
Lonicera periclymenum	19	8	54	.268
Lotus corniculatus	91	39	88	.056
L. uliginosus	5	2	36	.444
Luzula campestris	109	47	45	.347
L. pilosa	2	1	27	.569
Lychnis flos-cuculi	1		30	.523
Lysimachia nemorum	1		17	.766
L. nummularia	52	23	44	.357
Malva moschata	7	3	17	.766
M. neglecta	28	12	22	.658
M. sylvestris	90	39	69	.161
Matricaria matricarioides	38	16	96	.018
M. recutita	11	5	60	.222
Medicago arabica	1		1	2.000
M. lupulina	163	71	94	.027
Melica uniflora	3	1	32	.495
Mentha arvensis	1		29	.538
Mercurialis annua	3	1	4	1.399
M. perennis	29	13	62	.208
Moehringia trinervia	17	7	49	.310
Montia perfoliata	3	1	2	1.699
M. sibirica	1		1	2.000
Mycelis muralis	24	10	24	.620
Myosotis arvensis	136	59	87	.060
M. ramosissima	2	1	4	1.399
Odontites verna	3	1	46	.337
Ononis repens	1		24	.620
Origanum vulgare	18	8	25	.602
Ornithopus perpusillus	1		2	1.699
Oxalis acetosella	9	4	34	.469
Papaver dubium	24	10	32	.495
P. lecoqii	6	3	10	1.000
P. rhoeas	18	8	67	.174
Parietaria judaica	25	11	9	1.046
Pastinaca sativa	3	1	29	.538
Phalaris arundinacea	2	1	56	.252
Phleum pratense	54	23	90	.046
Phyllitis scolopendrium	31	13	25	.602
Picris echioides	12	5	28	.553
P. hieracioides	3	1	13	.886
Pimpinella major	3	1	25	.602
P. saxifraga	141	61	60	.222
Plantago lanceolata	220	95	98	.009
P. major	175	76	98	.009
P. media	122	53	59	.229
Poa annua	224	97	98	.009
P. compressa	7	3	6	1.222
P. nemoralis	5	2	34	.469
P. pratensis	164	71	82	.086
P. trivialis	164	71	89	.051
Polygala serpyllifolia	1		1	2.000
P. vulgaris	1		15	.824
Polygonum amphibium	4	2	37	.432
P. aviculare	69	30	95	.022
P. bistorta	1		1	2.000
P. lapathifolium	1		49	.310
P. persicaria	42	18	84	.076
Polypodium vulgare	10	4	8	1.097
Polystichum setiferum	1		2	1.699
Potentilla anglica	11	5	5	1.301
P. anserina	7	3	88	.056
P. erecta	11	5	25	.602
P. reptans	188	81	97	.013
P. sterilis	37	16	33	.481
Primula veris	43	19	38	.420
P. vulgaris	141	61	53	.276
Prunella vulgaris	193	84	88	.056
Prunus spinosa	19	8	93	.031
Pteridium aquilinum	24	10	45	.347
Pulicaria dysenterica	1		29	.539
Ranunculus arvensis	1		8	1.097
R. acris	105	45	93	.031
R. auricomus	41	18	34	.469
R. bulbosus	175	76	88	.056
R. ficaria	205	89	84	.076
R. repens	218	94	99	.004

Species	Churchyards 231	%	County %	Index Value
Raphanus raphanistrum	1		28	.553
Reseda lutea	2	1	18	.745
Rhamnus catharticus	4	2	45	.347
Ribes uva-crispa	23	10	27	.569
Rorippa islandica	1		19	.721
Rosa arvensis	4	2	51	.292
Rubus caesius	4	2	46	.337
R. idaeus	20	9	41	.387
Rumex acetosa	212	92	90	.046
R. acetosella	25	11	35	.456
R. conglomeratus	6	3	40	.398
R. crispus	65	28	92	.036
R. obtusifolius	185	80	97	.013
R. pulcher	15	6	2	1.699
R. sanguineus	133	58	75	.125
Sagina apetala ssp apetala	29	13	18	.745
S. procumbens	166	72	63	.201
Salix caprea	13	6	75	.125
Sambucus nigra	225	97	98	.009
Sanguisorba minor	13	6	32	.495
Saxifraga granulata	3	1	2	1.699
S. tridactylites	7	3	7	1.155
Scrophularia nodosa	2	1	47	.328
Sedum acre	56	24	28	.553
Senecio erucifolius	42	18	73	.137
S. jacobaea	79	34	57	.244
S. squalidus	17	7	37	.432
S. viscosus	3	1	21	.678
S. vulgaris	207	90	95	.022
Sheradia arvensis	2	1	14	.854
Silene alba	20	9	67	.174
S. dioica	12	5	38	.420
S. vulgaris	21	9	49	.310
Sinapis alba	1		18	.745
S. arvensis	10	4	75	.125
Sisymbrium officinale	80	35	82	.086
Solanum dulcamara	195	84	98	.009
S. nigrum	62	27	36	.444
Solidago virgaurea	1		1	2.000
Sonchus arvensis	47	20	85	.071
S. asper	176	76	92	.036
S. oleraceus	192	83	86	.066
Spergularia rubra	1		2	1.699
Stachys officinalis	5	2	16	.796
S. sylvatica	140	61	97	.013
Stellaria graminea	34	15	51	.292
S. holostea	15	6	48	.319
S. media	206	89	98	.009
Succisa pratensis	8	3	17	.766
Symphytum orientale	4	2	2	1.699
S. x uplandicum	8	3	16	.796
Tamus communis	39	17	85	.071
Tanacetum parthenium	47	20	33	.481
Taraxacum laevigatum	1		3	1.523
T. officinale	221	96	99	.004
Taxus baccata	199	86	52	.284
Teucrium scorodonia	3	1	8	1.097
*Thelypteris robertiana	1			2.699
Thymus praecox ssp arcticus	9	4	13	.886
Torilis japonica	25	11	74	.131
Tragopogon pratensis	22	10	73	.137
Trifolium campestre	10	4	35	.456
T. dubium	89	39	76	.119
T. hybridum	2	1	31	.509
T. medium	5	2	10	1.000
T. micranthum	2	1	3	1.523
T. pratense	182	79	97	.013
T. repens	226	98	99	.004
Tripleurospermum maritimum	11	5	82	.086
Trisetum flavescens	71	31	65	.187
Tussilago farfara	28	12	89	.051
Ulex europaeus	5	2	38	.420
U. minor	1		2	1.699
Urtica dioica	227	98	99	.004
U. urens	10	4	25	.602

Species	Churchyards 231	%	County %	Index Value
Valeriana officinalis	1		18	.745
Valerianella locusta	12	5	12	.921
Verbascum nigrum	13	6	15	.824
V. thapsus	17	7	30	.523
Veronica agrestis	42	18	18	.745
V. arvensis	134	58	70	.155
V. chamaedrys	228	99	89	.051
V. filiformis	123	53	43	.367
V. hederifolia	158	68	64	.194
V. montana	3	1	25	.602
V. officinalis	7	3	19	.721
V. persica	109	47	85	.071
V. polita	22	10	14	.854
V. serpyllifolia	97	42	48	.319
Viburnum lantana	8	3	40	.398
V. opulus	3	1	46	.337
Vicia cracca	6	2	65	.187
V. hirsuta	12	5	44	.357
V. sativa	110	48	83	.081
V. sepium	40	17	54	.268
V. tetrasperma	1		21	.678
Viola arvensis	5	2	52	.284
V. hirta	11	5	32	.495
V. odorata	146	63	64	.194
V. reichenbachiana	5	2	19	.721
V. riviniana	68	29	57	.244
Viscum album	1		7	1.155
Vulpia bromoides	3	1	11	.959
V. ciliata ssp ambigua	1			2.699
V. myuros	2	1	3	1.523
* = Gymnocarpium robertianum	1		34	.469
Milium effusum				

Blank spaces = percentages of less than 1%

For County percentages less than 1% the following Index Values apply:

%	Index Value
0.1	3.000
0.2	2.699
0.3	2.523
0.4	2.398
0.5	2.301
0.6	2.222
0.7	2.155
0.8	2.097
0.9	2.046

APPENDIX V

ALPHABETICAL INDEX and
SUMMARY of RESULTS to
BUCKINGHAMSHIRE CHURCHYARD SITES

Key

* = Site in top 10%
I.V. = Index Value
Cl w Fl = Clay with Flints
Sa & Gr = Sands and Gravels
Blank space = Data unavailable

Site No.	Location	Dedication	Grid Reference	Height (m)	Area (ha)	No.of spp	Index Score	No.of spp with I.V. ⩾1	No.of spp with I.V. ⩾2	Geological category
76	Addington	S Mary	SP 743285	103.46	.29	78	8.020	1	0	Clay
69	Adstock	S Cecilia	SP 736301	101.43	.223	68	5.727	0	0	Clay
41	Akeley	S James (demolished)	SP 708378	121.90	.298	82	8.933	0	0	Limestone
167	Amersham	S Mary	SU 957974			36	4.391	0	0	Sa & Gr
120	Ashendon	S Mary	SP 705142	149.40	.275	69	7.723	0	0	Limestone
227	Ashely Green	S John Evangelist	SP 976052	160.89	.083	72	11.791	1	0	Cl w Fl
104	Aston Abbotts	S James the Great	SP 847203	134.70	.303	69	10.975	2	0	Clay
131	Aston Clinton	S Michael & All Angels.	SP 879119		.845	93	12.022	1	0	Clay
144	Aston Sandford	S Michael	SP 757078	71.91	.22	61	5.057	0	0	Clay
218	Astwood	S Peter	SP 950475	95.21	.18	76	6.244	0	0	Clay
127	Aylesbury	S Mary	SP 817138			71	8.990	0	0	Limestone
72	Barton Hartshorn	Assumption of BVM	SP 641309	111.68	.17	75	5.283	0	0	Clay
44	Beachampton	Assumption of BVM	SP 771371	76.34	.353	97	11.144	1	0	Limestone
179	*Beaconsfield	S Mary & All Saints	SU 945900			108	21.407	3	0	Sa & Gr
37	Biddlesden	S Margaret	SP 634399		.158	43	5.693	0	0	Limestone
118	Bierton	S James	SP 836153		.233	77	8.233	1	0	Limestone
155	Bledlow	Holy Trinity	SP 778022	116.59	.453	79	8.461	0	0	Chalk
252	Bledlow Ridge	S Paul	SU 797977	201.05	.373	78	8.681	0	0	Chalk
63	Bletchley	S Mary	SP 864338	99.45	.41	70	7.466	0	0	Clay
213	Boarstall	S James	SP 624142	98.50	.28	79	7.968	0	0	Sa & Gr
51	*Bow Brickhill	All Saints	SP 912345	163.06	.35	90	23.042	3	1	Sa & Gr
165	Bradenham	S Botolph	SU 828971	121.53	.275	98	19.690	3	1	Chalk
123	Brill	All Saints	SP 657138	186.88	.613	91	11.866	0	1	Sa & Gr
29	Broughton	S Lawrence	SP 894401	64.78	.255	87	10.663	0	0	Clay
128	Buckland	All Saints	SP 888125	104.28	.333	73	7.674	0	0	Sa & Gr
197	Burnham	S Peter	SU 930824	171.00	.6	103	19.779	3	0	Sa & Gr
211	*Cadmore End	S Mary-le-Moor	SU 784926	187.54	.295	104	20.498	2	0	Sa & Gr
35	Calverton	All Saints	SP 791390	77.55	.375	79	8.354	0	0	Limestone
14	Castlethorpe	SS Simon and Jude	SP 799445	87.75	.4	92	12.920	2	0	Limestone
177	*Chalfont St Giles	S Giles	SU 991936		.408	129	20.449	0	0	Sa & Gr
178	Chalfont St Peter	S Peter	TQ 000908		.236	97	15.544	1	0	Sa & Gr
204	Chalvey	S Peter	SU 967795	71.93	.213	73	8.756	0	0	Sa & Gr
136	Chearsley	S Nicholas	SP 719103	73.56	.218	74	6.988	0	0	Clay
114	Cheddington	S Giles	SP 923179		.543	81	8.326	0	0	Clay
160	Chenies	S Michael	TQ 016984	123.73	.165	83	12.591	1	0	Chalk
158	Chesham	S Mary	SP 956015			104	12.493	0	0	Chalk
161	Chesham Bois	S Leonard	SU 969998			91	10.493	0	0	Chalk
73	Chetwode	SS Mary and Nicholas	SP 640298	103.24	.16	55	4.550	0	0	Clay
17	Chicheley	S Lawrence	SP 905459		.238	96	11.706	0	0	Clay
137	Chilton	S Mary	SP 686116	127.17	.263	75	8.133	0	0	Limestone
224	Cholesbury	S Lawrence	SP 929072		.17	97	15.563	1	0	Cl w Fl
4	Clifton Reynes	S Mary Virgin	SP 899515	61.87	.245	82	12.239	3	0	Limestone
2	Cold Brayfield	S Mary	SP 929522		.138	86	11.249	1	0	Limestone
228	Coleshill	All Saints	SU 948951		.205	85	14.676	1	0	Sa & Gr
258	Colnbrook	S Thomas	TQ 026771	21.25	.34	84	10.587	0	0	Sa & Gr
95	Cublington	S Nicholas	SP 838222		.195	68	8.752	2	0	Clay
135	Cuddington	S Nicholas	SP 737112		.23	82	13.053	3	0	Limestone
208	Datchet	S Mary Virgin	SU 988771	68.43	.238	79	7.969	0	0	Sa & Gr
193	Denham	S Mary Virgin	TQ 042870	41.86	1.03	108	16.239	0	0	Sa & Gr
134	Dinton	SS Peter and Paul	SP 766110	98.15	.428	95	12.542	1	0	Limestone
202	Dorney	S James	SU 924790		.07	59	10.302	2	0	Sa & Gr
214	Dorton	S John Baptist	SP 679139	80.88	.185	75	9.490	1	0	Limestone
129	Drayton Beauchamp	S Mary Virgin	SP 901118	120.46	.44	96	17.411	1	1	Chalk
78	Drayton Parslow	Holy Trinity	SP 837285	148.58	.41	80	9.586	0	0	Clay
246	*Dropmore	S Anne	SU 934864	95.73	.155	97	29.294	4	3	Sa & Gr

Site No.	Location	Dedication	Grid Reference	Height (m)	Area (ha)	No.of spp	Index Score	No.of spp with I.V. ⩾1	No.of spp with I.V. ⩾2	Geological category
91	Dunton	S Martin	SP 824243	150.46	.293	68	5.401	0	0	Clay
88	East Claydon	S Mary	SP 740256	124.93	.31	76	7.610	1	0	Clay
97	Edgcott	S Michael	SP 680228	88.70	.17	60	4.424	0	0	Clay
106	*Edlesborough	S Mary Virgin	SP 970191	113.	.963	115	22.413	0	1	Chalk
141	Ellesborough	SS Peter and Paul	SP 836066	156.3	.303	98	15.373	2	0	Chalk
9	Emberton	All Saints	SP 886495		.548	107	14.959	1	0	Limestone
244	Eton	S John Evangelist	SU 966775	68.34	.09	68	10.419	1	0	Sa & Gr
203	*Eton Wick	S John Baptist	SU 952783			90	20.808	4	1	Sa & Gr
233	Farnham Common	S John Evangelist	SU 962848	74.98	.225	63	8.903	0	0	Sa & Gr
215	Farnham Royal	S Mary Virgin	SU 962827	50.	.57	105	16.570	1	0	Sa & Gr
184	Fawley	S Mary	SU 754867			115	16.718	0	0	Cl w Fl
52	Fenny Stratford	S Martin	SP 883341	79.67	.073	59	4.804	0	0	Clay
181	Fingest	S Bartholemew	SU 776912			109	17.654	1	0	Sa & Gr
231	Fleet Marston	S Mary	SP 779159	81.1	.175	22	.701	0	0	Clay
249	Frieth	S John Baptist	SU 797903	167.85	.318	128	19.404	0	0	Clay
194	Fulmer	S James	SU 999857	46.76	.263	95	15.936	2	0	Sa & Gr
71	Gawcott	Holy Trinity	SP 680318		.27	69	6.570	0	0	Clay
12	Gayhurst	S Peter	SP 846463	72.48	.098	56	8.310	0	0	Limestone
192	*Gerrards Cross	S James	TQ 001879	84.97	.813	108	28.171	4	1	Sa & Gr
89	Granborough	S John Baptist	SP 767250		.303	88	10.579	2	0	Clay
65	Great Brickhill	S Mary	SP 901307	141.8	.28	75	13.958	2	0	Sa & Gr
152	Great Hampden	S Mary Magdalene	SP 848023	216.33	.335	78	12.845	0	1	Cl w Fl
68	Great Horwood	S James	SP 771312	124.4	.413	97	13.113	0	0	Clay
150	Great Kimble	S Nicholas	SP 825059	129.	.258	87	12.007	1	0	Chalk
20	Great Linford	S Andrew	SP 851424		.318	83	10.912	2	0	Limestone
157	*Great Missenden	SS Peter and Paul	SP 900009	141.57	1.84	132	26.106	3	1	Chalk
33	Great Woolstone	Holy Trinity	SP 875386	62.86	.138	77	6.344	0	0	Clay
99	Grendon Underwood	S Leonard	SP 677210	72.14	.333	75	6.443	0	0	Clay
93	Grove	S Michael (a dwelling)	SP 921225	87.28	.045	24	1.022	0	0	Clay
142	*Haddenham	S Mary Virgin	SP 742079	76.92	.51	102	21.531	3	1	Limestone
130	Halton	S Michael & All Angels	SP 874101	125.25	.488	101	16.942	3	0	Chalk
185	Hambledon	S Mary Virgin	SU 983866	148.73	.683	107	18.069	2	0	Sa & Gr
13	Hanslope	S James Great	SP 804468	117.35	1.155	79	7.040	0	0	Limestone
217	Hardmead	S Mary	SP 935476	102.29	.228	76	6.654	0	0	Clay
109	Hardwick	S Mary Virgin	SP 806189	93.09	.483	68	7.547	1	0	Clay
21	Haversham	S Mary	SP 828428	70.01	.238	77	12.832	2	0	Limestone
225	Hawridge	S Mary	SP 951059		.255	72	7.088	0	0	Cl w Fl
169	Hazlemere	Holy Trinity	SU 888952		.438	90	15.544	0	0	Cl w Fl
191	Hedgerley	S Mary Virgin	SU 971873	75.43	.348	116	18.339	1	0	Sa & Gr
259	Hedsor	S Nicholas	SU 907862		.225	96	14.990	1	0	Chalk
173	High Wycombe	All Saints	SU 865931			72	9.445	0	0	Chalk
75	Hillesdon	All Saints	SP 686287	106.63	.183	60	9.081	3	0	Clay
196	Hitcham	S Mary	SU 919826	170.61	.185	101	16.183	2	0	Sa & Gr
90	Hoggeston	Holy Cross	SP 808250	123.02	.138	62	4.947	0	0	Clay
230	*Holmer Green	Christ Church	SU 905974	173.79	.198	90	20.134	1	0	Cl w Fl
239	Horn Hill	S Paul	TQ 014925	97.8	.315	93	14.877	1	0	Sa & Gr
154	Horsenden	S Michael	SP 793028		.173	72	8.745	0	0	Sa & Gr
209	Horton	S Michael	TQ 015758	18.99	.658	111	17.737	2	0	Sa & Gr
251	Hughendon	S Michael & AllAngels	SU 864955	102.48	.643	102	14.871	0	0	Chalk
113	Hulcott	All Saints	SP 854167	83.82	.165	56	4.813	0	0	Clay
216	Ibstone	S Nicholas	SU 756924	176.35	.225	102	19.511	2	1	Chalk
146	Ickford	S Nicholas	SP 646074	59.04	.315	75	6.997	0	0	Sa & Gr
148	Ilmer	S Peter	SP 769055	85.73	.18	69	7.846	1	0	Clay
200	Iver	S Peter	TQ 040811	36.44	1.045	119	19.942	2	0	Sa & Gr
199	Iver Heath	S Margaret	TQ 024833	59.43	.503	105	18.725	1	0	Sa & Gr
115	Ivinghoe	S Mary Virgin	SP 946162	118.69	.898	103	15.554	0	1	Chalk
143	Kingsey	S Nicholas	SP 743067	78.11	.37	83	8.761	1	0	Clay
255	Lacey Green	S John Evangelist	SU 824998	210.54		116	19.946	0	0	Cl w Fl
180	*Lane End	Holy Trinity	SU 806916	178.17	.665	131	23.319	1	0	Sa & Gr
207	Langley	S Mary Virgin	TQ 005796		.65	99	12.261	0	0	Sa & Gr
16	Lathbury	All Saints	SP 875450	58.45	.385	92	11.933	1	0	Limestone
159	Latimer	S Mary Magdalene	TQ 001988	110.16		102	12.407	0	0	Chalk
1	Lavendon	S Michael	SP 916537	63.72	.208	78	9.978	2	0	Limestone
42	Leckhampstead	Assumption of BVM	SP 727379	81.49	.285	66	7.905	1	0	Limestone

Site No.	Location	Dedication	Grid Reference	Height (m)	Area (ha)	No.of spp	Index Score	No.of spp with I.V. ⩾1	No.of spp with I.V. ⩾2	Geological category
36	Lillingstone Dayrell	S Nicholas	SP 705398	101.5	.203	67	6.578	0	0	Limestone
22	Lillingstone Lovell	Assumption of BVM	SP 712405	102.15	.085	63	5.953	0	0	Limestone
64	Little Brickhill	S Mary Magdalene	SP 911325		.25	62	8.841	1	0	Sa & Gr
256	Little Hampden	(called) S Christopher	SP 860036	188.	.155	98	13.097	1	0	Chalk
67	Little Horwood	S Nicholas	SP 791308	121.37	.348	68	4.753	0	0	Clay
220	Little Kimble	All Saints	SP 826065	111.31	.305	84	8.978	0	0	Clay
15	Little Linford	S Leonard	SP 846442	68.88	.02	42	4.025	0	0	Limestone
189	Little Marlow	S John Baptist	SU 874878		.273	94	15.516	1	0	Sa & Gr
162	Little Missenden	S John Baptist	SU 921990	110.47	.285	92	13.326	1	0	Sa & Gr
32	Little Woolstone	Holy Trinity	SP 875393	62.86	.125	71	6.241	0	0	Clay
139	Long Crendon	S Mary Virgin	SP 698091	103.97	.34	99	19.228	4	1	Limestone
46	Loughton	All Saints	SP 837378		.113	51	4.695	0	0	Clay
126	Lower Hartwell		SP 792125	96.32	.128	58	4.866	0	0	Limestone
124	Lower Winchendon	S Nicholas	SP 733123	79.42	.278	88	9.152	0	0	Clay
111	Ludgershall	S Mary Virgin	SP 659162	80.22	.378	86	8.790	0	0	Clay
55	Maids Moreton	S Edmund	SP 706352	114.47	.485	94	11.600	0	0	Limestone
187	*Marlow	All Saints	SU 851862	30.40	.455	113	22.207	4	0	Sa & Gr
186	Marlow (North)	Holy Trinity	SU 848869		.228	76	10.865	0	0	Sa & Gr
98	Marsh Gibbon	S Mary Virgin	SP 648232	75.74	.328	68	6.858	0	0	Clay
117	Marsworth	All Saints	SP 919146			70	5.988	0	0	Chalk
221	*Medmenham	SS Peter and Paul	SU 805845	37.	.515	128	21.574	0	0	Sa & Gr
107	Mentmore	S Mary	SP 904198	126.98	.558	73	6.446	0	0	Clay
87	Middle Claydon	All Saints	SP 719254	106.34	.09	62	6.678	0	0	Clay
31	Milton Keynes	All Saints	SP 888392	66.02	.328	95	17.341	2	0	Clay
149	Monks Risborough	S Dunstan	SP 813045	114.56	.635	101	13.209	0	0	Chalk
30	Moulsoe	Assumption of BVM	SP 906418	88.4	.288	88	9.969	0	0	Clay
77	Mursley	S Mary Virgin	SP 817286	148.28	.22	80	8.313	0	0	Clay
54	Nash	All Saints	SP 781340	123.94	.318	75	6.465	0	0	Clay
27	NewBradwell	S James	SP 828415	62.29	.368	79	7.510	0	0	Limestone
19	Newport Pagnell	SS Peter and Paul	SP 878438	63.41	1.625	97	13.524	2	0	Limestone
3	Newton Blossomville	S Nicholas	SP 926516	46.7	.215	96	15.020	4	0	Limestone
66	Newton Longville	S Faith	SP 847315	109.21	.288	72	6.440	0	0	Clay
18	North Crawley	S Firmin	SP 927447	98.77	.543	91	9.546	0	0	Clay
96	North Marston	Assumption of BVM	SP 777227	125.9	.36	91	9.160	0	0	Clay
122	Oakley	S Mary	SP 642123	85.98	.373	89	10.388	0	0	Clay
34	Old Bradwell	S Lawrence	SP 832395	77.85	.303	97	12.050	1	0	Limestone
80	Old Linslade	S Mary	SP 910268		.78	76	11.593	1	0	Sa & Gr
25	Old Wolverton	Holy Trinity	SP 803413	75.27	.483	82	8.388	0	0	Limestone
5	Olney	SS Peter and Paul	SP 889509		.595	91	18.522	5	0	Limestone
102	Oving	All Saints	SP 783215	154.22	.313	83	10.770	1	0	Limestone
70	Padbury	S Mary Virgin	SP 722309	110.79	.315	70	5.701	0	0	Clay
176	*Penn	Holy Trinity	SU 916937	168.38	.455	117	23.229	2	0	Sa & Gr
166	*Penn Street	Holy Trinity	SU 924962	157.99	.423	103	25.162	4	1	Cl w Fl
101	Pitchcott	S Giles	SP 775204	146.2	.21	68	5.908	0	0	Limestone
116	Pitstone	S Mary Virgin	SP 942149		.445	98	12.739	0	0	Chalk
74	Preston Bissett	S John Baptist	SP 658299	101.95	.148	72	6.341	0	0	Clay
232	Prestwood	Holy Trinity	SU 874997	186.6	.608	123	19.201	2	0	Chalk
153	Princes Risborough	S Mary	SP 806053	106.5	.795	106	12.853	1	0	Chalk
100	Quainton	Holy Cross and S Mary	SP 750202		.743	106	12.516	0	0	Clay
59	Radclive	S John Evangelist	SP 676339	89.92	.16	76	8.674	1	0	Limestone
164	*Radnage	S Mary	SU 786979	148.42	.338	130	24.793	0	0	Chalk
7	Ravenstone	All Saints	SP 851509	88.01	.235	91	15.410	5	0	Limestone
223	St Leonards	S Leonard	SP 910071	219.43	.418	80	8.361	0	0	Cl w Fl
156	Saunderton	SS Mary and Nicholas	SP 796018		.115	68	7.971	1	0	Chalk
229	Seer Green	Holy Trinity	SU 966919	99.72	.185	89	15.129	3	0	Sa & Gr
145	Shabbington	S Mary Magdalene	SP 666067	68.41	.33	71	6.659	0	0	Clay
39	Shalstone	S Edward the Confessor	SP 641365	122.68	.18	77	8.798	0	0	Limestone
45	Shenley Church End	S Mary	SP 832367	93.2	.428	87	10.476	0	1	Clay
10	Sherington	S Laud	SP 890468	77.78	.415	92	13.834	1	0	Limestone
48	Simpson	S Thomas	SP 884362		.225	87	9.182	1	0	Clay

Site No.	Location	Dedication	Grid Reference	Height (m)	Area (ha)	No.of spp	Index Score	No.of spp with I.V. ⩾1	No.of spp with I.V. ⩾2	Geological category
105	Slapton	Holy Cross	SP 937206		.565	101	12.993	2	0	Clay
205	*Slough	S Mary	SU 976795	96.89	1.13	116	20.536	2	0	Sa & Gr
81	Soulbury	All Saints	SP 882271		.348	75	12.757	3	0	Clay
85	Steeple Claydon	S Michael	SP 705267	109.59	.58	77	7.603	0	0	Clay
82	Stewkley	S Michael	SP 853261	150.81	.863	117	17.490	1	0	Clay
8	Stoke Goldington	S Peter	SP 833493		.445	89	10.980	0	0	Limestone
79	Stoke Hammond	S Luke	SP 879298	97.09	.278	75	10.335	0	1	Clay
133	Stoke Mandeville	S Mary Virgin	SP 835104	101.6	.268	68	6.118	0	0	Clay
198	*Stoke Poges	S Giles	SU 976827	46.98	.785	120	23.061	2	0	Sa & Gr
163	Stokenchurch	SS Peter and Paul	SU 760964	223.66	.39	102	14.486	0	0	Cl w Fl
125	Stone	S John Baptist	SP 785123		.515	117	17.781	2	0	Limestone
23	Stony Stratford	SS Mary and Giles	SP 785407		.105	45	4.720	1	0	Clay
40	Stowe	Assumption of BVM	SP 677376	126.18	.2	72	12.396	2	0	Limestone
83	Swanbourne	S Swithun	SP 801273	128.87	.175	74	7.134	0	0	Clay
195	Taplow	S Nicholas	SU 912822	152.02	.365	104	17.669	0	1	Sa & Gr
62	Tattenhoe	S Giles	SP 829339	116.42	.045	50	3.489	0	0	Clay
170	*Terriers	S Francis	SU 877945		.54	124	20.830	1	0	Cl w Fl
222	*The Lee	S John Baptist	SP 899044	194.5	.515	115	22.342	0	1	Cl w Fl
61	Thornborough	S Mary	SP 744337		.473	96	12.528	0	0	Limestone
43	Thornton	S Michael	SP 753363	73.37	.205	64	8.795	2	0	Limestone
58	Tingewick	S Mary Magdalene	SP 658331	114.85	.21	68	6.677	0	0	Limestone
147	Towersey	S Catherine	SP 735053		.383	85	7.596	0	0	Clay
182	Turville	S Mary	SU 767912			111	16.657	0	0	Sa & Gr
38	Turweston	Assumption of BVM	SP 600378	113.09	.368	85	9.747	0	0	Limestone
86	Twyford	Assumption of BVM	SP 665267	86.52	.403	87	9.038	0	0	Clay
175	*Tylers Green	S Margaret	SU 904937			121	20.791	2	1	Sa & Gr
257	Tylers Hill	S George	SP 982017	163.28	.27	108	16.340	1	0	Sa & Gr
11	Tyringham	S Peter	SP 859467	61.17	.503	95	15.196	2	0	Limestone
119	Upper Winchendon	S Mary Magdalene	SP 746145	128.95	.26	64	6.405	0	0	Limestone
206	Upton	S Laurence	SU 981791	78.48	.245	81	13.307	2	0	Sa & Gr
112	Waddesdon	S Michael & All Angels	SP 740170	107.46	.773	88	8.314	0	0	Clay
57	Water Stratford	S Giles	SP 652344	95.9	.175	65	7.879	1	0	Limestone
50	Wavendon	Assumption of BVM	SP 911373	90.39	.45	81	7.148	0	0	Clay
140	*Wendover	S Mary	SP 871074	131.51	1.178	123	21.362	3	0	Chalk
219	Westbury	S Augustine	SP 623356	102.83	.223	83	11.435	2	0	Limestone
245	Westcott	S Mary	SP 716172	84.48	.198	81	7.808	0	0	Sa & Gr
132	Weston Turville	S Mary Virgin	SP 859103		.713	91	9.390	1	0	Sa & Gr
6	Weston Underwood	S Laurence	SP 864504	73.28	.283	96	15.155	2	1	Limestone
250	*West Wycombe	S Lawrence	SU 828949	159.72	.835	147	35.542	5	0	Chalk
201	*Wexham	S Mary	SU 993815	104.75	.34	124	26.086	2	0	Sa & Gr
53	Whaddon	S Mary	SP 805341	137.68	.475	78	7.698	0	0	Clay
103	Whitchurch	S John Evangelist	SP 803208		.615	80	7.733	0	0	Limestone
28	Willen	S Mary Magdalene	SP 878413	67.88	.22	81	12.197	2	0	Limestone
94	Wing	All Saints	SP 880226		1.023	96	11.783	0	0	Clay
108	Wingrave	SS Peter and Paul	SP 869190	132.26	.303	79	8.583	0	0	Clay
84	Winslow	S Lawrence	SP 769277	114.4	.214	67	7.543	0	0	Clay
26	Wolverton	S George	SP 817410	83.01	.408	80	9.261	1	0	Clay
190	Wooburn	S Paul	SU 909878			88	15.490	1	1	Sa & Gr
138	Worminghall	SS Peter and Paul	SP 642080		.263	73	8.758	1	0	Sa & Gr
121	Wotton Underwood	All Saints	SP 688159	78.73	.468	77	7.319	0	0	Clay
47	Woughton	Assumption of BVM	SP 877376	73.6	.275	99	12.903	0	0	Clay
210	Wraysbury	S Andrew	TQ 001739	19.6	.465	96	11.613	0	0	Sa & Gr

APPENDIX VI

NUMERICAL INDEX TO

BUCKINGHAMSHIRE CHURCHYARD SITES

N.B. See Map at end of list

Site No.	Location	Grid Reference	Site No.	Location	Grid Reference
1	Lavendon	SP 916537	51	Bow Brickhill	SP 912345
2	Cold Brayfield	SP 929522	52	Fenny Stratford	SP 883341
3	Newton Blossomville	SP 926516	53	Whaddon	SP 805341
4	Clifton Raynes	SP 899515	54	Nash	SP 781340
5	Olney	SP 889509	55	Maids Moreton	SP 706352
6	Weston Underwood	SP 864504	57	Water Stratford	SP 652344
7	Ravenstone	SP 851509	58	Tingewick	SP 658331
8	Stoke Goldington	SP 833493	59	Radclive	SP 676339
9	Emberton	SP 886495	61	Thornborough	SP 744337
10	Sherington	SP 890468	62	Tattenhoe	SP 829339
11	Tyringham	SP 859467	63	Bletchley	SP 864338
12	Gayhurst	SP 846463	64	Little Brickhill	SP 911325
13	Hanslope	SP 804468	65	Great Brickhill	SP 901307
14	Castlethorpe	SP 799445	66	Newton Longville	SP 847315
15	Little Linford	SP 846442	67	Little Horwood	SP 791308
16	Lathbury	SP 875450	68	Great Horwood	SP 771312
17	Chicheley	SP 905459	69	Adstock	SP 736301
18	North Crawley	SP 927447	70	Padbury	SP 722309
19	Newport Pagnell	SP 878438	71	Gawcott	SP 680318
20	Great Linford	SP 851424	72	Barton Hartshorn	SP 641309
21	Haversham	SP 828428	73	Chetwode	SP 640298
22	Lillingstone Lovell	SP 712405	74	Preston Bissett	SP 658299
23	Stony Stratford	SP 785407	75	Hillesdon	SP 686287
25	Old Wolverton	SP 803413	76	Addington	SP 743285
26	Wolverton	SP 817410	77	Mursley	SP 817286
27	New Bradwell	SP 828415	78	Drayton Parslow	SP 387285
28	Willen	SP 879413	79	Stoke Hammond	SP 879298
29	Broughton	SP 894401	80	Old Linslade	SP 910268
30	Moulsoe	SP 906418	81	Soulbury	SP 882271
31	Milton Keynes	SP 888392	82	Stewkley	SP 853261
32	Little Woolstone	SP 875393	83	Swanbourne	SP 801273
33	Great Woolstone	SP 875386	84	Winslow	SP 769277
34	Old Bradwell	SP 832395	85	Steeple Claydon	SP 705267
35	Calverton	SP 791390	86	Twyford	SP 665267
36	Lillingstone Dayrell	SP 705398	87	Middle Claydon	SP 719254
37	Biddlesden	SP 634399	88	East Claydon	SP 740256
38	Turweston	SP 600378	89	Granborough	SP 767250
39	Shalstone	SP 641365	90	Hoggeston	SP 808250
40	Stowe	SP 677376	91	Dunton	SP 824243
41	Akeley	SP 708378	93	Grove	SP 921225
42	Leckhampstead	SP 727397	94	Wing	SP 880226
43	Thornton	SP 753363	95	Cublington	SP 838222
44	Beachampton	SP 771371	96	North Marston	SP 777227
45	Shenley Church End	SP 832367	97	Edgcott	SP 680228
46	Loughton	SP 837378	98	Marsh Gibbon	SP 648232
47	Woughton	SP 877376	99	Grendon Underwood	SP 677210
48	Simpson	SP 884362	100	Quainton	SP 750202
50	Wavendon	SP 911373	101	Pitchcott	SP 775204

Site No.	Location	Grid Reference	Site No.	Location	Grid Reference
102	Oving	SP 783215	157	Great Missenden	SP 900009
103	Whitchurch	SP 803208	158	Chesham	SP 956015
104	Aston Abbotts	SP 847203	159	Latimer	TQ 001988
105	Slapton	SP 937206	160	Chenies	TQ 016984
106	Edlesborough	SP 970191	161	Chesham Bois	SU 969998
107	Mentmore	SP 904198	162	Little Missenden	SU 921990
108	Wingrave	SP 869190	163	Stokenchurch	SU 760964
109	Hardwick	SP 806189	164	Radnage	SU 768979
111	Ludgershall	SP 659162	165	Bradenham	SU 828971
112	Waddesdon	SP 740170	166	Penn Street	SU 924962
113	Hulcott	SP 854167	167	Amersham	SU 957974
114	Cheddington	SP 923179	169	Hazlemere	SU 888952
115	Ivinghoe	SP 946162	170	Terriers	SU 877945
116	Pitstone	SP 942149	173	High Wycombe	SU 865931
117	Marsworth	SP 919146	175	Tylers Green	SU 904937
118	Bierton	SP 836153	176	Penn	SU 916937
119	Upper Winchendon	SP 746145	177	Chalfont St Giles	SU 991936
120	Ashendon	SP 705142	178	Chalfont St Peter	TQ 000908
121	Wotton Underwood	SP 688159	179	Beaconsfield	SU 945900
122	Oakley	SP 642123	180	Lane End	SU 806916
123	Brill	SP 657138	181	Fingest	SU 776912
124	Lower Winchendon	SP 733123	182	Turville	SU 767912
125	Stone	SP 785123	184	Fawley	SU 754867
126	Lower Hartwell	SP 795125	185	Hambledon	SU 783866
127	Aylesbury	SP 817138	186	Marlow (N)	SU 848869
129	Drayton Beauchamp	SP 901118	187	Marlow	SU 851862
130	Halton	SP 874101	189	Little Marlow	SU 874878
131	Aston Clinton	SP 879119	190	Wooburn	SU 909878
132	Weston Turville	SP 859103	191	Hedgerley	SU 971873
133	Stoke Mandeville	SP 835104	192	Gerrards Cross	TQ 001879
134	Dinton	SP 766110	193	Denham	TQ 042870
135	Cuddington	SP 737112	194	Fulmer	SU 999857
136	Chearsley	SP 719103	195	Taplow	SU 912822
137	Chilton	SP 686116	196	Hitcham	SU 919826
138	Worminghall	SP 542080	197	Burnham	SU 930824
139	Long Crendon	SP 698091	198	Stoke Poges	SU 976827
140	Wendover	SP 872074	199	Iver Heath	TQ 024833
141	Ellesborough	SP 836066	200	Iver	TQ 040811
142	Haddenham	SP 742079	201	Wexham	SU 993815
143	Kingsey	SP 743067	202	Dorney	SU 924790
144	Aston Sandford	SP 757078	203	Eton Wick	SU 952783
145	Shabbington	SP 666067	204	Chalvey	SU 967795
146	Ickford	SP 646074	205	Slough	SU 976795
147	Towersey	SP 735053	206	Upton	SU 981791
148	Ilmer	SP 769055	207	Langley	TQ 005796
149	Monks Risborough	SP 813045	208	Datchet	SU 988771
150	Great Kimble	SP 825069	209	Horton	TQ 015758
152	Great Hampden	SP 848023	210	Wraysbury	TQ 001739
153	Princes Risborough	SP 806035	211	Cadmore End	SU 784926
154	Horsenden	SP 793028	213	Boarstall	SP 624142
155	Bledlow	SP 778022	214	Dorton	SP 679139
156	Saunderton	SP 796018	215	Farnham Royal	SU 962827

Site No.	Location	Grid Reference	Site No.	Location	Grid Reference
216	Ibstone	SU 756924	239	Horn Hill	TQ 014925
217	Hardmead	SP 935476	244	Eton	SU 966775
218	Astwood	SP 950475	245	Westcott	SP 716172
219	Westbury	SP 623356	246	Dropmore	SU 934864
220	Little Kimble	SP 826065	249	Frieth	SU 797903
221	Medmenham	SU 805845	250	West Wycombe	SU 828949
222	The Lee	SP 899044	251	Hughendon	SU 864955
223	St Leonards	SP 910074	252	Bledlow Ridge	SU 797977
224	Cholesbury	SP 929072	253	Farnham Common	SU 962848
225	Hawridge	SP 951059	255	Lacey Green	SU 824998
227	Ashley Green	SP 976052	256	Little Hampden	SU 860036
228	Coleshill	SU 948951	257	Tylers Hill	SP 982017
229	Seer Green	SU 966919	258	Colnbrook	TQ 026771
230	Holmer Green	SU 905974	259	Hedsor	SU 907862
232	Prestwood	SU 874997