

The Botanist
in
Berwickshire



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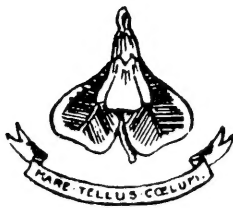
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THE BOTANIST IN BERWICKSHIRE



The Berwickshire Naturalists Club

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THE BOTANIST IN BERWICKSHIRE

*An annotated check-list of the flowering plants and
ferns of Berwickshire*

by

Michael E. Braithwaite

BSBI Recorder for Berwickshire
incorporating records compiled by Albert G. Long

and

*An annotated check-list of the bryophytes of
Berwickshire*

by

David G. Long

Royal Botanic Garden, Edinburgh

*With introductory sections giving an
overview of the flora.*

The Berwickshire Naturalists Club

1990

*To Albert Long whose project this was and in memory of
Dr George Johnston 1797–1855 who led the way*

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St. Abbs Head NNR

INTRODUCTION

M. E. Braithwaite

Scope

The Botanist in Berwickshire is a much abbreviated compilation of the work of several generations of botanists and presents as informed an opinion as is available of the current status in Berwickshire of each of the plant species within its scope.

There is an inescapable fascination about the quest for a complete list of our flora that can become something of an end in itself but essentially this work is a by-product of botanising carried out for a variety of reasons: recreational, scientific, and increasingly in relation to conservation. It is presented, consciously incomplete and often out of date, above all to stimulate further work and perhaps also to instil a sense of wonder at the marvellous diversity of our flora. Nevertheless practical uses are intended and it is hoped that, in conjunction with the excellent modern identification floras on which it is based, it may be used by amateur and professional naturalists, farmers, foresters and conservationists and indeed anyone who from time to time may come to name a particular plant and wish then to understand something of how it fits into the scheme of things in a local context.

For the commoner species little or no detailed information is offered as a standard flora will point the way, but for scarcer species there is more detailed information. This information is intended to be indicative rather than exhaustive. Nevertheless no information has been held back on grounds of confidentiality in the hope that those with an interest to follow up a particular record will not have gained the experience required to do so without at the same time learning a respect for the countryside, its wildlife and the people who live there.

Our native flora which has been here for millenia co-exists with species that, having been introduced both accidentally and deliberately in the last few centuries, have naturalised to varying degrees; and it can be difficult to decide whether a particular species comes within the scope of a book on wild plants. In Berwickshire the number of such introductions is manageable, and it has been thought best to include almost all the species that have been met with well outside gardens so that a statement about their status can be made.

Although this book is not intended as a guide to where to botanise in Berwickshire, many of the places of particular interest do receive mention and the list of such places is a long one. Nevertheless a true naturalist will find much of interest throughout the county and will come to know other places that arouse interest and give pleasure.

The area covered is that of the Watsonian Vice-County 81 - Berwick, which has the same boundary as the former County of Berwickshire except for a small area to the west of the Leader Water and a small area at Laughing Law on the Monynut Water. It does not include Berwick upon Tweed, which is in Vice-County 68 - Cheviotland.

History of Botanical Recording

The systematic study of Berwickshire's botany has spanned two centuries. Brief notes published by Dr Parsons were published in Lightfoot's "Flora Scotica" in 1777. Later, in 1807, John V. Thompson, surgeon, published "A Catalogue of Plants Growing in the Vicinity of Berwick-upon-Tweed"; this in turn provided the basis for Dr George Johnston to venture more widely and gather the material for his "Flora of Berwick-on-Tweed", published in two volumes in 1829 and 1831. The first volume covering the flowering plants and the second the bryophytes, fungi, lichens and algae. This is a work to the highest standards which has remained the reference flora to this day.

With the completion of his flora in 1831, Dr Johnston sought to share his interest more widely and founded his hugely successful Berwickshire Naturalists Club which was a considerable novelty at the time. Much further work on the botany of the area followed under the club's auspices by Dr Johnston and his proteges, notably Dr James Hardy, and the results were published in short reports in the club's "History", in Dr Johnston's later work, "A Natural History of the Eastern Borders" 1853, and in Dr Hardy's "Moss Flora of the Eastern Borders" published in the club's "History" in 1868.

The western part of the county was little visited by the Berwickshire Naturalists and this part remains under-recorded to the present day although an early attempt was made to remedy matters with a list of plants by Andrew Kelly and William Shaw included in A. Thomson's "Lauder & Lauderdale" in 1902. Species lists from various localities have been published in other botanical journals but no further compilation work was carried out until J. B. Duncan, a bryologist of national repute, spent his years of retirement in Berwick and published a "List of the Bryophytes of Berwickshire" in the Transactions of the Botanical Society of Edinburgh in 1946. Soon afterwards in the 1950's Albert G. Long accepted the post of recorder for the Botanical Society of the British Isles. He both prepared a card index of the historical records and also, with his son David soon specialising in the bryophytes, carried out methodical field work much superior to the hasty survey which was achieved for the BSBI's "Atlas of the British Flora" 1962. Meanwhile the Nature Conservancy Council had arrived and, thanks especially to the efforts of Christopher O. Badenoch, the flora of what have become

sites of special scientific interest had good preliminary surveys, with special attention to the coast and the oakwoods near Abbey St. Bathans. Nevertheless, the species lists for these SSSIs remain tentative despite a number of attempts to revise and annotate them such as the list of flowering plants of the St. Abbs Head National Nature Reserve prepared by Stephen R. Warman and the writer in 1987 which remains unpublished.

More recently the writer has continued to build on this extensive groundwork with a bias towards sites of interest to the Scottish Wildlife Trust for their conservation value, while David Long has been able to substantially extend the coverage of bryophytes.

Over the years individual records of note have been contributed by many other local and visiting botanists and recently particular contributions have been made by the following specialists: Ferns, A. Willmot; Crowfoots, N. T. H. Holmes (with C. D. K. Cook); Brambles, G. H. Ballantyne (with E. S. Edees and A. Newton); Hawkweeds, D. J. McCosh (with P. D. Sell); Dandelions, A. J. Richards and C. C. Haworth; Pondweeds, N. T. H. Holmes (with J. E. Dandy).

It must be emphasised that only a limited search of the literature has been made and that for the flowering plants no search has been made in the national herbaria. It is therefore inevitable that a considerable number of invaluable records have been omitted.

Although many records have been gathered during outings organised by the Berwickshire Naturalists Club or other societies, many others have been made by individual botanists walking in the countryside. Except where their walks have led through policy woodland and the like, permission has seldom been obtained in advance though every opportunity has been taken to meet with and speak to owners and farmers in the course of these rambles to explain that botanical records were being made. The acceptance of this free and easy approach by owners and farmers must be acknowledged with deep gratitude and an understanding that this privilege can only be enjoyed so long as the number of visitors is modest and their behaviour impeccable.

Conventions

For flowering plants and ferns the order of the species and their scientific names follow Clapham, Tutin & Warburg. "Excursion Flora of the British Isles" 3rd Edition 1981. Bryophytes follow Corley & Hill "Distribution of Bryophytes in the British Isles" 1981. Only important synonyms have been given, and additional critical species are listed. The common names of the flowering plants and ferns follow Dony, Jury & Perring "English Names of Wild Flowers" 2nd Edition 1986 which imposes an artificial binomial system. These names are not standard to

all modern floras. With some exceptions no attempt has been made to add local names, as few are now in common use and amongst the remainder the same name is frequently applied to more than one species as with the weeds called runch. For bryophytes no common names are given as they are rarely used.

For each species a statement is made of its considered status in the county except where the only records are those listed when it may be omitted. In the absence of systematic survey an exhaustive statement of the frequency and abundance of the commoner species is not attempted. Information on habitat is added only where the species is notably more restricted in its habitats in Berwickshire than nationally or where it is felt that the species has a special significance in relation to habitat that is of particular interest in interpreting the countryside.

With species that are local rather than widespread typical localities are listed, often limited to three, whilst for very local species most if not all of the records are given, especially the most recent ones.

The dates given are those of the only or latest record from a particular locality except that for introduced species the first record may also be given. Where localities are given without dates the species is considered to be still present there.

* Asterisk indicates species which are not considered native in Berwickshire. Also used to indicate localities at which a species is not considered native. Bryophytes that have colonised recently are not indicated in this way as any part played by man has been accidental.

() Single brackets indicate species not now considered present, except sometimes as a casual, but formerly present, together with species only rarely present as casuals. Also used for localities where a species is not now considered present.

(()) Double brackets indicate species for which there is no record but there might be expected to be one on the basis of its national distribution. Also used where there are only records that are considered erroneous and these demand assessment in view of their previous publication.

Records

The authors hold additional details of the records given and at their discretion will attempt to assist with specific enquiries.

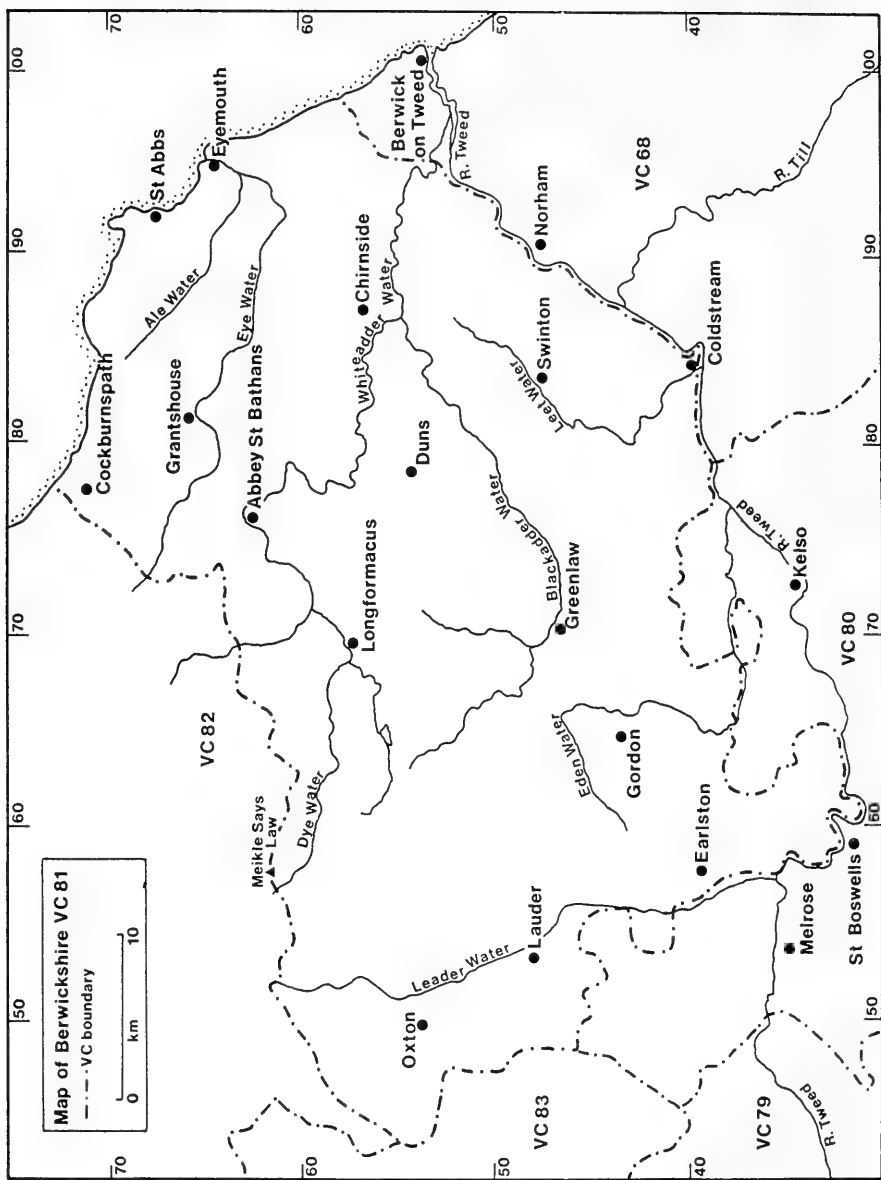
The new records that would be most welcomed by them, including confirmation of old records, are sufficiently indicated by the layout of the species notes. If possible the following information should be given: Species name, grid reference, locality, habitat, date, recorder's name and any comments such as the size of the population. In case of doubt a small voucher specimen may be taken, unless the population is small, but a flower and some leaves will often do or, in the case of bryophytes, a

portion of a tuft. Plants should not be uprooted without the consent of the owner.

The present addresses of the authors are given below. In case of difficulty, suitable contacts can be made through the Berwickshire Naturalists Club, the Scottish Wildlife Trust, the Botanical Society of the British Isles, the British Bryological Society, the Royal Botanic Garden Edinburgh or the Nature Conservancy Council.

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FLOWERING PLANTS AND FERNS OF BERWICKSHIRE VC81

M.E. Braithwaite

AN OVER-VIEW OF THE FLOWERING PLANTS AND FERNS

Berwickshire is an excellent place in which to obtain a grasp of the natural and human forces that determine Britain's botany. It is truly a border county in the sense that here one can study southern and northern plants intermingling at the limits of their respective ranges in an area where heath vegetation descended to low elevations. In a county affected by the remorseless advance of agriculture and forestry one can still enjoy the rugged coastline, the majestic Tweed and the grouse moors of the Lammermuirs.

Geology

The geology is varied. Calciferous sandstone and a trace of limestone underlie the agricultural land of the Merse from Coldstream to Duns and Berwick and outcrop on two stretches of the coast. To the west lie basaltic lavas, dramatic at Hume Castle, which soon give way to a wide band of Old Red Sandstone deposits in the Leader valley, the low moorlands near Greenlaw and the former post-glacial lakes in the Gordon area. To the northeast lie the Silurian rocks of the Lammermuirs extending right to the coast at Coldingham Moor. Volcanic intrusions add interest at St. Abb's Head, the Dirington Laws, the craigs at Sweethope and Hareheugh and the Black Hill at Earlston.

The Coast

The coast with its cliffs and sea braes provides a largely unbroken strip of natural grassland and maritime heath where *Primula vulgaris* and *Hyacinthoides* are abundant for about 30 kilometres from Lamberton to Dunglass. Below Lamberton the grasslands are base-rich, with *Koeleria* and *Carlina*, while the wet flushes contain *Equisetum telmateia*, *Lythrum salicaria*, *Eupatorium cannabinum* and *Carex pendula*. The railway cutting behind has been colonised by *Pastinaca*, *Valerianella locusta* and *Bromus erectus*. The braes north of Burnmouth are the most colourful in Berwickshire with *Vicia sylvatica* and *Geranium sanguineum* together with *Poterium sanguisorba* and long-established *Petroselinum crispum*.

At Eyemouth, the headland behind Gungreen has a fine spring flora with *Primula veris*, *Orchis mascula* and a late-flowering colony of *Scilla*

verna; it also retains a small colony of *Schoenus nigricans*. Below Coldingham, the Linkim Shore and Coldingham Bay provide a more varied habitat with *Ammophila* and *Leymus* together with *Thalictrum minus*, *Cakile* and *Spergularia marina*. Here attempts to fix the eroding sand dunes with mesh have provided a habitat for *Montia perfoliata*.

At St. Abb's Head, the varied and magnificent topology provides both exposed sea cliffs with *Sedum rosea* and *Ligusticum scoticum* and also sunny inland cliffs with *Minuartia verna*, *Trifolium striatum* and *Torilis nodosa*. *Astragalus danicus* and *Viola canina* favour the edges of the knowes above, while *Artemisia maritima* occurs on the stacks at Petticowick. The superb coastline continues north to Fast Castle with its *Asplenium marinum* behind which lies the stark Dowlaw Dean with *Sedum rosea*, *Thalictrum minus* and *Allium vineale*; it is also one of the ancient stations for *Chamerion angustifolium*.

Pease Bay has been largely surrendered to holiday makers but near Reed Point *Glaucium flavum* survives; there is also a tiny salt marsh with *Parapholis incurva* and *Carex extensa*. Long extinct from the Berwickshire coast are *Smyrniium olusatrum* and *Mertensia maritima*.

Woodland

Ancient woodland is scarce indeed. The ground flora of the valley elm woods with *Allium ursinum* and *Mercurialis*, *Saxifraga granulata*, *Chrysosplenium alternifolium* and *Adoxa* is quite widely preserved but the canopy is often much given over to *Acer pseudoplatanus* and softwoods. Pease Dean on the coast, the Eye Water below Ayton Castle, Clarabad on the Whiteadder, Nabdean at Paxton House and Gledswood near Leaderfoot are some of the best remaining examples of these elm woods. Of these, Pease Dean is notable for its ferns - *Phyllitis scolopendrium*, *Polystichum aculeatum* and *P. setiferum*. The elm woods intergrade with oak woods and in a few of the richer fragments *Campanula latifolia* is frequent with *Lathraea*, *Neottia* and *Epipactis helleborine* just surviving. *Arum maculatum* is locally plentiful but perhaps is always an introduction while *Paris* and *Gagea*, present in these habitats elsewhere in the Borders, are absent.

Fine oak woods remained at Penmanshiel until the first World War but now those survive principally along the Whiteadder at Abbey St. Bathans, where there is a series of fine woods with *Hyacinthoides*, *Carex remota*, *Corydalis*, *Gymnocarpium dryopteris* and *Phegopteris connectilis*, sometimes with fine juniper. Where these woods approach the river there is *Prunus padus*; and also a well developed alder wood found elsewhere only at Hoprigshiels. In a more open wood at Gateheugh on the Tweed, *Sorbus rupicola* and *Melica nutans* just survive. In upland situations the deans have much birch and rowan but good examples are

rare and the best is at Langtonleescleuch where there is *Rubus saxatilis*; and where *Crepis mollis* may yet survive unlike in its former stations in the Leader valley where it is perhaps extinct. At Airhouse Wood, alone, a sizeable remnant birch wood hangs on along an open hillside with *Geranium sylvaticum* and *Rosa pimpinellifolia*.

All these ancient woods are on steep banks and it is perhaps at the Hirsle that long-established secondary woodland gives the best idea of the woodland flora on a more varied terrain; for example at Birgham Wood, on former moorland, there is abundant *Fragaria vesca* and frequent *Pyrola minor* under oak and *Cirsium helenoides* under willow and birch. Native Scots pine woods were extinct in the Borders before 1700 but pine has been extensively replanted especially at Mellerstain and here *Corydalis* has prospered. Some recolonisation by *Goodyera* and *Linnaea* formerly occurred, from which one colony of *Linnaea* yet survives.

Riverside

The Tweed as the principal river is bounded by dynamic communities where aliens such as *Heracleum mantegazzianum*, *Impatiens glandulifera*, *Symphytum uplandicum* and *Allium paradoxum* have prospered. Less aggressive introductions are *Butomus umbellatus*, *Acorus calamus* and *Lysimachia vulgaris*. *Carex acuta* and *Glyceria maxima* are present as natives. The aquatic flora remains varied with both *Potamogeton lucens* and *P. perfoliatus* plentiful in the lower Tweed. The steep banks support *Dipsacus fullonum* and at least two colonies of *Lactuca virosa* survive. *Cerastium arvense* and *Galium boreale* occur rarely, on rocks, with *Ballota nigra* on sandstone well above the river, and *Parietaria* on walls.

The principal tributary is the Whiteadder whose lower regions lie in a deep, narrow valley where the river swings to and fro with wooded scaurs on one bank and open haughs on the other, backed by grassy braes with much scrub. By the river *Scrophularia umbrosa* is at its most frequent and there is *Oenanthe crocata*, *Scirpus sylvaticus* and *Schoenoplectus lacustris* with *Tanacetum vulgare* and *Geranium pratense* above. On the braes, *Helianthemum* and *Ononis* are plentiful and here are found *Malva moschata*, *M. neglecta* and *Carduus tenuiflorus*. The scaurs are typified by *Vicia sylvatica* and *Origanum vulgare* but *Echium vulgare* and *Lathyrus sylvestris* are also present. *Scabiosa columbaria* is found in one side-dean. *Allium scorodoprasum* has one station on the English Border. The rich communities of the Whiteadder haughs between Allanton and Paxton, of which the best is Tibbie Fowler's Glen, have diminished, losing the *Trifolium fragiferum* and *Blysmus compressus* formerly present.

The Blackadder is a tributary in turn and, although the upper reaches have an upland character, *Berula erecta* is plentiful and *Blysmus compressus* is present locally. The Leet Water which drains the Merse is a lazy

lowland river with *Carex riparia* and *C. acutiformis* on its banks and in ox-bows. The Leader Water is a gravelly river tending to flood and *Lepidium heterophyllum* is a feature of its gravels.

Grassland

Away from the river grasslands, interest is concentrated on volcanic craigs. Hume has much *Saxifraga granulata* with *Vicia lathyroides* and *Myosotis ramosissima* with the two *Cerastiums*, *C. diffusum* and *C. semidecandrum*. Hareheugh Craigs support *Viola lutea*, *Dianthus deltoides*, *Scleranthus annuus* and *Carex muricata*. Away from the craigs, rich old grassland is rare in lowland Berwickshire; for example there are just a few colonies of *Viola lutea*, only one of which, near Corsbie, is associated with *Botrychium lunaria*. Coldingham Moor was formerly an area of a rich variety of grassland and heath but it is much reduced and, although *Filago vulgaris* and *F. minima* remain on dry knowes, species such as *Gentianella campestris*, *Gymnadenia conopsea* and *Coeloglossum viride* are lost or nearly so.

The undulating ground of the Merse proper, between Coldstream and Chirnside, was also an interesting mixture of communities with a few northern plants mingling with a notable collection of southern ones. *Galium boreale* and *Trollius europaeus* grew with *Silaum silaus*, *Cerastium arvense* and *Genista tinctoria*. *Filipendula vulgaris*, *Senecio erucifolius*, *Pulicaria dysenterica* and *Equisetum hyemale* were also present. *Apium nodiflorum* and *Berula erecta* were found in the burns. Now, *Galium boreale* and *Silaum silaus* just survive, incongruous at the edge of wheat fields, with a little *Berula erecta* in the burns; but the other species are believed lost. By the Crook Burn alone, a representative northern hay meadow remains, with much *Trollius* and *Cirsium helenoides*.

Wetland

Coldingham Loch is the only natural water body of significance with *Nuphar lutea* and a variety of linear-leaved *Potamogeton* species, amongst which the current status of *P. filiformis* is in doubt. The Hen Poo at Duns Castle is a flooded mire with a rich flora including long-established introductions and is the principal locality for *Ranunculus lingua*.

The range of mosses is much more restricted than in Roxburghshire and Selkirkshire. Long Moss on Coldingham Common has *Vaccinium oxycoccus*; *Trientalis* is also found nearby on Drone Moss. Former wetland habitats nearby on Coldingham and Lamberton moors, with their strikingly oceanic climates, were stations for *Osmunda*, *Trollius*, *Drosera anglica*, *Apium nodiflorum*, *Epipactis palustris* and *Schoenus nigricans*, but these species are now lost or nearly so.

Dogden Moss on Greenlaw Moor is a fine example of a raised bog

with typical species, while Gordon Moss has a fascinating history as a remnant of a much larger wetland. *Carex paniculata* and *Dryopteris carthusiana* are still abundant in birch wood there while *Platanthera bifolia*, *Corydalis* and *Catabrosa aquatica* are still plentiful; however, there is a frightening list of extinctions and near-extinctions. Everett Moss has *Cicuta* while Longmuir Moss in the Lammermuirs is the only station for *Carex diandra*. Bemersyde Moss has *Bidens cernua* and *Sanguisorba officinalis*. Mire Loch at St. Abb's Head still has *Berula erecta* but *Baldellia* and *Apium inundatum* perished when the mire was flooded. *Corallorhiza trifida* is a feature of several of the Berwickshire mosses. The mires of the Merse are either completely lost or sadly degraded, though some interest remains at Lithillum Loch.

Moorland

Much of the moorland of the Lammermuirs is almost pure *Calluna* with *Erica cinerea* locally dominant while, of the clubmosses formerly frequent, only a little *Lycopodium clavatum* now remains. *Genista anglica* is also localised, though still present on Dirrington Law where it was formerly accompanied by *Arctostaphylos* and *Pyrola media* in an interesting community probably more widespread before it was eliminated by grazing. Not far away *Saxifraga hirculus* and *Leuchorchis albida* have long been lost although *Vicia orobus* still flourishes up the Dye Water and *Parnassia* is still plentiful in base-rich flushes north of Greenlaw Kaims.

A characteristic community of the Lammermuirs is a bryophyte-rich flush where *Sedum villosum* flourishes. *Cryptogramma crista* is, surprisingly, extinct at several former localities but survives in screes on the Black Hill at Earlston. *Gymnocarpion dryopteris* has fared better in small screes up the Lammermuir burns in just a few of which juniper is still plentiful. Rather rarely up these burns base-rich flushes occur, characterised by *Carex dioica* and *Eleocharis quinqueflora* with *Parnassia*, *Pinguicula* and *Selaginella*. The Lammermuirs are not high enough for summit vegetation but, amongst the *Empetrum* and *Vaccinium vitis-idaea* on Meikle Says Law, *Rubus chamaemorus* occurs, with *Listera cordata* in the *Sphagnum*. Not all the Lammermuirs are heather and locally there are banks of *Helianthemum* with *Thymus* and *Festuca tenuifolia*.

Arable Land

Many arable weeds have become rare or extinct. *Scandix* outlived *Centaurea cyanus*, while *Chrysanthemum segetum* survives near Eyemouth and north of Kelso. *Fumaria micrantha*, *Stachys arvensis*, and *Lamium hybridum* occur in a few sandy fields near the coast and by the lower Tweed. *Anagallis arvensis* is widespread but scarce and *Mentha arvensis* is now very rare. On the other hand *Matricaria recutita* may be increasing.

Lamium moluccellifolium is widely distributed but scarce while the colourful *Galeopsis speciosa* and *Fumaria muralis* are often plentiful, even in peaty upland soil.

Ruderal Land

With Berwick-upon-Tweed outwith the county the open habitats of industrial wasteland, rubbish tips, railways and major road verges are localised and although a number of species have become naturalised there they remain little in evidence. Nevertheless railway yards have *Senecio squalidus* on the ballast and *Ceterach* on the walls while the A68 has patches of *Hordeum jubatum* on the verges and the swathes of *Taraxacum* along the A1 conceal introduced microspecies.

Roadsides remain largely natural with *Ranunculus ficaria* succeeded by *Anthriscus sylvestris*, *Heracleum spondylium* and *Leontodon autumnalis* but a number of the striking introductions of the riverside are found here also, but more sparsely, together with *Pentaglottis sempervirens*, *Cicerbita macrophylla* and, on mown verges, *Veronica filiformis*. A startling innovation of the 1980's are roadsides yellow with oil-seed rape, *Brassica napus*, where the tiny seeds are spilt at harvest.

STATISTICAL SUMMARY OF FLOWERING PLANTS AND FERNS

	Present	(Formerly present)	(Casual only)	Total
Native to Berwickshire				
Species	619	88	-	707
Subspecies	10	3	-	13
Microspecies	93	3	-	96
Hybrids	21	4	-	25
	<hr/>	<hr/>	<hr/>	<hr/>
	743	98	-	841
* Introduced and naturalised				
Species	103	18	-	121
Subspecies	7	-	-	7
Microspecies	7	-	-	7
Hybrids	8	-	-	8
	<hr/>	<hr/>	<hr/>	<hr/>
	125	18	-	143
* Introduced but usually found planted or as garden escapes poorly naturalised				
Species	73	8	-	81
Hybrids	5	-	-	5
	<hr/>	<hr/>	<hr/>	<hr/>
	78	8	-	86
* Introduced casual only				
Species	-	-	81	81
	<hr/>	<hr/>	<hr/>	<hr/>
Total	946	124	81	1,151
	<hr/> <hr/>	<hr/> <hr/>	<hr/> <hr/>	<hr/> <hr/>

Genera taken to have microspecies are *Rubus*, *Alchemilla*, *Euphrasia*, *Hieracium* and *Taraxacum*.

Of the 707 full species thought to have been native, and to have survived to 1830, 88 are thought subsequently to have become extinct. However 103 full species have been introduced intentionally or accidentally by man, some of these long before 1830, and have become naturalised. 722 full species are thus considered to be present in established wild populations in 1990.

The 88 native species thought to have been lost were last recorded and the 103 that have become naturalised were first recorded in the decades beginning as follows:

	Last record	First record		Last record	First record
to 1830	8	36	1910	16	2
1840	2	3	1920	1	0
1850	11	2	1930	2	3
1860	3	1	1940	1	4
1870	3	2	1950	5	10
1880	9	2	1960	9	13
1890	7	3	1970	4	1
1900	7	2	1980	—	19
	<u>50</u>	<u>51</u>		<u>38</u>	<u>52</u>

Despite the uneven history of botanical recording it is clear that there has been a rather steady rate of loss of native species between 1830 and 1990. The dates of the introductions are more obviously biased by the dates of high recording effort but the underlying trend is perhaps of an increasing rate of introduction.

The habitats from which the 88 native species are thought to have been lost and to which the 103 that have become naturalised have come are

	Losses	Gains	Comment
The Coast	7	7	little change
Woodland	4	26	deliberate introduction
Riverside	2	20	dynamic communities
Grassland	21	8	loss of habitat
Wetland	28	2	degradation of habitat
Moorland	6	1	muirburn and drainage
Arable Land	16	3	clean seed and sprays
Ruderal Land	4	36	dynamic communities
	<u>88</u>	<u>103</u>	

CHECK-LIST OF FLOWERING PLANTS AND FERNS

PTERIDOPHYTA

(Ferns and Fern-Allies)

LYCOPODIACEAE

- (*Huperzia Selago* FIR CLUBMOSS. Perhaps now only a rare casual. Earlston, ? Black Hill, 1960).
- Lycopodium clavatum* STAG'S-HORN CLUBMOSS. Now very scarce, mainly moorland. Duns Castle 1979.
- (*Diphasiastrum alpinum* ALPINE CLUBMOSS. Perhaps now only a rare casual. Soutra 1990, Black Hill 1977, Dye Cottage, Wrunklaw 1956).

SELAGINELLACEAE

- Selaginella selaginoides* LESSER CLUBMOSS. Small colonies, Greenlaw Moor, Clints Hill, Stot Cleugh, Watch Water, Dowlaw Dean.

EQUISETACEAE

- (*Equisetum hyemale* DUTCH RUSH. Considered extinct. Burnmouth 1886, Lamberton Moor to 1836)
- E. fluviatile* WATER HORSETAIL. Widespread and locally abundant.
- E. palustre* MARSH HORSETAIL. Common.
- E. sylvaticum* WOOD HORSETAIL. Local and scarce. Woods and moorland. Abbey St. Bathans, Longformacus.
- E. arvense* FIELD HORSETAIL. Common, but seldom abundant.
- E. arvense* x *fluviatile* (= *E. x litorale*) Gordon Moss 1988, St. Abbs Head 1979.
- E. telmateia* GREAT HORSETAIL. Wet places on the sea braes and in adjacent deans.

OPHIOGLOSSACEAE

- Botrychium lunaria* MOONWORT. Now rare. Corsbie 1987, Gordon Moss 1971.
- Ophioglossum vulgatum* ADDERS-TONGUE. Rare, most observable in the first week of June. Millknowe Burn 1988, (Silverwells 1956).

OSMUNDACEAE

- (*Osmunda regalis* ROYAL FERN. Considered extinct. Flass Wood 1885, Coldingham Moor 1871).

ADIANTACEAE

Cryptogramma crispa PARSLEY FERN. Black Hill, on a wall at The Bield, (Chester Hill, Lauder 1902, Abbey St. Bathans 1853).

HYPOLEPIDACEAE

Pteridium aquilinum BRACKEN. Common and locally dominant. Broadly suggesting the sites of ancient oakwoods.

THELYPTERIDACEAE

Oreopteris limbosperma (= *Thelypteris oreopteris*) LEMON-SCENTED FERN. Widespread on moorland banks.

Phegopteris connectilis (= *Thelypteris phegopteris*) BEECH FERN. Langtonlees Cleugh, Eller Burn, Cockburn Law.

ASPLENIACEAE

Asplenium adiantum-nigrum BLACK SPLEENWORT. Scarce and mainly coastal on rocks. Widespread on walls. Such material as has been studied has been *ssp. quadrivalens*.

A. marinum SEA SPLEENWORT. A number of small coastal colonies, (formerly on rocks by the Tweed 10 km from the sea. Ladykirk 1838).

A. trichomanes ssp. quadrivalens MAIDENHAIR SPLEENWORT. Common, especially on walls.

A. ruta-muraria WALL-RUE. Common, especially on walls.

* **Ceterach officinarum** RUSTYBACK. Several colonies on walls from 1881. Ayton, Smiddyhill Bridge.

Phyllitis scolopendrium HART'S-TONGUE. Lowland deans and policy stonework.

ATHYRIACEAE

Athyrium filix-femina LADY-FERN. Common.

Cystopteris fragilis BRITTLE BLADDER-FERN. Occasional on rocks and walls.

((*C. dickieana* DICKIE'S BLADDER-FERN. "*C. fragilis*" in cave at St. Abbs Head 1836, could possibly have been this)).

ASPIDIACEAE

Dryopteris filix-mas COMMON MALE-FERN. Common.

D. affinis (= *D. borrieri*) SCALY MALE-FERN. Common.

((*D. oreades* (= *D. abbreviata*) MOUNTAIN MALE-FERN. No record. May occur on screes in the higher hills)).

D. dilatata BROAD BUCKLER-FERN. Common.

D. carthusiana NARROW BUCKLER-FERN. Gordon Moss, plentiful. In a few other mosses and moorland flushes.

D. dilatata x carthusiana (= *D. x deweveri*). Gordon Moss, Duns Castle 1979.

- Polystichum setiferum** SOFT SHIELD-FERN. Very local. Pease Dean, Tower Dean, Ale Mill, also introduced in policy woodland.
- P. aculeatum** HARD SHIELD-FERN. Widespread. Deans, cleuchs and rocky riversides. An indicator of ancient woodland.
- Gymnocarpium dryopteris** OAK FERN. Local and scarce. Scaurs and screes in moorland. Lumsdaine Dean.

BLECHNACEAE

- Blechnum spicant** HARD FERN. Locally common.

POLYPODIACEAE

- Polypodium vulgare** POLYPODY. Frequent. Recorded segregates are:
P. vulgare COMMON POLYPODY. Frequent.
P. interjectum WESTERN POLYPODY. Gateheugh, Pease Dean.
P. vulgare x interjectum (= *P. x mantoniae*). Howpark Burn 1960.

SPERMATOPHYTA

GYMNOSPERMAE

(*Conifers*)

Only a selection of the planted introductions have been chosen.

PINACEAE

- * **Abies grandis** GRAND FIR. Planted only. Occasional. Seedlings occasional.
 - * **A. procera** NOBLE FIR. Planted only. Occasional. Seedlings occasional.
 - * **Pseudotsuga menziesii** DOUGLAS FIR. Planted only. Occasional.
 - * **Picea abies** NORWAY SPRUCE. Planted plentifully. Regeneration occasional.
 - * **P. sitchensis** SITKA SPRUCE. Planted abundantly. Regeneration occasional.
 - * **Tsuga heterophylla** WESTERN HEMLOCK. Planted only. Occasional.
 - * **Larix decidua** EUROPEAN LARCH. Planted frequently. Regeneration frequent.
 - * **L. kaempferi** JAPANESE LARCH. Planted frequently. Regeneration status unknown.
 - * **L. decidua x kaempferi** (= *L. x eurolepis*) HYBRID LARCH. Planted only. Frequent.
- Pinus sylvestris** SCOTS PINE. Extinct for several centuries as a native. Planted plentifully. Naturalised in several places on peat or light soils. Greenlaw Moor, Corsbie Bog.
- * **P. contorta** LODGEPOLE PINE. Planted occasionally. Regeneration occasional.

CUPRESSACEAE

- * *Thuja plicata* WESTERN RED-CEDAR. Planted only. Occasional.
- Juniperus communis* ssp. *communis* JUNIPER. Local and declining with only a few good colonies. Aikyside Wood, Blythe Water, Whalplaw Burn, Airhouse Wood, Gateheugh.

TAXACEAE

- * *Taxus baccata* YEW. Planted in small quantity in policy woodlands.

ANGIOSPERMAE

(Flowering Plants)

DICOTYLEDONES

RANUNCULACEAE

- Caltha palustris* MARSH-MARIGOLD. Frequent, but rarely abundant.
- Trollius europaeus* GLOBEFLOWER. Rare, formerly local. A fine colony at East Crook Burn, near Lauder Hill, Lumsdaine.
- * *Helleborus foetidus* STINKING HELLEBORE. Well established at Gateheugh. First recorded 1973.
- * *H. viridis* GREEN HELLEBORE. Planted rarely in policy woodland.
- * *Eranthis hyemalis* WINTER ACONITE. Very locally established in policy woodland.
- * *Aconitum napellus* MONK'S HOOD. Garden escape, becoming established in policy woodland. Other taxa may be involved.
- * (*Actaea erythrocarpa* BANE BERRY GENUS. Casual. Gavinton 1965).
- * *Anemone nemorosa* WOOD ANEMONE. Locally abundant in woodland and on moorland.
- * (*A. apennina* BLUE ANEMONE. Casual. Lennel 1965).
- * *Clematis vitalba* TRAVELLER'S-JOY. Established in a few sites. Fleurs farm 1960, Old Linthill 1978.

Ranunculus acris MEADOW BUTTERCUP. Very common.

R. repens CREEPING BUTTERCUP. Very common.

R. bulbosus BULBOUS BUTTERCUP. Now local. In old grassland on the better soils.

(*R. arvensis* CORN BUTTERCUP. Once locally common, now extinct except as a rare casual. Whitchester 1966).

(*R. sardous* HAIRY BUTTERCUP. Rare cornfield weed to 1874).

R. auricomus GOLDLOCKS BUTTERCUP. Very locally frequent, usually in woods. Penmanshiel, Paxton, Abbey St. Bathans, Langton, Hareheugh Craigs, Airhouse Wood.

R. lingua GREATER SPEARWORT. Bemersyde Moss 1978, Gordon Moss 1976, * Hen Poo.

R. flammula ssp. *flammula* LESSER SPEARWORT. Common, especially upland.

- R. sceleratus** CELERY-LEAVED BUTTERCUP. Uncommon. Pickie Moss 1985, Bemersyde Moss 1978, Manderston 1967, Nenthorn 1964.
- R. hederaceus** IVY-LEAVED CROWFOOT. Occasional, mainly upland.
- R. aquatilis** WATER-CROWFOOT. The following segregates are recorded (See also Addendum page 68):
- R. fluitans** RIVER WATER-CROWFOOT. Tweed, Whiteadder, Blackadder. The early records include *R. pencillatus*.
- R. circinatus** FAN-LEAVED WATER-CROWFOOT. Occasional in the upper Blackadder.
- R. circinatus x fluitans**. Occasional in the upper Blackadder.
- R. trichophyllus** THREAD-LEAVED WATER-CROWFOOT. Scattered. Dowlaw Pond, Greenlaw Dean, Cranshaws Pond, Kelmscott.
- R. aquatilis** COMMON WATER-CROWFOOT. Scattered. Ponds and ditches. Lurgie Loch 1965, Hule Moss 1959. *R. peltatus* was previously considered a variety and has not always been distinguished.
- R. peltatus** POND WATER-CROWFOOT. Scattered. Ponds and ditches. Old Cambus 1981, Legerwood Pond 1961, Coldingham 1916.
- R. penicillatus** (= *R. pseudofluitans*) STREAM WATER-CROWFOOT. Common in the Tweed, also Whiteadder, Blackadder. The variety present has recently been named *var. pseudofluitans* (= *var. calcareus*).
- R. ficaria** LESSER CELANDINE. Two subspecies occur:
- R. ficaria ssp. ficaria**. Common.
- R. ficaria ssp. bulbifer**. Distribution unknown.
- * (**Aquilegia vulgaris** COLUMBINE. Occasional garden escape, casual).
(**Thalictrum flavum** COMMON MEADOW-RUE. Considered extinct. Netherbyres to 1853. Dunglass Dean to 1886).
- T. minus ssp. minus** (incl. *ssp. arenarium*) LESSER MEADOW-RUE. In a few places on the coast, junction of Eye and Ale Waters, Gateheugh.
- * (**T. lucidum**. Casual. Whiteadder at Edrington 1979).

BERBERIDACEAE

- * **Berberis vulgaris** BARBERRY. Planted in hedges.
- * **Mahonia aquifolium** OREGON-GRAPE. Occasional in policy woodlands.

NYMPHAEEACEAE

- * **Nymphaea alba** WHITE WATER-LILY. Manderston 1964.
- Nuphar lutea** YELLOW WATER-LILY. Coldingham Loch, *Spottiswoode Loch 1987, *Hen Poo 1990.

CERATOPHYLLACEAE

- * *Ceratophyllum demersum* RIGID HORNWORT. Hirsell Lake 1981, Newton Quarry.

PAPAVERACEAE

- Papaver rhoeas* COMMON POPPY. Occasional.
- P. dubium* LONG-HEADED POPPY. Frequent.
- * *P. lecoqii* YELLOW-JUICED POPPY. Garden weed, Chirnside House 1986.
(*P. argemone* PRICKLY POPPY. Rare casual, formerly local. Gunsgreen 1960).
- * *P. somniferum* OPIUM POPPY. Occasional garden escape.
- * *Meconopsis cambrica* WELSH POPPY. Occasionally established in woodland.
- Glaucium flavum* YELLOW HORNED-POPPY. Reed Point, Lumsdaine Shore, (Linkim Shore 1974 and formerly elsewhere on coast). Noted by William Crow in 1740.
- * (*Chelidonium majus* GREATER CELANDINE. Now a rare casual).

FUMARIACEAE

- Corydalis claviculata* CLIMBING CORYDALIS. Locally plentiful. Mellerstain, Gordon Moss, Edingtonhill, Penmanshiel, Shannabank.
- ((*Fumaria capreolata* WHITE RAMPING-FUMITORY. The old records may all refer to *F. muralis*)).
- ((*F. purpurea* PURPLE RAMPING-FUMITORY. No record. Possibly overlooked. Occurs in adjacent counties)).
- F. muralis* ssp. *boraei* COMMON RAMPING-FUMITORY. Common.
- F. densiflora* (= *F. micrantha*) DENSE-FLOWERED FUMITORY. Very local and scarce. Fishwick Mains 1987, Lamberton 1985, Hutton Castle 1983, Haigsfield 1979.
- F. officinalis* COMMON FUMITORY. Two subspecies occur:
 - F. officinalis* ssp. *officinalis*. Common.
 - F. officinalis* ssp. *wirtgenii*. Local. Light soils near base-rich rock outcrops.

CRUCIFERAE

- * *Brassica oleracea* WILD CABBAGE. Colony established on cliff at Ramsheugh 1981.
- * *B. napus* RAPE. Oil-seed rape is now common along roads where crop is spilt. ssp. *oleifera*. Other ssp. are rare.
- * *B. rapa* WILD TURNIP. There are wild colonies on banks by the Tweed. Paxton 1984.
(*B. nigra* BLACK MUSTARD. A former weed. Last record 1902).
- Sinapis arvensis* CHARLOCK. Common.

- S. alba** WHITE MUSTARD. Rare as a weed, Northfield 1982, but now occasionally sown as pheasant cover, Lochton 1989.
- Raphanus raphanistrum** WILD RADISH. Widespread. Usually yellow flowered.
- (**Crambe maritima** SEA-KALE. Considered extinct. Shore by Fast Castle to 1836).
- Cakile maritima** SEA ROCKET. Occasional on the coast. Pease Bay. Coldingham Bay.
- (**Lepidium campestre** FIELD PEPPERWORT. A few records to 1902).
- L. heterophyllum** SMITH'S PEPPERWORT. Plentiful on gravels of the Leader Water.
- (**Coronopus squamatus** SWINE-CRESS. Locally common to 1916).
- * (**C. didymus** LESSER SWINE-CRESS. Casual. Burnmouth 1936).
- * (**Cardaria draba** HOARY CRESS. Casual. Manderston 1892).
- * (**Iberis amara** WILD CANDYTUFT. Former introduction. Penmanshiel railway 1881. Tweedside near Coldstream 1834-1845).
- Thlaspi arvense** FIELD PENNY-CRESS. Widespread and very occasionally plentiful.
- ((**Teesdalia nudicaulis** SHEPHERD'S CRESS. No certain record. Considered absent)).
- Capsella bursa-pastoris** SHEPHERD'S PURSE. Common.
- Cochlearia officinalis** COMMON SCURVYGRASS. Common along the coast.
- C. danica** DANISH SCURVYGRASS. Occasional on rocky shores. Lamberton.
- * **Lunaria annua** HONESTY. May become a weed in the garden but seldom escapes far.
- * **Draba muralis** WALL WHITLOWGRASS. Garden weed, Chapel-on-Leader 1963.
- Erophila verna** COMMON WHITLOWGRASS. Common.
- * **Armoracia rusticana** HORSE-RADISH. A rare garden escape. Persists but does not spread.
- Cardamine pratensis** CUCKOOFLOWER. Widespread and locally abundant. A useful indicator of unimproved grassland. A double flowered form may be induced by a gull, Fans 1987.
- C. amara** LARGE BITTER-CRESS. Typical of alderwoods, in deans and by the Whiteadder.
- C. flexuosa** WAVY BITTER-CRESS. Common.
- C. hirsuta** HAIRY BITTER-CRESS. Common. Gardens and waste places.
- Barbarea vulgaris** WINTER-CRESS. Widespread. Especially on river shingle.
- * **B. intermedia** MEDIUM FLOWERED WINTER-CRESS. Occasional. Similar places to the above. St. Thomas's Island 1987.
- * (**B. verna** AMERICAN WINTER-CRESS. Former rare casual. Last record 1922).

- * **Arabis caucasica** GARDEN ARABIS. Garden escape on walls.
- A. hirsuta** HAIRY ROCK-CRESS. Very local, base-rich rocks. Gateheugh.
- Nasturtium officinale** (= *Rorippa nasturtium-aquaticum*) WATER CRESS. Inadequately recorded, but apparently scarce though NTH Holmes recorded this as frequent, Whiteadder, Blackadder and Leet Water.
- N. microphyllum** NARROW-FRUITED WATER-CRESS. Common.
- N. microphyllum x officinale**. A few records.
- Rorippa sylvestris** CREEPING YELLOW-CRESS. Frequent by the Tweed and by ponds.
- R. palustris** MARSH YELLOW-CRESS. Frequent by the Tweed and by ponds.
- ((*R. islandica*. records refer to *R. palustris*)).
- * **Hesperis matronalis** DAME'S-VIOLET. Widespread, especially woods near rivers. First record 1831.
- * (**Erysimum cheiranthoides** TREACLE MUSTARD. A rare casual to 1931).
- * **Cheiranthus cheiri** WALLFLOWER. Dryburgh 1987. (Formerly on walls at Edrington, Hume).
- Alliaria petiolata** GARLIC MUSTARD. Common.
- Sisymbrium officinale** HEDGE MUSTARD. Widespread.
- * (**S. orientale** EASTERN ROCKET. Rare Casual. Lighthouse garden St. Abbs Head 1981, two other records).
- Arabidopsis thaliana** THALE CRESS. Gardens, waste places, rocky places. Gateheugh.
- * (**Camelina sativa** GOLD-OF-PLEASURE. A rare casual to 1931).
- (**Descurainia sophia** FLIXWEED. Rare casual. Cheeklaw House 1961, Duns 1953. Formerly occasional near the coast).

RESEDACEAE

- Reseda luteola** WELD. Very local. Whiteadder banks, Tweed banks, Eyemouth.
- * (**R. lutea** WILD MIGNONETTE. Rare casual. Chirnside 1962-68).

VIOLACEAE

- * **Viola odorata** SWEET VIOLET. Policies and hedges. Long-established.
- V. hirta** HAIRY VIOLET. Very local. Burnmouth, Lamberton, Ale Water, Gateheugh.
- V. riviniana** COMMON DOG-VIOLET. Common.
- V. canina** HEATH DOG-VIOLET. St. Abbs Head 1986.
- V. palustris** MARSH VIOLET. Common in the hills.
- V. lutea** MOUNTAIN PANSY. Very local, but some fine colonies. Lauder Common, Gordon, Hume Craigs, Greenlaw Kaims, Coldingham Loch. The purple-flowered form, frequent in Roxburghshire, is not recorded.

V. tricolor ssp. *tricolor* WILD PANSY. Scattered but uncommon. Birgham Wood 1985.

V. arvensis FIELD PANSY. Common.

POLYGALACEAE

Polygala vulgaris COMMON MILKWORT. Local. Lumsdaine Shore, Burnmouth, West Foulden.

P. serpyllifolia HEATH MILKWORT. Frequent in heathland.

HYPERICACEAE

* *Hypericum androsaemum* TUTSAN. Woodland edges by the Tweed. Long-established.

* *H. calycinum* ROSE-OF-SHARON. Dunglass Dean 1878, 1956. Not well established.

H. perforatum PERFORATE ST. JOHN'S-WORT. Frequent.

H. maculatum ssp. *obtusiusculum* IMPERFORATE ST. JOHN'S-WORT. Earlston 1926, Newton Don 1938. Considered overlooked since.

H. perforatum x *maculatum* (= *H. x desetangii*). Paxton 1984.

H. tetrapterum SQUARE-STALKED ST. JOHN'S-WORT. Widespread.

H. humifusum TRAILING ST. JOHN'S-WORT. Now rare, usually casual on tracks and uncultivated arable land. Six records 1952-1989.

H. pulchrum SLENDER ST. JOHN'S-WORT. Widespread, especially in the hills.

H. hirsutum HAIRY ST. JOHN'S-WORT. On dry banks in and about lowland woods. An indicator of species-rich scrub.

CISTACEAE

Helianthemum nummularium (= *H. chamaecistus*) COMMON ROCK-ROSE. Widespread. Some fine colonies as Whalplaw Burn, Greenlaw Dean, St. Abbs Head and elsewhere on the coast.

CARYOPHYLLACEAE

Silene dioica RED CAMPION. Common. Abundant in places on the coast and in woods facing south to the Tweed.

S. alba WHITE CAMPION. Common.

S. alba x *dioica*. Frequent.

(*S. noctiflora* NIGHT-FLOWERING CATCHFLY. Considered extinct. Arable weed to 1971).

S. vulgaris BLADDER CAMPION. Scattered in the lowlands.

S. maritima SEA CAMPION. Frequent along the coast. St. Abbs Head, Linkim Shore.

Lychnis flos-cuculi RAGGED-ROBIN. Widespread. Plentiful in the mosses.

(*Agrostemma githago* CORNCOCKLE. Considered extinct. "A showy but noxious weed" 1853. Last record 1902).

Dianthus deltoides MAIDEN PINK. The few modest colonies together with those of Roxburghshire comprise about a sixth of the British population. Blinkbonny near Nenthorn, Hareheugh Craigs, Hume Mill, Stichill, Lumsdaine Shore.

* (*Saponaria officinalis* SOAPWORT. Rare casual. Coldstream 1961).

Cerastium arvense FIELD MOUSE-EAR. Limestone opposite Carham. Fishwick Mains. Formerly widespread.

* *C. tomentosum* SNOW-IN-SUMMER. Roadside walls near gardens. First record 1957.

C. fontanum ssp. *glabrescens* (= *C. holosteoides*) COMMON MOUSE-EAR. Common.

C. glomeratum STICKY MOUSE-EAR. Common. Tolerates reseeded grassland.

C. diffusum (= *C. tetrandrum*) SEA MOUSE-EAR. Common along the coast, also on volcanic outcrops. Hume Craigs.

C. semidecandrum LITTLE MOUSE-EAR. Rare by the coast and on volcanic outcrops. Near Millars Moss, Hume Craigs.

((*Myosoton aquaticum* WATER CHICKWEED. Three records all probable or certain errors)).

Stellaria nemorum WOOD STITCHWORT. In woods by the waters edge, Tweed, Whiteadder. Typical of elm woods.

S. media COMMON CHICKWEED. Common.

S. pallida (= *S. apetala*) LESSER CHICKWEED. Greenheugh Point 1979.

((*S. neglecta* GREATER CHICKWEED. In wood by shore, Coldingham 1956 correct?)).

S. holostea GREATER STITCHWORT. Frequent. Typical of oak woods.

S. palustris MARSH STITCHWORT. Approaching extinction. Gordon Moss, Lurgie Loch.

S. graminea LESSER STITCHWORT. Common.

S. alsine BOG STITCHWORT. Frequent.

Sagina apetala ANNUAL PEARLWORT. Two subspecies occur:

S. apetala ssp. *apetala* (= *S. ciliata*). St. Abbs Head 1987, Fancove Head 1960.

S. apetala ssp. *erecta* (= *S. apetala*). Widespread but scarce.

(*S. maritima* SEA PEARLWORT. No record since St. Abbs 1896. Perhaps overlooked).

S. procumbens PROCUMBENT PEARLWORT. Common.

(*S. subulata* HEATH PEARLWORT. Considered extinct. No record since roadside near Dowlaw 1893).

S. nodosa KNOTTED PEARLWORT. Rare or overlooked. Greenlaw Moor 1962, Dye Water 1964.

- Minuartia verna** SPRING SANDWORT. St. Abbs Head, quite plentiful, on west-facing cliffs.
- Honkenya peploides** SEA SANDWORT. Coastal, frequent.
- Moehringia trinervia** THREE-NERVED SANDWORT. Scarce in old woodland.
- Arenaria serpyllifolia** THYME-LEAVED SANDWORT. Widespread but scarce.
- (**A. leptoclados** SLENDER SANDWORT. No recent record but perhaps overlooked. Dryburgh 1910, Duns 1907).
- * **A. balearica** MOSSY SANDWORT. The Hirsell 1956, Cairnbank 1968.
- Spergularia arvensis** CORN SPURREY. Common.
- Spergularia rubra** SAND SPURREY. Now very scarce. Bemersyde Hill 1973. Old Cambus quarry 1963.
- S. media** GREATER SEA-SPURREY. Coastal, rare. St. Abbs Head 1977.
- S. marina** LESSER SEA-SPURREY. Coastal, scarce. Reed Point 1984, Coldingham Bay 1981.
- Scleranthus annuus** ANNUAL KNAWEL. On rocky outcrops, scarce. Hume Craigs, Hareheugh Craigs, Dowlaw Dean.

PORTULACACEAE

- Montia fontana** BLINKS. Three subspecies occur:
- M. fontana ssp. fontana.** Common.
- M. fontana ssp. variabilis.** Occasional, sandy tracks. Fans, Hallyburton.
- M. fontana ssp. chondrosperma.** Hume Craigs.
- * **M. perfoliata** SPRING-BEAUTY. Coldingham Bay, Birgham. First record 1937.
- * **M. sibirica** PINK PURSLANE. Frequent and locally abundant in woodland, accepting fairly dense conifers. First record 1936.

CHENOPODIACEAE

- * **Chenopodium bonus-henricus** GOOD-KING-HENRY. Well scattered. Long-established.
- * (**C. polyspermum** MANY-SEEDED GOOSEFOOT. Casual, Newton Don 1873).
- * (**C. vulvaria** STINKING GOOSEFOOT. Casual, Chirnside 1968-70).
- C. album** FAT-HEN. Common.
- * (**C. urbicum** UPRIGHT GOOSEFOOT. Casual, The Hirsell 1831-33).
- * (**C. rubrum** RED GOOSEFOOT. Casual, Coldstream 1832).
- * (**C. glaucum** OAK-LEAVED GOOSEFOOT. Casual, Chirnside 1961, 1968).
- ((**Atriplex littoralis** GRASS-LEAVED ORACHE. No record, perhaps absent)).
- A. patula** COMMON ORACHE. Common.

- (*A. prostrata* (= *A. hastata*) SPEAR-LEAVED ORACHE. No recent records, but probably overlooked).
- A. glabriuscula* BABINGTON'S ORACHE. Frequent along the coast.
- A. glabriuscula* x *longipes*. Coldingham Bay 1977.
- A. laciniata* FROSTED ORACHE. St. Abbs Head 1977, Pease Bay 1979.
- * (*A. hortensis* GARDEN ORACHE. Casual near Broomhouse 1967).
- (*Salsola kali* PRICKLY SALTWORT. Considered extinct. Lumsdaine and Coldingham Shores 1836).

TILIACEAE

- * (*Tilia platyphyllos* LARGE-LEAVED LIME. Planted only, rare).
- * (*T. cordata* SMALL-LEAVED LIME. Planted only, rare).
- * *T. cordata* x *platyphyllos* (= *T. x vulgaris*) LIME. Planted only, frequent.

MALVACEAE

- Malva moschata* MUSK MALLOW. Scattered, scarce.
- M. sylvestris* COMMON MALLOW. Scattered, more frequent.
- M. neglecta* DWARF MALLOW. Local and very scarce. Hume Castle 1956. Pease Bay 1955, St. Abbs Head 1963.
- * (*Lavatera arborea* TREE-MALLOW. Casual, Coldingham Sands 1902).

LINACEAE

- * (*Linum usitatissimum* FLAX. Former casual).
- L. catharticum* FAIRY FLAX. Widespread and locally plentiful.
- (*Radiola linoides* ALLSEED. Considered extinct. Birgham Moor, Dowlaw to 1916).

GERANIACEAE

- Geranium pratense* MEADOW CRANE'S-BILL. Frequent. A conspicuous species in old grassland near the rivers. A pale-flowered form is found by the Whiteadder.
- G. sylvaticum* WOOD CRANE'S-BILL. Rather local in woodland edges in the hills. Langtonlees Cleugh, Longformacus, Abbey St. Bathans.
- * (*G. versicolor* PENCILLED CRANE'S-BILL. Rare casual, Duns 1931).
- * (*G. phaeum* DUSKY CRANE'S-BILL. Rare casual. Longformacus 1956, Duns 1953).
- G. sanguineum* BLOODY CRANE'S-BILL. Burnmouth (Gateheugh 1868).
- * *G. pyrenaicum* HEDGEROW CRANE'S-BILL. Scattered. Information inadequate.
- (*G. columbinum* LONG-STALKED CRANE'S-BILL. Considered extinct. Penmanshiel 1839).
- G. dissectum* CUT-LEAVED CRANE'S-BILL. Widespread.
- G. molle* DOVE'S-FOOT CRANE'S-BILL. Common.

- G. pusillum** SMALL-FLOWERED CRANE'S-BILL. Rare. Hume Castle 1960, Ladykirk 1960. Mouth Bridge, Langton Burn 1949.
- G. lucidum** SHINING CRANE'S-BILL. On rocks, Gateheugh, Stichill. On walls, Cockburnspath, Gordon, Greenlaw.
- G. robertianum** HERB-ROBERT. Common.
- Erodium cicutarium** COMMON STORK'S-BILL. Widespread, mainly coastal. Pease Bay, mouth of Dunglass Burn. Occasional but perhaps casual inland. *ssp dunense* is recorded at Pease Bay.

OXALIDACEAE

- Oxalis acetosella** WOOD-SORREL. Common. A survivor, at home in plantations as well as ancient woodland. A fine pale pink form in Pease Dean. The emblem of the Berwickshire Naturalists Club.
- * **O. corniculata** PROCUMBENT YELLOW-SORREL. Longformacus, Duns, Swinton, Netherbyres but some of these records may relate to other yellow-sorrels.
- * **O. exilis** LEAST YELLOW-SORREL. Earlston 1987, Longformacus 1989.

BALSAMINACEAE

- * **Impatiens glandulifera** HIMALAYAN BALSAM. Locally plentiful. Whiteadder, Tweed, Redheugh Dean. First recorded 1936.

ACERACEAE

- * **Acer pseudoplatanus** SYCAMORE. Common. Invades former elm woods as at Pease Dean. Long-established.
- * **A. platanoides** NORWAY MAPLE. Planted. Rarely naturalised in policy woodlands.
- * **A. campestre** FIELD MAPLE. Planted only. Occasional.

HIPPOCASTANACEAE

- * **Aesculus hippocastanum** HORSE-CHESTNUT. Widely planted.

AQUIFOLIACEAE

- Ilex aquifolium** HOLLY. Widely planted. More local in deans as a native.

CELASTRACEAE

- Euonymus europaeus** SPINDLE. Rare. Gateheugh. Also planted in policy woodland. Manderston. (Formerly by the Whiteadder and Ale Waters, Lumsdaine Dean, Tower Dean, Pease Dean).

BUXACEAE

- * **Buxus sempervirens** BOX. Planted in policy woodland.

RHAMNACEAE

- * (*Rhamnus catharticus* BUCKTHORN. Cockburnspath 1845).

LEGUMINOSAE

- * (*Lupinus arboreus* TREE LUPIN. Casual. Coldingham 1957).
- * *Laburnum anagyroides* LABURNUM. Widely planted, sometimes naturalising.
(*Genista tinctoria* DYER'S GREENWEED. Considered extinct. Birgham Wood to 1961).
- G. anglica* PETTY WHIN. Very scarce. Lightfield, Gordon Common, Greenlaw Moor, Great Dirrington Law, Byreclough, Hogs Law.
- Ulex europaeus* GORSE, WHIN. Common. Occasionally cut to a hedge.
- U. gallii* WESTERN GORSE. Rare. Not seen recently. Preston 1968, Soutra 1960, Hardens Hill 1959. ((Dunside Hill 1956)).
- Cytisus scoparius* (= *Sarothamnus scoparius*) BROOM. Frequent.
- Ononis repens* COMMON RESTHARROW. Local. Coldingham Bay, St. Abbs Head, Burnmouth, scaurs along the Whiteadder and Tweed.
- * (*Medicago falcata* ssp. *sativa* LUCERNE. Former casual to 1893).
- M. lupulina* BLACK MEDICK. Widespread.
- * (*M. minima* SMALL MEDICK. Rare Wool-alien. Dryburgh 1946, Cumledge 1868).
- * (*M. polymorpha* TOOTHED MEDICK. Rare Wool-alien. Cumledge 1956).
- * *M. arabica* SPOTTED MEDICK. Established in grassland near Birgham 1983. (Cumledge 1956).
- * (*Melilotus altissima* TALL MELILOT. Rare casual to 1902, but some records may belong to *M. officinalis*).
- * (*M. officinalis* RIBBED MELILOT. Casual. Duns 1956, Cumledge 1962).
- * (*M. alba* WHITE MELILOT. Rare casual. Coldingham 1956).
- * (*M. indica* SMALL MELILOT. Rare, casual. Kelloe 1960).
- Trifolium dubium* LESSER TREFOIL. Common.
- T. campestre* HOP TREFOIL. Frequent.
- * *T. hybridum* ALSIKE CLOVER. Sometimes sown. Also occasional in waste places.
- T. repens* WHITE CLOVER. Very common.
- (*T. fragiferum* STRAWBERRY CLOVER. Considered extinct. Edington Mill 1914, Gunsgreen 1893, near Pease Bay 1853).
- T. medium* ZIGZAG CLOVER. Widespread but local in herb-rich grassland.
- T. arvense* HARE'S-FOOT CLOVER. South of St. Abbs, plentiful. Lumsdaine Shore, Cockburn Ford, scarce.

- (*T. scabrum* ROUGH CLOVER. Considered extinct. Harelaw Craigs casual 1960, Dunglass Dean 1916, Cockburnspath 1845).
- T. striatum* KNOTTED CLOVER. Very scarce. St. Abbs Head, Hume Craigs, Hume Mill, Fishwick Mains.
- * (*T. incarnatum* CRIMSON CLOVER. Formerly occasionally grown as a crop, 1916).
- T. pratense* RED CLOVER. Common, except in the hills.
- Anthyllis vulneraria* KIDNEY VETCH. Locally frequent along the coast. Occasional on the banks of the Whiteadder. Rare elsewhere.
- Lotus corniculatus* COMMON BIRD'S-FOOT-TREFOIL. Common. Typical of freely draining old grassland.
- (*L. tenuis* NARROW-LEAVED BIRD'S-FOOT-TREFOIL. Near Coldingham Loch 1836).
- L. uliginosus* GREATER BIRD'S-FOOT-TREFOIL. Frequent. Typical of waterlogged old grassland.
- Astragalus danicus* PURPLE MILK-VETCH. St. Abbs Head and other cliff-top grassland.
- A. glycyphyllos* WILD LIQUORICE. Very rare. Junction of Eye and Ale Waters 1978 (formerly on the coast and near Clarabad and Whitehall).
- * (*Ornithopus perpusillus* BIRD'S-FOOT. Casual, Foulden 1931).
- Vicia hirsuta* HAIRY TARE. Widespread but not plentiful.
- V. tetrasperma* SMOOTH TARE. Newton Quarry 1981. Arguably native.
- V. cracca* TUFTED VETCH. Frequent.
- V. orobus* WOOD BITTER-VETCH. Braes near Horseupcleuch (formerly in several other places. Dronshiel 1952, Grantshouse 1931, Byrecleugh 1929).
- V. sylvatica* WOOD VETCH. Very locally plentiful. Burnmouth, Dowlaw Dean, braes by the Whiteadder in several places.
- V. sepium* BUSH VETCH. Common.
- V. sativa* COMMON VETCH. Three subspecies are now recognised:
- * *V. sativa* ssp. *sativa*. Inadequate information. (Former crop, 1853).
 - * *V. sativa* ssp. *segetalis* (= *V. angustifolia*, in part). Inadequate information. Probable casual.
- V. sativa* ssp. *nigra* (= *V. angustifolia*, in part) NARROW-LEAVED VETCH. Widespread but scarce, most frequent on the coast. Petticowick, Pease Bay. Coldingham Bay.
- V. lathyroides* SPRING VETCH. Very local in rocky places. St. Abbs Head, Hume Craigs, Fishwick Mains, Pease Bay 1957.
- Lathyrus pratensis* MEADOW VETCHLING. Frequent.
- L. sylvestris* NARROW-LEAVED EVERLASTING-PEA. Cripple Nick near Hutton Castle Mill. First recorded 1833. Considered native.
- L. montanus* BITTER VETCH. Widespread, moorland and acid woodland. *Var. tenuifolius* is occasionally found.

ROSACEAE

- * *Spiraea* spp. BRIDEWORT. Planted in policies. The taxa involved have not been studied, but are unlikely to be *S. salicifolia*, as recorded.
- (*Filipendula vulgaris* DROPWORT. Considered extinct. Belches Braes near Coldstream, Broomhouse Ford to 1893).
- F. ulmaria* MEADOWSWEET. Common.
- Rubus chamaemorus* CLOUDBERRY. Rare. In a few places at the head of the Dye Water, Rotten Cleugh.
- R. saxatilis* STONE BRAMBLE. Very rare. Langtonlees Cleugh 1978. Possibly at Godscroft 1983 (formerly in a few other deans).
- R. idaeus* RASPBERRY. Frequent.
- R. caesius* DEWBERRY. Several scattered records. Probably correct in part but some confusion with microspecies of *R. fruticosus* is probable also.
- R. fruticosus* BRAMBLE. Not very common except near the coast. Records for the following microspecies are accepted in Brambles of the British Isles, Eedes and Newton 1988.
- | | |
|--|---------------------------|
| <i>R. fissus</i> | <i>R. septentrionalis</i> |
| <i>R. errabundus</i> | <i>R. anisacanthos</i> |
| * <i>R. laciniatus</i> , 1st record 1973 | <i>R. drejeri</i> |
| <i>R. leptothyrsos</i> | <i>R. infestus</i> |
| <i>R. amplificatus</i> | <i>R. echinatooides</i> |
| <i>R. lindebergii</i> | <i>R. radula</i> |
| <i>R. nemoralis</i> | <i>R. dasyphyllus</i> |
| <i>R. polyanthemus</i> | <i>R. latifolius</i> |
- Potentilla palustris* MARSH CINQUEFOIL. Widespread but local, e.g. Redpath Moss, Gordon Moss, Hen Poo.
- P. sterilis* BARREN STRAWBERRY. Widespread.
- P. anserina* SILVERWEED. Widespread. Roadsides, wet places.
- P. argentea* HOARY CINQUEFOIL. Coldstream 1959. (Stichill Linn, now VC 80 only).
- * (*P. recta* SULPHUR CINQUEFOIL. Rare casual. Cleekchimmin, Carfraemill 1960).
- (*P. tabernaemontani* SPRING CINQUEFOIL. Considered extinct. Netherbyres Mill 1866).
- P. erecta* TORMENTIL. Common.
- (*P. anglica* TRAILING TORMENTIL. Considered extinct. Swinton, Cockburnspath, Coldingham to 1916).
- P. reptans* CREEPING CINQUEFOIL. Widespread but fairly scarce. Especially roadsides and railways.
- Fragaria vesca* WILD STRAWBERRY. Widespread and occasionally abundant as at Birgham wood.

- Geum urbanum** WOOD AVENS. Widespread.
- G. rivale** WATER AVENS. Widespread.
- G. rivale x urbanum** (= *G. x intermedium*). Occasional.
- Agrimonia eupatoria** AGRIMONY. Locally frequent. The Coast, banks by the Tweed and Whiteadder.
- ((**A. procera** (= *A. odorata*) FRAGRANT AGRIMONY. No record. Probably overlooked)).
- * **Aremonia agrimonoides** BASTARD AGRIMONY. Duns 1916-1956, near White Hill Earlston 1969.
- Alchemilla vulgaris** LADY'S-MANTLE. The following segregates are recorded:
- A. filicaulis ssp. vestita**. In base-rich grassland, mainly upland.
- A. xanthochlora**. Widespread in the lowlands.
- A. glabra**. Widespread.
- * **A. glaucescens**. On ballast in disused railway cutting, Chirside 1982.
- Aphanes arvensis** PARSLEY-PIERT. Two segregates occur:
- A. arvensis** COMMON PARSLEY-PIERT. Widespread.
- A. microcarpa** SLENDER PARSLEY-PIERT. Rocky or sandy places.
- Sanguisorba officinalis** GREAT BURNET. Bemersyde Moss (Lochton, Birgham, Ale Mill).
- S. minor ssp. minor** (= *Poterium sanguisorba*) SALAD BURNET. Burnmouth (near Coldingham Bay 1973, near Coldingham Loch 1895, Ale Water 1868).
- * **Acaena novae-zelandiae** PIRRI-PIRRI-BUR. Gateheugh, The Hirsell, Paxton (Duns 1954). Other taxa may be included. First record 1911.
- * **Rosa arvensis** FIELD ROSE. Rare in hedges. Allanton, Leitholm, Eccles.
- R. pimpinellifolia** BURNET ROSE. Very scarce. Burnmouth, Longformacus, Hareheugh Craigs, Airhouse Wood.
- * **R. rugosa** JAPANESE ROSE. Occasionally established on the coast. St. Abbs Head. First record 1969.
- R. canina** (group) DOG ROSE. Newton Don, includes the following taxa:
- R. canina**. Widespread. Segregates have not been studied.
- R. caesia**. Recorded. Segregates have not been studied.
- R. tomentosa** (group) DOWNY ROSE. Includes the following taxa:
- R. sherardii**. Mainly towards the coast.
- R. mollis**. Widespread.
- R. rubiginosa** SWEET-BRIAR. Occasional, mainly towards the coast. Perhaps mainly as hybrids with *R. tomentosa* (group).
- ((**R. micrantha** SMALL-FLOWERED SWEET-BRIAR. Skinlaws Toll between Greenknowe and Bassendean 1880. Correct?)).

- Prunus spinosa** BLACKTHORN, SLOE. Widespread.
- * **P. domestica** WILD PLUM. Planted occasionally in hedges.
- P. avium** WILD CHERRY. Local in deans as a native. Planted more widely.
- * **P. cerasus** DWARF CHERRY. Planted. Rare.
- P. padus** BIRD CHERRY. Local. Lumsdaine Dean, Grantshouse, Duns Castle, Longformacus, Langtonlees Cleugh, Leader Water.
- * **P. laurocerasus** CHERRY LAUREL. Planted. Rare.
- * **P. lusitanica** PORTUGAL LAUREL. Planted. Rare.
- * **Cotoneaster simonsii** HIMALAYAN COTONEASTER. Occasionally self-seeded. Gordon 1987.
- * **C. horizontalis** WALL COTONEASTER. Spottiswoode, 1987.
- * **C. microphyllus** SMALL-LEAVED COTONEASTER. Burnmouth, well established. First record 1956.
- * **Crataegus laevigata** (= *C. oxycanthoides*) MIDLAND HAWTHORN. Planted. Rare.
- C. monogyna** HAWTHORN. Common as a native and much planted.
- Sorbus aucuparia** ROWAN. Widespread as a native by burns and much planted.
- * **S. intermedia** SWEDISH WHITEBEAM. Planted. St. Abbs Head.
- * **S. aria** COMMON WHITEBEAM. Planted. Occasional.
- S. rupicola** ROCK WHITEBEAM. Gateheugh, first recorded 1874.
- * **Malus sylvestris** CRAB APPLE, SCROGS. Frequent in hedges.

CRASSULACEAE

- Sedum rosea** ROSEROOT. North-facing coastal rocks. St. Abbs Head, Westerside Dean, Dowlaw Dean.
- S. telephium** ORPINE. Hirsellaw, Birgham Wood, probably *ssp. telephium*. Gateheugh, *ssp. fabaria*.
- ((**S. anglicum** ENGLISH STONECROP. No conclusive record. Cockburnspath Parish 1845)).
- * **S. album** WHITE STONECROP. Occasional. St. Abbs Head, Burnmouth, Coldingham, Gordon. First record 1902.
- S. acre** BITING STONECROP. Especially rocky outcrops. Hume Craigs, St. Abbs Head, Dowlaw Dean.
- * (**S. forsteranum** ROCK STONECROP. Casual. Burnmouth 1897).
- * (**S. reflexum** REFLEXED STONECROP. Casual. Bassendean 1963).
- S. villosum** HAIRY STONECROP. Very locally frequent in the hills. Soonhope Burn, Whalplaw Burn, Dye Water, Greenlaw Moor.
- * (**Sempervivum tectorum** HOUSE LEEK. Formerly on roofs in villages. Nisbet 1955).

SAXIFRAGACEAE

- (*Saxifraga hirculus* MARSH SAXIFRAGE. Extinct. First found in Scotland at Langtonlees Cleugh in 1832 by Rev. Thomas Brown. Destroyed by drainage soon after 1886).
- * *S. spathularis* x *umbrosa* LONDON PRIDE. Occasionally naturalised in profusion. Longformacus. First record 1845.
- * (*S. cymbalaria* CELANDINE SAXIFRAGE. Garden weed. Manderston 1968).
- S. granulata* MEADOW SAXIFRAGE. Widespread with some fine colonies. Rocky outcrops as Hume Craigs, St. Abbs Head. Sea braes as Lambertton. Woodland as Langton, Rathburne. A double-flowered form has been naturalised in woods at the Hirsell at least since 1909 and is now widespread there.
- Chrysosplenium oppositifolium* OPPOSITE-LEAVED GOLDEN-SAXIFRAGE. Widespread, from sea braes to high moorland.
- C. alternifolium* ALTERNATE-LEAVED GOLDEN-SAXIFRAGE. Frequent in deans and old woodland by rivers. Typical of elm woods.

PARNASSIACEAE

- Parnassia palustris* GRASS-OF-PARNASSUS. Very local and decreasing. Plentiful north of Greenlaw Kaims. Small colonies Greenlaw Moor, Dye Water, Watch Water, Killmade Burn, Longmuir Moss, Coldingham Common.

GROSSULARIACEAE

- Ribes rubrum* (= *R. sylvestris*) RED CURRANT. Occasional in deans.
- R. nigrum* BLACK CURRANT. Occasional in deans and mosses. Gordon Moss.
- * *R. sanguineum* FLOWERING CURRANT. Occasionally naturalised. Langton woods 1963.
- * *R. alpinum* MOUNTAIN CURRANT. Occasionally naturalised. Duns Castle woods. The Hirsell.
- R. uva-crispa* GOOSEBERRY. Widespread in hedges and woodland.

DROSERACEAE

- Drosera rotundifolia* ROUND-LEAVED SUNDEW. Raised mosses and smaller areas of peat, Dogden Moss, Gordon Moss, Jordanlaw Moss, Long Moss.
- (*D. anglica* GREAT SUNDEW. Penmanshiel Moss on Coldingham Moor 1828, never refound, habitat now destroyed).

LYTHRACEAE

- Lythrum salicaria* PURPLE-LOOSESTRIFE. Coast south of Burnmouth 1979. Gordon Moss (several C19 records).

L. portula (= *Peplis portula*) WATER-PURSLANE. Dowlaw Pond 1960.
Hen Poo 1958; Harelaw Craigs 1955. (several C19 records).

THYMELAEACEAE

- * **Daphne laureola** SPURGE-LAUREL. Arguably native but long-established on woodland banks. Banks of Eye at junction with Ale Water, Edington Mill, Birgham, Norham Bridge, Gledswood.

ELEAGNACEAE

- * **Hippophae rhamnoides** SEA-BUCKTHORN. Planted on the coast. Dunglass Burn, St. Abbs Head, Coldingham Bay, Pease Bay. First record 1839.

ONAGRACEAE

Epilobium hirsutum GREAT WILLOWHERB. Widespread.

(*E. hirsutum* x *parviflorum* (= *E. x intermedium*). Dunglass Dean 1888).

E. parviflorum HOARY WILLOWHERB. Occasional.

E. montanum BROAD-LEAVED WILLOWHERB. Common.

- * **E. ciliatum** (= *E. adenocaulon*) AMERICAN WILLOWHERB. Few records but probably under-recorded. First record 1969.

- * (**E. tetragonum** SQUARE-STALKED WILLOWHERB. Broomhouse 1959. A few other records but the identity of at least some records are uncertain).

E. obscurum SHORT-FRUITED WILLOWHERB. Frequent.

E. palustre MARSH WILLOWHERB. Widespread.

- * **E. brunnescens** (= *E. nerterioides*) NEW ZEALAND WILLOWHERB. First found 1958 by the Dye Water. Widespread by hill burns but perhaps now decreasing.

Chamerion angustifolium (= *Chamaenerion angustifolium*) ROSEBAY WILLOWHERB. C19 very scarce. Dowlaw Dean, Redheugh, Clarabad, Birgham. Increased remarkably in the late 1920's, now common.

- * (**Oenothera biennis** COMMON EVENING-PRIMROSE. Planted Milne Graden 1831).

- * **Fuchsia magellanica** FUCHSIA. Several bushes in Dunglass Dean.

Circaea lutetiana ENCHANTER'S-NIGHTSHADE. Frequent and locally dominant in woods and deans.

C. alpina x lutetiana (= *C. x intermedia*) UPLAND ENCHANTER'S-NIGHTSHADE. Possible records Godscroft 1983, Longformacus 1954. ((Dubious record The Hirsell 1985)).

HALORAGACEAE

Myriophyllum spicatum SPIKED WATER-MILFOIL. Locally frequent, lowland. Tweed at Horndean and Carham, Whiteadder at Paxton, Manderston.

M. alterniflorum ALTERNATE WATER-MILFOIL. Locally frequent, mainly upland. Blackadder at Nisbet, Lurgie Loch 1965, Burn near Airhouse Quarry.

HIPPURIDACEAE

Hippuris vulgaris MARE'S-TAIL. Hirsell, Lithillum Loch.

CALLITRICHACEAE

Callitriche stagnalis COMMON WATER-STARWORT. Common.

C. platycarpa VARIOUS-LEAVED WATER-STARWORT. Hule Moss 1959, Spottiswoode Loch 1987, Middlethird Bog 1987.

C. hamulata (= *C. intermedia*) INTERMEDIATE WATER-STARWORT. Eden Water 1987, Kelmscott 1987.

C. hermaphroditica AUTUMNAL WATER-STARWORT. Rumbleton 1987, St. Abbs Head 1985, Legerwood 1960, Sunwick 1965.

CORNACEAE

- * *Cornus* spp (= *Thelycrania* spp) DOGWOOD. Planted in policies. The taxa involved have not been studied, but it is likely that most records relate to *C. sericea* rather than *C. sanguinea*, as recorded.

ARALIACEAE

Hedera helix IVY. Widespread.

- * *H. hibernica* cv. 'Hibernica' IRISH IVY. Frequent. Often carpeting the ground in policy woodland. Long-established.

UMBELLIFERAE

Hydrocotyle vulgaris MARSH PENNYWORT. Occasional. Gordon Moss, Coldingham Moor 1953.

Sanicula europaea SANICLE. Widespread in deans and old woodland. In carr on Long Moss and Drone Moss.

- * (*Astrantia major* ASTRANTIA. Casual. Longformacus 1961).

Chaerophyllum temulentum ROUGH CHERVIL. Widespread.

(*Anthriscus caucalis* BUR CHERVIL. Newton Don 1893. "Roadsides, common" 1853. Correct?)

A. sylvestris COW PARSLEY. Common.

(*Scandix pecten-veneris* SHEPHERD'S-NEEDLE. Once common, now very rare from dormant seed. Ross 1960, Swinton 1956, Foulden 1951).

- * *Myrrhis odorata* SWEET CICELY. Occasional. Mainly roadsides, less frequent by rivers than in Roxburghshire. Long-established.

- * (*Smyrniolum olusatrum* ALEXANDERS. Dunglass 1777, 1931).

Conopodium majus PIGNUT. Widespread. Persists despite nitrogen fertiliser to indicate unploughed ancient hay meadows.

- Pimpinella saxifraga* BURNET-SAXIFRAGE. Widespread. Characteristic of species-rich grassy banks.
- * *Aegopodium podagraria* GROUND-ELDER. Common. Now integrated into the woodland flora.
- (*Sium latifolium* GREATER WATER-PARSNIP. Considered extinct. Lithtillum Loch 1950, Allanton 1893, St. Abbs Head 1829).
- Berula erecta* LESSER WATER-PARSNIP. Plentiful in the upper Blackadder and tributary burns, rare elsewhere. St. Abbs Head, Lithtillum Burn, Horndean Burn.
- ((*Oenanthe lachenalii* PARSLEY WATER-DROPWORT. Dubious record 1893 near Manderston)).
- O. crocata* HEMLOCK WATER-DROPWORT. Scarce. Small burns on the coast, Tweed, Whiteadder.
- (*O. aquatica* FINE-LEAVED WATER-DROPWORT. Considered extinct. Fernyrig Bog, Hirsell Lake, Lithtillum Loch to 1845).
- Aethusa cynapium* FOOL'S PARSLEY. Occasional as a garden weed. Very occasionally plentiful in root fields.
- Silaum silaus* PEPPER-SAXIFRAGE. Rare. Skaithmuir 1982, Bemersyde Moss 1978, Nenthorn 1964, Haigsfield 1956.
- Ligusticum scoticum* SCOTS LOVAGE. Scarce on the coast. St. Abbs Head, Eyemouth, Burnmouth. Noted by William Crow 1740.
- Conium maculatum* HEMLOCK. Frequent near the coast and near the Tweed. Occasional elsewhere.
- (*Apium nodiflorum* FOOL'S WATER-CRESS. "Ditches and rivulets, frequent" 1853. Five records in the 1960's are all believed errors for *Berula erecta*. Possibly survives somewhere).
- A. inundatum* LESSER MARSHWORT. Very local and scarce. Lightfield 1988. Legerwood 1960. Horndean 1960. Foul Burn Bridge 1960.
- * *Petroselinum crispum* GARDEN PARSLEY. Burnmouth since 1897, Tweed bank opposite Wark 1966. The naturalised form does not have crisped leaves.
- (*Sison amomum* STONE PARSLEY. Considered extinct. Hirsell Lake 1834 plentiful, casual Duns 1931).
- Cicuta virosa* COWBANE. Everett Moss 1987, plentiful.
- Angelica sylvestris* WILD ANGELICA. Widespread.
- * (*Levisticum officinale* LOVAGE. Casual. Langton 1959).
- * (*Peucedanum ostruthium* MASTERWORT. Casual. Longformacus 1957).
- * *Pastinaca sativa* WILD PARSNIP. Lamberton railway 1980. (Casual. Duns 1969).
- Heracleum sphondylium* HOGWEED. Common.
- * *H. mantegazzianum* GIANT HOGWEED. Some massive colonies by the Tweed, extending through woodland. Also by the Whiteadder and near Coldingham. First record 1947.

- * *H. mantegazzianum* x *sphondylium*. Paxton, Edington Mill 1982.
- Torilis japonica* UPRIGHT HEDGE-PARSLEY. Widespread.
- * (*T. arvenis* SPREADING HEDGE-PARSLEY. Casual. Duns 1933).
- T. nodosa* KNOTTED HEDGE-PARSLEY. St. Abbs Head.
- Daucus carota* WILD CARROT. Now rare. Paradise 1961. Butterlaw and Edrom 1956.

ARISTOLOCHIACEAE

- * (*Asarum europaeum* ASARABACCA. Casual. Leader at Cowdenknowes 1916).

EUPHORBIACEAE

- Mercurialis perennis* DOG'S MERCURY. Common in woods, usually indicating ancient woodland.
- * (*Euphorbia lathyris* CAPER SPURGE. Casual. Swinton 1951).
- E. helioscopia* SUN SPURGE. Frequent arable weed.
- E. peplus* PETTY SPURGE. Frequent garden weed.
- (*E. exigua* DWARF SPURGE. Considered extinct. Occasional to 1900. Longformacus 1946-52, but apparently encouraged as a garden weed by a botanist, Miss Brown).
- * (*E. esula* LEAFY SPURGE. Birgham Haugh 1831-1916, Reston 1836).
- * (*E. cyparissias* CYPRESS SPURGE. Broomhill 1956).

POLYGONACEAE

Polygonum aviculare KNOTGRASS. The following segregates occur:

P. aviculare. Common.

P. arenastrum. Frequent. Trodden places.

- * *P. bistorta* COMMON BISTORT. Scattered. Westruther churchyard, Wedderburn, Redpath Dean. First record 1853.

P. amphibium AMPHIBIOUS BISTORT. Widespread both aquatic and terrestrial forms.

P. persicaria REDSHANK. Common.

(*P. lapathifolium* PALE PERSICARIA. No reliable recent records, perhaps overlooked. "not uncommon" 1853, sometimes confused with the white-flowered form of *P. persicaria*).

P. hydropiper WATER-PEPPER. Occasional. Tweed banks, Greenlaw Moor.

- * *Reynoutria japonica* (= *Polygonum cuspidatum*) JAPANESE KNOTWEED. Frequent. Policy woodland, banks of Tweed, Whiteadder, Eye. First record 1960.

- * *R. sachalinensis* (= *P. sachalinense*) GIANT KNOTWEED. Duns Castle, Newton Don. First record 1960.

Fallopia convolvulus (= *Polygonum convolvulus*) BLACK-BINDWEED. Frequent.

- * *F. aubertii* (= *P. baldschuanicum*) RUSSIAN-VINE. Burnmouth 1959.
- * *Rheum x cultorum* RHUBARB. Relic of cultivation.
- Rumex acetosella* SHEEP'S SORREL. Common. The segregates have not been studied.
- R. acetosa* COMMON SORREL. Common.
- R. hydrolapathum* WATER DOCK. *Mellerstain Lake 1982, (Gordon Moss 1916, Lochton 1883).
- * (*R. alpinus* MONK'S RHUBARB. East Water, Lauderdale 1874).
- (*R. longifolius* NORTHERN DOCK. Kyles Hill 1970, Lithillum Loch 1955. Status uncertain, but perhaps overlooked).
- R. crispus* CURLED DOCK. Common.
- R. obtusifolius* BROAD-LEAVED DOCK. Common.
- R. sanguineus* WOOD DOCK. Frequent, always *var. viridis*.
- R. conglomeratus* CLUSTERED DOCK. Occasional.
- R. palustris* MARSH DOCK. Legerwood Pond 1960.
- R. maritimus* GOLDEN DOCK. Lithillum Loch 1872-1952.

URTICACEAE

- * *Parietaria judaica* PELLITORY-OF-THE-WALL. On old walls, mainly lower Tweed. Long-established.
- Urtica urens* SMALL NETTLE. Rather local.
- U. dioica* STINGING NETTLE. Common.

CANNABACEAE

- * (*Humulus lupulus* HOP. Usually single plants. Dunglass 1985, Harrietfield 1981).

ULMACEAE

- Ulmus glabra* WYCH ELM. Widespread, formerly dominant in deans but now decimated by Dutch elm disease and perhaps soon to be reduced to an undershrub.
- * *U. procera* ENGLISH ELM. Planted. Occasional, also decimated by Dutch elm disease.

JUGLANDACEAE

- * *Juglans regia* WALNUT. Planted. Rare.

MYRICACEAE

- * (*Myrica gale* BOG MYRTLE. Spottiswoode Loch 1953).

BETULACEAE

- * *Betula pendula* SILVER BIRCH. Widespread. Doubtfully native in Berwickshire.
- B. pubescens* DOWNY BIRCH. Widespread. Birchwoods are now rare. Gordon Moss, Airhouse Wood, fragments at Flass Wood, Longformacus.

Alnus glutinosa ALDER. Widespread. Alderwoods are now rare. Abbey St. Bathans, Hoprigshiels.

CORYLACEAE

- * *Carpinus betulus* HORNBEAM. Planted. Occasional.
- Corylus avellana* HAZEL. Local in woods and deans. There are few sizeable stands.

FAGACEAE

- * *Fagus sylvatica* BEECH. Widely planted. Regenerating frequently.
- * *Castanea sativa* SWEET CHESTNUT. Planted. Occasional.
- * *Quercus cerris* TURKEY OAK. Planted. Occasional.
- Q. robur* PEDUNCULATE OAK. Widely planted. Status as a native uncertain. Regenerating rarely.
- Q. petraea* SESSILE OAK. The native oakwoods appear to have been mainly of this species as at Abbey St. Bathans, Pease Dean, Grantshouse, Gateheugh. It is also planted. Now regenerating rarely for various reasons including a shortage of jays.

SALICACEAE

- * *Populus alba* WHITE POPLAR. Planted but forming groves by suckers. Scarce.
- * *P. alba* x *tremula* (= *P. x canescens*) GREY POPLAR. Planted. Rare.
- P. tremula* ASPEN. Very scarce, forming groves by suckers. Gordon Moss, Flass, Rathburne, Aikyside Wood, Lamberton Cliffs.
- * *P. nigra* BLACK POPLAR. Planted. Rare. Antons Hill, (New Horndean 1987).
- * *P. nigra* cv. 'Italica' LOMBARDY POPLAR. Planted. Scarce.
- * *P. deltoidea* x *nigra* (= *P. x canadensis*) ITALIAN POPLAR. Planted. Scarce.
- * *P. candicans* (= *P. x gileadensis*) BALSAM POPLAR. Planted. Scarce.
The treatment of *Salix* is simplified. Many of the specimens met with have been taken from cuttings and include introductions and varieties. There are also hybrids other than those listed.
- Salix pentandra* BAY WILLOW. Scarce. Gordon Moss, Lurgie Loch, Longmuir Moss.
- S. alba* WHITE WILLOW. Widespread. Mainly planted but probably formerly native in similar places.
- * *S. babylonica* WEEPING WILLOW. Planted occasionally in policies. Hen Poo.
- * *S. fragilis* CRACK WILLOW. Widespread. Mainly planted and including varieties.
- * *S. triandra* ALMOND WILLOW. Planted. Rare.
- S. purpurea* PURPLE WILLOW. Frequent. Leaderfoot, Tweed, Whiteadder, Blackadder. Perhaps planted at Middlethird Bog.

- * **S. daphnoides** VIOLET WILLOW. Planted. Rare.
- * **S. viminalis** OSIER. Scattered. Mainly planted.
- S. caprea ssp. caprea** GOAT WILLOW. Widespread. Especially wooded deans.
- S. cinerea ssp. oleifolia** (= *S. atrocinerea*) GREY WILLOW. Common. In deans, by burns and in mosses. There is some colour variation.
- S. aurita** EARED WILLOW. Widespread. Mainly upland.
- S. aurita x cinerea** (= *S. x multinervis*). Gordon Moss, Watch Water.
- S. myrsinifolia** (= *S. nigricans*) DARK-LEAVED WILLOW. Gordon Moss. The specimens seen recently key to *S. myrsinifolia x phyllicifolia*.
- S. phyllicifolia** TEA-LEAVED WILLOW. Longmuir Moss. Wrunklaw Burn, (Gordon Moss 1971 but see *S. myrsinifolia*).
- S. repens ssp. repens** CREEPING WILLOW. Very local. Gordon Moss, Polwarth Moss, Long Moss, Lurgie Loch, Everett Moss (*var. fusca*).

ERICACEAE

- * **Rhododendron ponticum** RHODODENDRON. Widely planted and locally naturalised.
- (**Arctostaphylos uva-ursi** BEARBERRY. Considered extinct. Durrington Great Law to 1858).
- Calluna vulgaris** HEATHER. The best moors are up the Dye Water and at Greenlaw Moor. Much lowland moorland continues to be lost to agriculture and forestry.
- Erica tetralix** CROSS-LEAVED HEATH. Frequent in the hills and locally plentiful on peat.
- E. cinerea** BELL HEATHER. Locally dominant in the Lammermuirs, also on the sea braes.
- Vaccinium vitis-idaea** COWBERRY. Rather scarce in moorland especially on the highest ground. Gateheugh.
- V. myrtillus** BLAEBERRY, BILBERRY. In the more acid woodland and on the hills, rarely abundant.
- V. oxycoccus** CRANBERRY. Very local. Long Moss, plentiful, Dogden Moss, Drone Moss, Lurgie Loch, Corsbie Bog.

PYROLACEAE

- Pyrola minor** COMMON WINTERGREEN. Very local. Duns Castle, Birgham Wood, Retreat Wood, Silverwells, Gordon Moss, Long Moss.
- (**P. media** INTERMEDIATE WINTERGREEN. Considered extinct. Durrington Great Law, Penmanshiel Wood, Abbey St. Bathans. Last record 1914).

(*P. rotundifolia* ROUND-LEAVED WINTERGREEN. Considered extinct but possibly recorded in error. Houndwood and Banks of the Ale 1836).

EMPETRACEAE

Empetrum nigrum ssp. *nigrum* CROWBERRY. Rather scarce on moorland, also on the sea braes. Dogden Moss, Lamberton.

PLUMBAGINACEAE

Armeria maritima THRIFT. Locally plentiful along the coast. St. Abbs Head.

PRIMULACEAE

Primula veris COWSLIP. Local along the coast, very scarce inland. St. Abbs Head, Burnmouth, The Hirsell, Magdalenehall.

P. veris x *vulgaris* (= *P. x tommasinni*) FALSE OXLIP. Occasional.

P. vulgaris PRIMROSE. Widespread with fine colonies on the coast, up the Whiteadder and in the hills.

* *P. florindae* CANDELABRA PRIMULA. Naturalised on the sea braes at Redheugh. First record 1981.

Lysimachia nemorum YELLOW PIMPERNEL. Frequent in woodland on more acid soils and by burns in the hills.

* *L. nummularia* CREEPING JENNY. Probably not native. Occasionally established by rivers and roadsides. First record 1834.

L. vulgaris YELLOW LOOSESTRIFE. Former rare native (Swinton, Pease Dean). Now a scarce established introduction by the Tweed. Paxton, Fishwick Mains.

Trientalis europaea CHICKWEED WINTERGREEN. Rare in mires and moorland. Long Moss, Drone Moss, Blackburnrig Wood, (Hartside 1902).

(*Anagallis tenella* BOG PIMPERNEL. Considered extinct. Crawboat Loch, near Springhill, abundant, 1853).

A. arvensis. Two subspecies are recorded:

A. arvensis ssp. *arvensis* SCARLET PIMPERNEL. A scarce weed of light soils, also on coastal scree. St. Abbs Head, Dowlaw Dean.

(*A. arvensis* ssp. *foemina* BLUE PIMPERNEL. Three C19 records. Eyemouth, Duns, St. Abbs).

(*A. minima* CHAFFWEED. Considered extinct. Birgham Moor to 1845).

Glaux maritima SEA-MILKWORT. Local along the coast. Linkim Shore, Cove Harbour.

(*Samolus valerandi* BROOKWEED. Considered extinct. Gunsgreen to 1924, Fernyrig Bog to 1845).

BUDDLEJACEAE

* *Buddleja davidii* BUTTERFLY-BUSH. Established about towns. Eyemouth.

OLEACEAE

- Fraxinus excelsior** ASH. Probably rather local as a native. Pease Dean.
Widely planted and regenerating.
- * **Syringa vulgaris** LILAC. Planted in policy woodland, perpetuated by suckers.
- * **Ligustrum vulgare** WILD PRIVET. widely planted and persisting, occasionally naturalised.
- * **L. ovalifolium** GARDEN PRIVET. Planted and persisting. Rare.

APOCYNACEAE

- * **Vinca minor** LESSER PERIWINKLE. Well naturalised in woods and shady banks in a few places.
- * **V. major** GREATER PERIWINKLE. Occasionally established. Burnmouth, Ale Water. A fine colony is naturalised on rocks above the Tweed at Fishwick Mains.
- * **V. herbacea**. Established at Hutton Bridge from 1984.

GENTIANACEAE

- Centaureum erythraea** COMMON CENTAURY. Formerly quite widespread, now very scarce on the coast, and on banks by the Whiteadder. St. Abbs Head, Cove. (Paxton 1956).
- (**Gentianella campestris** FIELD GENTIAN. Almost or quite extinct. Horseupcleugh 1968, Godscroft 1953, formerly on the coast).
- (**G. amarella** ssp. **amarella** AUTUMN GENTIAN. Almost or quite extinct. Dye Cottage 1956, Lamberton Shiels 1853).

MENYANTHACEAE

- Menyanthes trifoliata** BOGBEAN. Suitable habitat is scarce. Bemersyde Moss, Gordon Moss, Hen Poo, Lurgie Loch, Coldingham Loch.
- * (**Nymphoides peltata** FRINGED WATER-LILY. Former introduction. Hen Poo 1840-81, Foulden New Mains 1840).

POLEMONIACEAE

- * (**Polemonium caeruleum** (agg.) JACOB'S-LADDER. Rare casual, garden escape).

BORAGINACEAE

- (**Cynoglossum officinale** HOUND'S-TONGUE. Extinct or almost so, formerly scarce near the coast. Linkim Shore 1956).
- (**Symphytum officinale** COMMON COMFREY. Status uncertain. Several records 1831-1893 but a specimen 1853 Dunglass Dean is in fact *S. × uplandicum*).
- * **S. asperum** × **officinale** (= *S. × uplandicum*) RUSSIAN COMFREY. Frequent, roadsides and riversides. First record 1853.
- * **S. orientale** WHITE COMFREY. Birgham 1983.

- S. tuberosum** TUBEROUS COMFREY. Frequent by riversides, perhaps introduced elsewhere.
- * (**Borago officinalis** BORAGE. Considered extinct. Fields at Hallydown 1829-36, Newton Don 1893).
- * **Trachystemon orientalis** ABRAHAM-ISAAC-JACOB. Introduction. Milne Graden Burn 1965.
- * **Pentaglottis sempervirens** GREEN ALKANET. Emanating from policies, but widely naturalised.
- Anchusa arvensis** (= *Lycopsis arvensis*) BUGLOSS. Widespread, most common near the coast.
- * (**A. officinalis** COMMON ALKANET. Rare casual, garden escape).
- * (**Nonnea pulla**. Casual. Cheeklaw 1958).
- * (**Pulmonaria longifolia** NARROW-LEAVED LUNGWORT. Pease Bay 1886, status conjectural. Casual Berrywell 1946).
- * **P. officinalis** LUNGWORT. Inadequate information. *Pulmonaria spp.* are well naturalised at Longformacus House.
- * **Amsinckia intermedia** TARWEED. Occasional. A recent introduction mainly as an arable weed, also Tweed banks at Fishwick Mains, Municipal bed at Duns. First record 1983.
- Myosotis scorpioides** WATER FORGET-ME-NOT. Widespread.
- M. secunda** CREEPING FORGET-ME-NOT. Occasional in the richer communities by hill burns. Byreclough, Foul Burn, Whalplaw Burn.
- M. laxa** (= *M. caespitosa*) TUFTED FORGET-ME-NOT. Common.
- M. sylvatica** WOOD FORGET-ME-NOT. Mainly introduced. Widespread in policy woodland and somewhat more widely. Langton, Duns Castle, The Hirsell, Paxton.
- M. arvensis** FIELD FORGET-ME-NOT. Generally common. Two subspecies occur:
- M. arvensis ssp. arvensis.** Mainly on arable land.
- M. arvensis ssp. umbrata.** The larger plant of woods and hedgebanks, frequently mistaken for *M. sylvatica*, a problem long recognised (G. Johnston 1853).
- M. discolor** CHANGING FORGET-ME-NOT. Widespread, but only occasionally plentiful.
- M. ramosissima** EARLY FORGET-ME-NOT. Very local and decreasing. Mainly coastal, inland on basalt. St. Abbs Head, Pease Bay, Hume Craigs.
- * (**Lithospermum officinale** COMMON GROMWELL. Former casual. Dryburgh Abbey C19).
- (**L. arvense** FIELD GROMWELL. Considered extinct except as a rare casual, formerly common in cornfields. Near Union Bridge 1956).
- (**Mertensia maritima** OYSTERPLANT. Considered extinct despite its reappearance on the East Lothian coast in 1989. Formerly scarce in several bays along the coast to 1914).

Echium vulgare VIPER'S-BUGLOSS. Local and scarce. Scours on banks of the Whiteadder, junction of Eye and Ale Waters, Birgham, Gateheugh.

CONVOLVULACEAE

Convolvulus arvensis FIELD BINDWEED. Scattered. Usually in isolated colonies but rather more widespread near the coast.

Calystegia sepium. Three subspecies occur and are often treated as separate species:

C. sepium ssp. *sepium* HEDGE BINDWEED. Widespread.

* *C. sepium* ssp. *pulchra* HAIRY BINDWEED. Occasional. Reston 1981, Lintlaw School 1982.

* *C. sepium* ssp. *silvatica* LARGE BINDWEED. Occasional. Lennel, Coldstream. First record 1957.

* (*Cuscuta campestris* AN AMERICAN DODDER. Casual on leeks, Coldingham 1959).

SOLANACEAE

* (*Hyoscyamus niger* HENBANE. Casual, formerly occasional, now rare. Cockburnspath 1956).

Solanum dulcamara BITTERSWEET. Very scarce. In deans and mosses also in ruderal habitats, Hirsell Lake, Duns.

* (*S. nigrum* BLACK NIGHTSHADE. Rare Casual. Chirnside 1972, Nisbet 1956).

* (*S. tuberosum* POTATO. Agricultural relic, not persisting for long).

* (*Lycopersicon esculentum* TOMATO. Casual, especially on shingle in the Tweed, not persisting).

* (*Datura stramonium* THORN-APPLE. Casual. Ayton 1959).

SCROPHULARIACEAE

Verbascum thapsus GREAT MULLEIN. Scattered but erratic.

* (*V. nigrum* DARK MULLEIN. Rare casual. Ellemford 1936).

* (*V. blattaria* MOTH MULLEIN. Rare casual. Elba 1952).

* (*Antirrhinum majus* SNAPDRAGON. Casual. One unlocalised record 1960).

* *Linaria purpurea* PURPLE TOADFLAX. Very scarce on walls and wasteground. Gavinton 1960. Old railway near Airhouse Wood 1964

* (*L. repens* PALE TOADFLAX. Casual. One unlocalised record 1960).

L. vulgaris COMMON TOADFLAX. Scattered. Spread in the C19 along railways and survives in places where they passed.

* *Chaenorhinum minus* SMALL TOADFLAX. Virtually restricted to railway ballast. First record 1829, now decreasing with its habitat.

* *Cymbalaria muralis* IVY-LEAVED TOADFLAX. Widespread on mortared walls around buildings. First record 1853.

Scrophularia nodosa COMMON FIGWORT. Widespread.

S. auriculata (= *S. aquatica*) WATER FIGWORT. Rare. Birgham 1960. (Formerly by the Whiteadder at Clarabad and Tibby Fowlers Glen, at Nenthorn and Newton Don. Possible records The Hirsell 1985, Longformacus 1957).

S. umbrosa GREEN FIGWORT. Locally common. Known by the Whiteadder since 1850 but by the Tweed only since 1960. Bemersyde Moss, Bishops Bog. Berwickshire has perhaps the largest British population of this species.

* (**S. vernalis** YELLOW FIGWORT. Casual. Lauderdale 1902).

* **Mimulus guttatus** MONKEYFLOWER. Widespread in burns and ditches. Whalplaw Burn from 1844.

* **M. guttatus** x **luteus**. Widespread in burns and ditches. First record 1872 by the Tweed. Most or all records of *M. luteus* refer to this hybrid.

* (**M. luteus** BLOOD-DROP-EMLETS. Status uncertain due to confusion with hybrids).

* **M. cupreus** x **guttatus** A COPPER-COLOURED MONKEYFLOWER. Kelphope Burn 1985, West Blanerne 1968, Cockburn Mill 1956.

* (**M. moschatus** MUSK. Casual. Blanerne 1970).

* **Erinus alpinus** FAIRY FOXGLOVE. On mortared walls, rare. Gledswood 1981, Manderston 1946.

Digitalis purpurea FOXGLOVE. Common on banks and in woodland where the geology is silurian or volcanic but rare over calciferous sandstone. White-flowered plants are rare in native populations but are sometimes plentiful where interbreeding with garden populations can be inferred as at Duns Castle.

Veronica beccabunga BROOKLIME. Widespread.

V. anagallis-aquatica BLUE WATER-SPEEDWELL. Widespread.

V. catenata PINK WATER-SPEEDWELL. Very local. The upper Blackadder Water and the Fangrist Burn, Eden Water near Macks Mill, Whiteadder.

V. scutellata MARSH SPEEDWELL. Scattered, mainly upland.

V. officinalis HEATH SPEEDWELL. Widespread.

V. montana WOOD SPEEDWELL. Local. Characteristic of ancient elm woods but colonising under ash and sycamore. Pease Dean, Langton Woods, Paradise.

V. chamaedrys GERMANDER SPEEDWELL. Common.

V. serpyllifolia ssp. **serpyllifolia** THYME-LEAVED SPEEDWELL. Common. In grassland and as an arable weed.

* **V. peregrina** AMERICAN SPEEDWELL. Newton Don 1873, 1990. A weed of sheltered gardens. Perhaps elsewhere.

V. arvensis WALL SPEEDWELL. Common.

- V. hederifolia** IVY-LEAVED SPEEDWELL. Frequent. Two subspecies are present but have been little studied:
- * **V. hederifolia ssp. hederifolia**. Usually on sandy arable land. Duns. Perhaps introduced.
 - V. hederifolia ssp. lucorum**. Usually in more shady places. Cockburn Mill.
- * **V. persica** COMMON FIELD-SPEEDWELL. Common. First recorded 1829.
- V. polita** GREY FIELD-SPEEDWELL. Very local. Recent records have been as a weed in gardens of old houses. Longformacus, Westruther, Newton Don.
- V. agrestis** GREEN FIELD-SPEEDWELL. Local. Mainly as a weed in gardens of old houses, but also as an arable weed about old villages.
- * **V. filiformis** SLENDER SPEEDWELL. Widespread and locally abundant, in mown grass and by rivers. The C19 records were errors for *V. persica*, first record 1953.
- Pedicularis palustris** MARSH LOUSEWORT. Scattered in moorland.
- P. sylvatica** LOUSEWORT. Scattered in moorland. Less frequent than *P. palustris*.
- Rhinanthus minor** YELLOW RATTLE. Widespread, but declining severely and rarely now found in any quantity. The segregates have not been studied.
- Melampyrum pratense** COMMON COW-WHEAT. Retreat Wood, Elba and Wild Wood, Abbey St. Bathans. Probably still elsewhere in ancient oak woods as at Grantshouse.
- ((**M. sylvaticum** SMALL COW-WHEAT. Banks by Dye above Longformacus 1831 but by 1916 demonstrated to be an error for *M. pratense*)).
- Euphrasia officinalis** EYEBRIGHT. The following segregates are recorded. They are interfertile and may grade into one another.
- E. nemorosa**. Frequent in hill grassland.
 - E. arctica ssp. borealis** (= *E. brevipila*). Frequent in hill grassland.
 - E. confusa**. Frequent in hill grassland.
 - E. micrantha**. Heather moorland.
 - E. scottica**. Byreclench 1960.
- Odontites verna** RED BARTSIA. Widespread, but declining.

OROBANCHACEAE

- Lathraea squamaria** TOOTHWORT. Very local. Gledswood, opposite Carham, Lennel, Milne Graden, Paxton, Retreat.
- * **L. clandestina** PURPLE TOOTHWORT. Naturalised at Duns Castle since 1962.

LENTIBULARIACEAE

- Pinguicula vulgaris* COMMON BUTTERWORT. Very local. In basic flushes in moorland and on the coast. Burnmouth 1979.
- (*Utricularia vulgaris* GREATER BLADDERWORT. Considered extinct. Below Allanton Bridge 1902, Fernyrig Bog 1845, Girtrig Pond near Langton 1831, Leitholm Loch).
- (*U. intermedia* INTERMEDIATE BLADDERWORT. Considered extinct. Penmanshiel Moss, Langstruther Bog, Lurgie Loch 1853).
- (*U. minor* LESSER BLADDERWORT. Considered extinct. Gordon Moss 1974, Penmanshiel Moss 1886, Langstruther Bog 1839).

VERBENACEAE

- * (*Verbena officinalis* VERVAIN. Former casual. Near Norham 1878, Cockburnspath 1836).

LABIATAE

- * (*Mentha pulegium* PENNYROYAL. Former casual. Near Auchencrow 1853).
- M. arvensis* CORN MINT. Allanton 1986. Formerly widespread and although now very scarce probably elsewhere.
- M. aquatica* WATER MINT. Common.
- M. aquatica* x *arvensis* (= *M. x verticillata*) WHORLED MINT. Occasional. Lennel 1968.
- * *M. aquatica* x *spicata* (= *M. x piperita*) PEPPERMINT. Occasional.
- * *M. spicata* SPEARMINT. Occasional.
- * *M. spicata* x *suaveolens* (= *M. x villosa*) LARGE APPLE-MINT. Plentiful by the Whiteadder downstream from Allanton and by the Blackadder below Blanterne from 1833, Pease Bay, Coldingham.
- ((*M. longifolia*. Not a British plant; records refer to *M. spicata* x *suaveolens*)).
- ((*Lycopus europaeus* GIPSYWORT. No records. Considered absent)).
- Origanum vulgare* MARJORAM. Local. Scours by the Whiteadder. Fishwick Mains, Hilton Bay, Gateheugh.
- * (*Thymus pulegioides* LARGE THYME. Casual. Duns 1906).
- Thymus praecox* (= *T. drucei*) WILD THYME. Widespread.
- (*Acinos arvensis* BASIL THYME. Considered extinct. Oxendean 1874, Penmanshiel 1854, Ecclaw 1853).
- Clinopodium vulgare* WILD BASIL. Tower Dean 1988, Cockburn Mill 1973, opposite Norham 1963, Almaheart 1950, formerly local.
- Prunella vulgaris* SELFHEAL. Common.
- Stachys arvensis* FIELD WOUNDWORT. Dowlaw 1981, (Chirside 1936, formerly local).
- S. palustris* MARSH WOUNDWORT. Scattered.

- S. palustris x sylvatica** (= *S. x ambigua*). Rare or overlooked. Langton Mill 1931, Pease Dean 1853.
- S. sylvatica** HEDGE WOUNDWORT. Common.
- S. officinalis** (= *Betonica officinalis*) BETONY. Rare but unlikely to be extinct despite absence of recent records. Longformacus 1950, Grantshouse 1936.
- Ballota nigra** BLACK HORSEHOUND. Fishwick Mains 1987, Birgham 1961, formerly widespread.
- * **Lamiastrum galeobdolon** (= *Galeobdolon luteum*) YELLOW ARCHANGEL. Rare introduction, Cairnbank 1968, Dunglass 1894.
- Lamium amplexicaule** HENBIT DEAD-NETTLE. Local, mainly near the coast. Arable and garden weed.
- L. moluccellifolium** NORTHERN DEAD-NETTLE. Widespread but scarce as an arable weed. No garden record.
- L. hybridum** CUT-LEAVED DEAD-NETTLE. Very local, mainly near the coast and in sunny fields near the Tweed. No garden record.
- L. purpureum** RED DEAD-NETTLE. Common.
- L. album** WHITE DEAD-NETTLE. Widespread.
- * (**L. maculatum** SPOTTED DEAD-NETTLE. Casual. Duns 1931).
(*Galeopsis angustifolia* RED HEMP-NETTLE. Considered extinct. Cockburn Mill 1866, St. Helens Church 1856)
- G. tetrahit** COMMON HEMP-NETTLE. Common as an arable weed but also frequent in mosses. The two subspecies usually occur together:
- G. tetrahit ssp. tetrahit**. Common.
- G. tetrahit ssp. bifida**. Less plentiful.
- G. speciosa** LARGE-FLOWERED HEMP-NETTLE. Locally common, especially on a peaty soil.
- (*Nepeta cataria* CATMINT. Considered extinct, possibly formerly native. Broomhouse 1893, Gateheugh 1831).
- Glechoma hederacea** GROUND-IVY. Widespread.
- * (**Marrubium vulgare** WHITE HOREHOUND. Casual. Pease Dean 1881).
- Scutellaria galericulata** SKULLCAP. Has always been rare. Drakemire 1982, Pease Dean 1956, Sisterpath 1956.
- Teucrium scorodonia** WOOD SAGE. Widespread, often indicative of former oakwood.
- Ajuga reptans** BUGLE. Widespread, extending up hill burns.

PLANTAGINACEAE

- Plantago major** GREATER PLANTAIN. Common.
- P. media** HOARY PLANTAIN. Perhaps now confined to old lawns, formerly frequent. Duns Castle, Swinton House.
- P. lanceolata** RIBWORT PLANTAIN. Common.

P. maritima SEA PLANTAIN. Frequent along the coast, formerly rare inland.

P. coronopus BUCK'S-HORN PLANTAIN. Common along the coast.

Littorella uniflora SHOREWEED. Coldingham Loch, Watch Water Réservoir, Edmonds Dean Dam, Millars Moss.

CAMPANULACEAE

Campanula latifolia GIANT BELLFLOWER. Local. An indicator of ancient woodland. Pease Dean, Langton, Paxton.

* **C. rapunculoides** CREEPING BELLFLOWER. Occasional, roadsides and riversides. Established from garden throwouts. First record 1893.

* (**C. persicifolia** PEACH-LEAVED BELLFLOWER. Lochton 1872).

* (**C. glomerata** CLUSTERED BELLFLOWER. Apparently introduced. Coldstream 1961).

C. rotundifolia HAREBELL, BLUEBELL. Common.

* (**C. patula** SPREADING BELLFLOWER. Swinton 1956).

RUBIACEAE

Sherardia arvensis FIELD MADDER. Now local and scarce. St. Abbs Head, Pease Dean, Dowlaw, Old Cambus Quarry.

* (**Phuopsis stylosa**. Casual. Marden 1947).

Galium odoratum WOODRUFF. Local. An indicator of ancient woodland. Pease Dean, Abbey St. Bathans, Langton.

G. cruciata CROSSWORT. Widespread.

G. boreale NORTHERN BEDSTRAW. Rare, formerly local. Grassland flushed by base-rich springs, also basic rocks and crags. Gateheugh, Birgham, Skaithmuir, Fireburn Mill, formerly elsewhere in the Merse.

G. mollugo (agg.) HEDGE BEDSTRAW. Native in the Merse. Introduced elsewhere with grass seed and becoming established. Middlethird, Cockburnspath.

G. verum LADY'S BEDSTRAW. Widespread.

G. saxatile HEATH BEDSTRAW. Common, at least in the hills.

G. palustre MARSH BEDSTRAW. Widespread.

G. uliginosum FEN BEDSTRAW. Widespread but more local than *G. palustre*.

G. aparine CLEAVERS, STICKY WILLIE. Common.

CAPRIFOLIACEAE

* (**Sambucus ebulus** DWARF ELDER. Considered extinct. Longformacus Churchyard 1956, Langton 1953).

S. nigra ELDER. Common.

* **S. racemosa** RED-BERRIED ELDER. Widespread. Sometimes abundant in pine plantations as at Skaithmuir. First record 1956.

- * *Viburnum lantana* WAYFARING-TREE. Occasionally planted.
V. opulus GUELDER-ROSE. Very local and scarce. Greenwood 1957, Peelrig 1946.
- * *Symphoricarpos rivularis* SNOWBERRY. Widely planted and becoming strongly established. Seedlings are rare but do occur as on old walls. First record 1946.
- Linnaea borealis* TWINFLOWER. Perhaps an unintentional re-introduction re-established in pine plantations often on the site of former native pine woods. Mellerstain 1834–1990. Temporarily established at six other places 1880–1933.
- Lonicera periclymenum* HONEYSUCKLE. Widespread, often indicating a link with ancient woodland. Also on sea braes.
- * (*L. caprifolium* PERFOLIATE HONEYSUCKLE. Coldstream 1834).

ADOXACEAE

Adoxa moschatellina MOSCHATEL. Local. An indicator of ancient elm woods, usually found near water. Pease Dean, Langton Woods, Clarabad Wood, Airhouse Wood.

VALERIANACEAE

Valerianella locusta COMMON CORNSALAD. Perhaps extinct inland except as a rare casual but surviving on the coast. Linkim Shore 1981, Lamberton railway 1980. Ramsheugh Bay 1966, Burnmouth 1961.

(*V. dentata* NARROW-FRUITED CORNSALAD. Considered extinct. Formerly an arable weed near the coast and up the Tweed to Lochton. Last record 1916).

Valeriana officinalis COMMON VALERIAN. Rather local but quite widespread except in the hills.

- * *V. pyrenaica* PYRENEAN VALERIAN. Much less widely naturalised than further inland in the Tweed basin. Gateheugh 1973, Bunkle 1963. First record Mertoun 1886.

V. dioica MARSHVALERIAN. Quite widespread in slightly basic moorland flushes.

- * *Centranthus ruber* RED VALERIAN. There is a striking multi-coloured colony in Ramsheugh Bay, also at Burnmouth. First record 1952.

DIPSACACEAE

- * *Dipsacus fullonum* ssp. *fullonum* TEASEL. Apparently introduced, now well established on sunny banks by the Lower Tweed, Coldstream, Fishwick Mains, but not recorded there until 1893.

Knautia arvensis FIELD SCABIOUS. Formerly widespread and plentiful but now reduced to small colonies by roadsides, by the Whiteadder and at Burnmouth.

Scabiosa columbaria SMALL SCABIOUS. Foulden Dean, (formerly Hareheugh Craigs to 1974, Nenthorn, Lochton and more widely).

Succisa pratensis DEVIL'S-BIT SCABIOUS. Widespread in the hills.

COMPOSITAE

Bidens cernua NODDING BUR-MARIGOLD. One colony, Bemersyde Moss. (Girtrig Pond 1853)

* **Galinsoga parviflora** GALLANT SOLDIER. Garden weed. Ayton 1960.

* **G. ciliata** HAIRY GALLANT SOLDIER. Garden weed, Chirnside 1986.

Senecio jacobaea COMMON RAGWORT. Common.

S. aquaticus MARSH RAGWORT. Very local. Never common but reduced by drainage. Fine at Longmuir Moss, Mordington Pond 1965, Langtonlees Cleugh 1964.

S. erucifolius HOARY RAGWORT. Rare or possibly extinct. (Formerly "not uncommon in the district southwards from Mellerstain" 1874. Swinton Mill 1969, Edrington Mill, Mellerstain and Clarabad 1914).

* **S. squalidus** OXFORD RAGWORT. Greystonelees 1985, Lamberton railway 1980, Chirnside. First recorded 1962.

S. sylvaticus HEATH GROUNDSEL. Widespread but local and rather scarce.

S. viscosus STICKY GROUNDSEL. Frequent on sea braes also widespread and increasing on tips, parking areas etc.

S. vulgaris GROUNDSEL. Common. The segregate:

* **S. vulgaris f. radiatus** RAYED GROUNDSEL. Duns 1990. Probably frequent near the railway.

* **S. fluviatilis** BROAD-LEAVED RAGWORT. Established introduction. Paxton House 1960.

* **Doronicum pardalianches** LEOPARD'S-BANE. Widespread. Sometimes replaces the varied ground flora of ancient elmwoods. First record Linthill 1868.

* **D. plantagineum** PLANTAIN-LEAVED LEOPARD'S-BANE. Poorly established introduction. The Hirsell, Langton. First record Allanbank 1878.

Tussilago farfara COLT'S-FOOT. Common.

Petasites hybridus BUTTERBUR. Widespread and locally common. ((No record of the 'female' plant)).

* **P. albus** WHITE BUTTERBUR. Several colonies.

* **P. fragrans** WINTER HELIOTROPE. Several colonies.

* (**Inula helenium** ELECAMPANE. Casual. Birgham 1985).

(**Pulicaria dysenterica** COMMON FLEABANE. Considered extinct. Coldstream, Ladykirk, Lamberton, Tibby Fowlers Glen to 1916).

- Filago vulgaris** (= *F. germanica*) COMMON CUDWEED. Very local, formerly widespread. Near Millars Moss, Old Cambus Quarry, Pease Dean, Airhouse Wood Quarry.
- Filago minima** SMALL CUDWEED. Very local, formerly widespread. Near Millars Moss, Dowlaw Dean, Pease Dean, Old Cambus Quarry.
- Gnaphalium sylvaticum** HEATH CUDWEED. Rare, formerly local. Penmanshiel Wood 1989, near Harelaw Craigs 1960, Kyles Hill 1959.
- G. uliginosum** MARSH CUDWEED. Common.
- Antennaria dioica** MOUNTAIN EVERLASTING. Rare, formerly widespread. Lumsdaine 1988, Blythe Moors 1951, Quixwood Moor 1951, Longformacus 1947.
- Solidago virgaurea** GOLDENROD. Scattered. On rocks and steep banks, not here on open moorland.
- Bellis perennis** DAISY. Very common.
- Eupatorium cannabinum** HEMP-AGRIMONY. Locally frequent in wet places on the sea braes, rare inland. St. Abbs Head, Dowlaw Dean, Burnmouth, Tweedside near Birgham.
- * (**Anthemis cotula** STINKING CHAMOMILE. Casual. Swinton 1960).
- * (**A. arvensis** CORN CHAMOMILE. Extinct except as a rare casual. Formerly cultivated for sheep but also as a weed of new grassland. Hirsell Law 1957).
- * (**Chamaemelum nobile** CHAMOMILE. Formerly temporarily naturalised near Chirnside before 1853).
- Achillea millefolium** YARROW. Common.
- * (**A. tomentosa**. Casual. Broomhouse 1893).
- A. ptarmica** SNEEZEWORD. Widespread.
- Tripleurospermum inodorum** SCENTLESS MAYWEED. Common.
Var. salinum is occasional on the coast.
- Matricaria recutita** SCENTED MAYWEED. Scattered, apparently increasing. Redpath, Gordon, Haigsfield. First recorded 1872 at Eden Hall and Lochton but not again until 1950.
- * **M. matricarioides** PINEAPPLEWEED. Very common. First record 1952 but throughout the county by 1956.
- Chrysanthemum segetum** CORN MARIGOLD. Rare, formerly local. Abundantly near Coldingham 1980+, Newton Don 1981. Abundantly near Lamberton 1972.
- Leucanthemum vulgare** (= *Chrysanthemum leucanthemum*) OXEYE DAISY. Widespread.
- * **Tanacetum parthenium** (= *Chrysanthemum parthenium*) FEVERFEW. Widespread, mainly near habitation.
- T. vulgare** (= *C. vulgare*) TANSY. Frequent on banks by the Whiteadder and Tweed.
- * **Cotula squalida**. Lawn weed at Chapel-on-Leader 1962.

- Artemisia vulgaris** MUGWORT. Widespread, but more frequent near the coast. Not plentiful.
- (**A. absinthium** WORMWOOD. Perhaps extinct. Burnmouth to 1956, Dunglass Farm 1956).
- A. maritima** SEA WORMWOOD. Rare on sea stacs, unsuitable for nesting seabirds, and shingle nearby. St. Abbs Head, St. Helens Church.
- * **Echinops** spp. GLOBE-THISTLE. Occasionally established from garden throwouts. The taxa involved have not been studied but are unlikely to be *E. sphaerocephalus*, as recorded.
- Carlina vulgaris** CARLINE THISTLE. Scarce on sea braes over califerous sandstone from Lamberton to Burnmouth. (Formerly on the banks of the Ale and near Earnsheugh Camp).
- Arctium minus** LESSER BURDOCK. Widespread. *spp. nemorosum* is widespread, Evidence of other *spp* is unsatisfactory.
- Carduus tenuiflorus** SLENDER THISTLE. Frequent near the sea and by the lower Tweed and Whiteadder. St. Abbs Head, Fishwick Mains, Foulden.
- * (**C. nutans** MUSK THISTLE. Extinct except as a scarce casual. Burnmouth 1960).
- C. acanthoides** WELTED THISTLE. Scattered.
- Cirsium vulgare** SPEAR THISTLE. Common.
- C. palustre** MARSH THISTLE. Common.
- C. arvense** CREEPING THISTLE. Common.
- C. helenioides** (= *C. heterophyllum*) MELANCHOLY THISTLE. Rare. Gordon Moss, Birgham Wood, East Crook Burn, Blacksmill Burn, Kettleshiel Burn.
- * **Silybum marianum** MILK THISTLE. Established near habitation, more rarely than formerly. Coast south of St. Abbs 1977.
- * (**Onopordum acanthium** COTTON THISTLE. Rare. Coldstream 1957).
- Centaurea scabiosa** GREATER KNAPWEED. Whiteadder near Blanterne 1962.
- (**C. cyanus** CORNFLOWER. Recent records have been garden escapes. Formerly widespread in cornfields but scarce by 1836, last records 1931).
- C. nigra** COMMON KNAPWEED. Common.
- * **Cichorium intybus** CHICORY. Occasional escape. Birgham 1962, near Linkim Shore 1951.
- Lapsana communis** NIPPLEWORT. Common. Constant in ancient woodland as well as being plentiful as a ruderal and arable weed.
- Hypochaeris radicata** CAT'S-EAR. Common.
- Leontodon autumnalis** AUTUMN HAWKBIT. Common. Often forms a yellow border to roadsides in autumn as *Taraxacum* does in spring.

- L. hispidus** ROUGH HAWKBIT. Widespread.
- L. taraxacoides** LESSER HAWKBIT. Burnmouth 1970. Perhaps under-recorded.
- * (**Picris echioides** BRISTLY OXTONGUE. Casual, a seed impurity. Gavinton 1983, Chirnside 1972).
- Tragopogon pratensis** GOAT'S-BEARD. Two subspecies have occurred:
- (**T. pratensis** ssp. **pratensis**. Banks of Tweed and near Eccles 1845).
- T. pratensis** ssp. **minor**. Scattered, usually scarce. Rabbits consider it a delicacy.
- Lactuca virosa** GREAT LETTUCE. Considered native. Coldstream, Blount Bank, New Ladykirk, formerly more frequent.
- Mycelis muralis** WALL LETTUCE. Local. Mainly on old walls.
- Sonchus arvensis** PERENNIAL SOW-THISTLE. Widespread, but scarce except near the coast.
- S. oleraceus** SMOOTH SOW-THISTLE. Widespread. Scarce as an arable weed but more frequent in gardens and ruderal habitats.
- S. asper** PRICKLY SOW-THISTLE. Common. Sea braes and banks near rivers as well as an arable weed.
- * **Cicerbita macrophylla** BLUE SOW-THISTLE. Scattered, increasing. First records 1960.
- Hieracium murorum** HAWKWEED. The microspecies **H. vulgatum** is widespread. In addition records for the following microspecies are accepted by D. McCosh 1990
- | | |
|--|--|
| H. ampliatum. Whalplaw Burn | * H. grandidens. Newton Don 1970. |
| H. argenteum. Hareheugh Craigs | H. leyi. Hareheugh Craigs |
| † H. auratiflorum. Burnmouth | H. oistophyllum. Greenlaw Dean |
| † H. britanniciforme. Burnmouth | H. orimeles. Burnmouth |
| H. caesiomorum. Burnmouth | † H. riddelsdellii. Burnmouth |
| H. caledonicum. Brotherstone | H. rubiginosum. Allanton |
| H. cravoniense. Longformacus | H. schmidtii. Dowlaw Dean |
| H. dasythrix. Burnmouth | H. subcrocatum. Lumsdaine |
| H. dicella. Burnmouth | H. subrude. Lamberton |
| (H. prenanthoides. Redpath Dean) | (H. vagum. Coldstream) |
| (H. umbellatum. Penmanshiel) | |
- † The populations referred to these taxa may relate to undescribed taxa
- H. pilosella** (= *Pilosella officinarum*) MOUSE-EAR HAWKWEED. Common.
- * **H. aurantiacum** (agg.) FOX-AND-CUBS. Occasional. First record 1832.
- Crepis mollis** NORTHERN HAWK'S-BEARD. No record since 1924 but recent experience in Northumberland and Roxburghshire suggests that it will be re-found. (Formerly Langton Wood, Blackburnrig Dean, Edgarhope, Penmanshiel Wood, above Longformacus, near Coldingham, Ale Water).
- C. capillaris** SMOOTH HAWK'S-BEARD. Widespread.

C. paludosa MARSH HAWK'S-BEARD. Widespread but rather local in base rich flushes.

Taraxacum officinale DANDELION. Common. The following microspecies were recorded at meetings led by A. J. Richards in 1979 and by C. C. Haworth in 1986. Only a sample of habitats was visited. Nomenclature follows a provisional list prepared and used by C. C. Haworth in 1986, annotated A. J. Richards 1990.

section *Erythrosperma* dry banks
T. brachyglossum Pease Bay
T. fulviforme St. Abbs Head
T. fulvum Bluestoneford
T. lacistophyllum St. Abbs Head
T. oxoniense St. Abbs Head
T. rubicundum St. Abbs Head
T. sublaetum Pease Bay

section *Spectabilia*
T. faeroense wet hill pasture

section *Naevoza*
T. euryphyllum frequent
T. fulvicarpum
T. maculosum frequent
T. pseudolarssonii frequent
T. subnaevosum

section *Celtica*
T. bracteatum
T. gelertii
T. inane
T. nordstedii frequent
T. duplidentifrons common
T. subbracteatum
T. unguilobum common

section *Hamata*
T. atactum frequent
T. hamatiforme
T. hamatum frequent
T. hamiferum
T. kernianum
T. lamprophyllum
T. pseudohamatum common
T. quadrans
T. subhamatum frequent

section *Ruderalia*
T. alatum
T. ancistrolobum
* *T. angustisquameum* A1, Reston
T. cordatum
T. croceiflorum
T. cyanolepis
T. dahlstedtii frequent
* *T. dilaceratum* A1, Reston
T. ekmanii
T. expallidiforme frequent
T. fasciatum
T. hemicyclum
T. huelphersianum
T. insigne frequent
T. interveniens
T. laciniosifrons
T. laeticolor
* *T. laticordatum* A1, Reston
T. linguatum
T. longisquameum
T. obliquilobum
T. oblongatum
T. ochrochlorum
T. pannucium
T. piceatum
T. polyodon common
T. rhamphodes
* *T. stereodes* A1, Reston
T. sublaeticolor
T. undulatiflorum
* *T. vastisectum* A1, Reston

MONOCOTYLEDONES

ALISMATACEAE

(*Baldellia ranunculoides* LESSER WATER-PLANTAIN. Considered extinct. Kirkbonny near Foulden 1915, Harkers Tile Works 1902, St. Abbs Head 1896, Lintlaw 1853, Lithillum Loch 1853).

Alisma plantago-aquatica WATER-PLANTAIN. Scattered.
(*Sagittaria sagittifolia* ARROW-HEAD. Considered extinct. St. Abbs
Head 1896, six years before the dam was built at Mire Loch).

BUTOMACEAE

- * **Butomus umbellatus** FLOWERING-RUSH. Locally frequent along the Blackadder below Greenlaw and the lower Whiteadder, also along the Tweed below Lochton. First record 1958.

HYDROCHARITACEAE

- * **Elodea canadensis** CANADIAN WATERWEED. Widespread, but decreasing in abundance. Tweed, Whiteadder and Blackadder also various ponds. First record Hen Poo 1842, spreading rapidly to the Whiteadder.

JUNCAGINACEAE

- Triglochin palustris** MARSH ARROWGRASS. Widespread, mainly in the hills.
- T. maritima** SEA ARROWGRASS. Locally on the coast, Coldingham Bay, Linkim Shore.

POTAMOGETONACEAE

- Potamogeton natans** BROAD-LEAVED PONDWEED. Scattered, mainly lowland.
- P. polygonifolius** BOG PONDWEED. Occasional, more upland than *P. natans*.
- (**P. coloratus** FEN PONDWEED. Considered extinct. Gordon Moss 1916, Fernyrig Bog 1853).
- P. lucens** SHINING PONDWEED. Very locally plentiful. Tweed from Coldstream to Union Bridge.
- P. lucens x perfoliatus** (= *P. x salicifolius*). In similar places to *P. lucens*. Tweed from Lochton to Union Bridge.
- (**P. gramineus** VARIOUS-LEAVED PONDWEED. Perhaps extinct. Coldingham Loch 1906, Fernyrig Bog 1829).
- (**P. gramineus x perfoliatus** (= *P. x nitens*). Status uncertain. Coldingham Loch 1933)
- (**P. alpinus** RED PONDWEED. Considered extinct. Eden Water and adjacent ditches, Gordon Moss, near Hume Castle. Last record 1882).
- P. alpinus x crispus** (= *P. x olivaceus*). Scarce. Tweed, lower Whiteadder, lower Blackadder, (Leet Water at Castlelaw 1831).
- (**P. praelongus** LONG-STALKED PONDWEED. Considered extinct. Eden Water at Gordon Moss 1880, Tweed at Birgham and Union Bridge 1854).
- P. perfoliatus** PERFOLIATE PONDWEED. Very locally plentiful. In similar places to *P. lucens*. Tweed from Coldstream to Union Bridge, lower Whiteadder, Eden Water, Coldingham Loch.

- P. pusillus** LESSER PONDWEED. Scarce. Tweed from Lochton to Union Bridge, lower Whiteadder, lower Blackadder, Cammerlaws 1989, Millars Moss 1981, Mire Loch 1978. Earlier records may relate in part to *P. berchtoldii*.
- (**P. obtusifolius** BLUNT-LEAVED PONDWEED. Perhaps extinct. Pease Burn 1960, Gordon Moss 1916).
- P. berchtoldii** SMALL PONDWEED. Quite widespread. Tweed, Whiteadder, Blackadder, Eye Water, Pease Burn. Not recognised as a species in C19.
- P. crispus** CURLED PONDWEED. Quite widespread, penetrating into the hills.
- P. crispus x perfoliatus** (= *P. x cooperi*). Very local. Whiteadder from Chirnside to Paxton, Lower Blackadder.
- (**P. filiformis** SLENDER-LEAVED PONDWEED. Status uncertain. Coldingham Loch to 1933. Millars Moss 1960).
- P. filiformis x pectinatus** (= *P. x suecicus*). Tweed from Tillmouth to Union Bridge.
- P. pectinatus** FENNEL PONDWEED. Locally frequent. Tweed from Fireburn Mill to Union Bridge, Lumsdaine Pond, Cammerlaws.

ZANNICHELLIACEAE

- Zannichellia palustris** HORNED PONDWEED. Scarce and erratic. Tweed, lower Whiteadder, lower Blackadder, Eden and Leet waters. Mire Loch 1977, mouth of Langton Burn 1960.

LILIACEAE

- Narthecium ossifragum** BOG ASPHODEL. Apparently restricted to raised bogs. Dogden Moss, Long Moss, Drone Moss, Gordon Moss, Lurgie Loch, Longmuir Moss.
- (**Polygonatum odoratum** ANGULAR SOLOMON'S-SEAL. Possibly formerly native in Craig's Walls Wood, Edrom to 1873).
- * **P. multiflorum x odoratum** (= *P. x hybridum*). Garden escape, Eccles 1988, West Blanterne 1984.
- * **Ruscus aculeatus** BUTCHER'S-BROOM. Introduction in policy woodlands. Langton, The Hirsle.
- * (**Lilium martagon** MARTAGON LILLY. Status uncertain. Formerly naturalised at Bemersyde 1873 and Thirlestane Castle 1902).
- * **L. pyrenaicum** PYRENEAN LILLY. Garden escape. Wood at Gavinton 1965.
- * **Tulipa sylvestris** WILD TULIP. Plentifully naturalised at Netherbyres by 1831 and Hassington by 1853. Less so in a few other policies.
- ((**Gagea lutea** YELLOW STAR-OF-BETHLEHEM. No record. Considered absent)).

- * **Ornithogalum umbellatum** STAR-OF-BETHLEHEM. Scattered escape.
- * (**Ornithogalum nutans** DROOPING STAR-OF-BETHLEHEM. Escape. Allanton 1886).
- Scilla verna** SPRING SQUILL. A single colony at Gunsgreen, flowering in June.
- * **S. liliohyacinthoides**. Naturalised at Longformacus House and Dryburgh Abbey.
- Hyacinthoides non-scripta** (= *Endymion non-scriptus*) BLUEBELL, WILD HYACINTH. Surprisingly local. Abundant at several places on the coast. Dowlaw Dean, Pease Dean, Old Cambus Quarry. Also at Gledswood, Duns Castle. Scarce in woods by Whiteadder.
- * **H. hispanica** (= *E. hispanicus*) SPANISH BLUEBELL. Naturalised in several places, some of the "Atlas" records for *H. non-scripta* probably belong here. The Hirsell.
- * **H. hispanica** x **non-scripta**. The Hirsell 1983, Old Churchyard Magdalenehall 1982.
- Allium scorodoprasum** SAND LEEK. Rare. English Border, Paxton 1984, Union Bridge 1950.
- A. vineale** WILD ONION. Very local. Opposite Carham 1984 (*var. compactum*) Dowlaw Dean 1963, near Burnmouth 1960.
- (**A. oleraceum** FIELD GARLIC. Perhaps extinct. Lumsdaine Dean 1853, Netherbyres 1831).
- (**A. schoenoprasum** CHIVES. Considered extinct. "In a park on a mount near Fast Castle" 1765, John Hope. By Fast Castle 1777, Dr. Parsons).
- * **A. paradoxum** FEW-FLOWERED LEEK, PLASTIC GRASS. Widespread and increasing rapidly. Colonising woodland, roadsides and river banks. A pernicious garden weed. First record 1947.
- A. ursinum** RAMSONS. Locally abundant in ancient elm woods. Pease Dean, Dunglass Dean, Clarabad Wood, Langton.

TRILLIACEAE

((**Paris quadrifolia** HERB-PARIS. No record. Considered absent)).

JUNCACEAE

- Juncus squarrosus** HEATH RUSH. Common on moorland.
- * ((**J. tenuis** SLENDER RUSH. No record. On distributional grounds the arrival of this species is overdue)).
- J. gerardii** SALT MARSH RUSH. Linkim Shore, Reed Point.
- J. bufonius** (agg.) TOAD RUSH. One segregate only is known:
J. bufonius. Common.
- J. inflexus** HARD RUSH. Widespread, mainly lowland.

- J. effusus** SOFT RUSH. Common.
- J. conglomeratus** COMPACT RUSH. Widespread, mainly upland.
- J. maritimus** SEA RUSH. Salt marsh at Reed Point.
- J. acutiflorus** SHARP-FLOWERED RUSH. Locally common.
- J. articulatus** JOINTED RUSH. Common.
- J. bulbosus** (incl. *J. kochii*) BULBOUS RUSH. Scarce. Such material as has been critically examined corresponds to *J. kochii*.
- Luzula pilosa** HAIRY WOOD-RUSH. Widespread. Woods and grassy or moorland banks thought to have been formerly wooded.
- L. sylvatica** GREAT WOOD-RUSH. Widespread. Often indicating at least former oak and birchwood but also on sea braes and moorland banks.
- * (**L. nivea** SNOW-WHITE WOOD-RUSH. Introduction. Three former localities, one near Duns, 1902).
- L. campestris** FIELD WOOD-RUSH. Common.
- L. multiflora** HEATH WOOD-RUSH. Widespread, mainly moorland. Two subspecies, *multiflora* and *congesta*, occur, but have not been distinguished.

AMARYLLIDACEAE

- * **Galanthus nivalis** SNOWDROP. Sometimes well naturalised. Cumledge.
- * **Narcissus spp.** DAFFODIL. Various species and varieties are planted widely, sometimes in the most incongruous places. Naturalised extensively in policies. Cast up on river banks.

IRIDACEAE

- Iris pseudacorus** YELLOW IRIS. Widespread, but becoming more local.

DIOSCOREACEAE

- * (**Tamus communis** BLACK BRYONY. Casual. Kimmerghame and near Duns 1931).

ORCHIDACEAE

- (**Epipactis palustris** MARSH HELLEBORINE. Considered extinct. Lamberton and Coldingham Moors to 1853. Old Lamberton Toll to 1829).
- E. helleborine** BROAD-LEAVED HELLEBORINE. Very local and scarce. Thirlestane Castle 1980, Longformacus 1963, Danderhall 1960, Hirsell Law and Skaithmuir 1957. Formerly more widespread. Perhaps overlooked since.
- Listera ovata** COMMON TWAYBLADE. Scattered. Gordon Moss. Foulden Burn.
- L. cordata** LESSER TWAYBLADE. Local and scarce but often overlooked. Crib Law, Dye Water Cleughs, Long Moss.
- Neottia nidus-avis** BIRD'S-NEST ORCHID. Rare. Ale Water 1985, Gavinton 1961, Cuddy Wood 1953, Silverwells 1952.

- Goodyera repens** CREEPING LADY'S-TRESSES. Perhaps an unintentional re-introduction re-established in pine plantations often on the site of former native pine woods. No recent record but may re-occur as replanted pines mature. Mellerstain 1869–1956, Hirsell Law 1956, Skaithmuir 1956. (Temporarily established at six other places 1861–1891).
- Corallorhiza trifida** CORALROOT ORCHID. Very local and sporadic in abundance. Gordon Moss, Long Moss, Lurgie Loch, Silverwells, Redpath Moss.
- (**Coeloglossum viride** FROG ORCHID. Perhaps extinct. Longformacus 1947 (probably Crook Burn). Formerly scattered. Coldingham Loch, Redheugh, Muircleugh)
- Gymnadenia conopsea** FRAGRANT ORCHID. Very local and decreasing. Lumsdaine 1988, Edrington 1979 (St. Abbs Head 1977), Burnmouth 1963, Fleurs Dean 1960, Dronshiel Moor 1956.
- (**Pseudorchis albida** (= *Leucorchis albida*) SMALL-WHITE ORCHID. Considered extinct. Langtonlees Cleugh 1867).
- (**Platanthera chlorantha** GREATER BUTTERFLY-ORCHID. Considered extinct. Coldingham Loch, Houndwood, Edingtonhill Moor, Langtonlees Cleugh to 1916).
- P. bifolia** LESSER BUTTERFLY-ORCHID. Very local. Gordon Moss, plentiful, Long Moss. (Byrecluch 1956). Formerly more widespread.
- Orchis mascula** EARLY-PURPLE ORCHID. Locally plentiful on the sea braes. Very local and scarce inland. Gunsgreen, Burnmouth, St. Abbs Head, Pease Dean, Gavinton, Foulden, Clarabad.
- Dactylorhiza fuchsii** COMMON SPOTTED-ORCHID. Widespread.
- D. fuchsii** x **purpurella** (= *D. x venusta*). Occasional.
- D. maculata** ssp. **ericetorum** HEATH SPOTTED-ORCHID. Widespread in moorland.
- D. maculata** x **purpurella** (= *D. x formosa*). Occasional. Gordon Moss.
- D. incarnata** ssp. **incarnata** EARLY MARSH-ORCHID. Local and decreasing. The base rich flushes in which it occurs are easily destroyed by minor drainage work. Coldingham Moor, Lamberton Moor, Greenlaw Dean, Gordon Moss, Lurgie Loch.
- D. purpurella** NORTHERN MARSH-ORCHID. Widespread and locally plentiful. Constant in form in the west but variable in the east and sometimes close to *D. praetermissa*.
- The *Dactylorhiza* ssp. are present in great plenty and diversity at Gordon Moss where all our species of this genus are represented and hybrids are frequent due to the proximity of the species and the history of change and disturbance to the habitat.
- (**Anacamptis pyramidalis** PYRAMIDAL ORCHID. Considered extinct. Whitehall 1886).

ARACEAE

- * *Acorus calamus* SWEET-FLAG. Local but increasing by the Tweed and Whiteadder. Hen Poo. First record Foulden Pond 1874.
- * *Arum maculatum* LORDS-AND-LADIES. Scattered in woodland, increasing. Most of the populations appear to be centred on policy woodland where it was originally introduced. Blanerne, Duns, Longformacus.

LEMNACEAE

- Lemna trisulca* IVY-LEAVED DUCKWEED. Local. Gordon Moss, Hen Poo.
- L. minor* COMMON DUCKWEED. Widespread.

SPARGANIACEAE

- Sparganium erectum* BRANCHED BUR-REED. Widespread. The subspecies have not been studied.
- S. emersum* UNBRANCHED BUR-REED. Local and scarce. Eden water near Gordon, Upper Blackadder Water, Bemersyde Moss, Mordington Pond.
- (*S. minimum* LEAST BUR-REED. Perhaps now extinct. Gordon Moss 1981, Northfield 1914, Coldingham Loch 1914).

TYPHACEAE

- Typha latifolia* BULRUSH. (Formerly locally abundant in mires as at Billie Mire). Still at Bemersyde Moss and Lithtillum Loch. Also as an introduction to ponds. St. Abbs Head, Hen Poo, Greenknowe.
- * *T. angustifolia* LESSER BULRUSH. Hen Poo. First record 1893.

CYPERACEAE

- Eriophorum angustifolium* COMMON COTTONGRASS. Widespread in moorland and mosses.
- E. latifolium* BROAD-LEAVED COTTONGRASS. Lumsdaine 1988 (Old Lamberton Toll and Lamberton Moor 1829).
- E. vaginatum* HARE'S-TAIL COTTONGRASS. Locally dominant in moorland and mosses. Dogden Moss, Gordon Moss.
- Trichophorum cespitosum* ssp *germanicum* (= *Scirpus cespitosus*) DEERGRASS. Frequent on peaty moorland.
- Eleocharis quinqueflora* FEW-FLOWERED SPIKE-RUSH. Local and scarce in base rich flushes. Greenlaw Moor, Watch Water, Coldingham Moor, near Linkim Shore.
- (*E. multicaulis* MANY-STALKED SPIKE-RUSH. Considered extinct. One Berwickshire specimen, believed gathered in the parish of Bunkle 1853).
- E. palustris* COMMON SPIKE-RUSH. Widespread.
- Scirpus sylvaticus* WOOD CLUB-RUSH. Frequent by the Tweed, Whiteadder. Blackadder and Leet water.

- Blysmus compressus** FLAT-SEDGE. Greenlaw Moor in several places. (formerly in wet places on the Whiteadder haughs near Clarabad and at Thirlestane Castle).
- B. rufus** SALTMARSH FLAT-SEDGE. Saltmarsh at Reed Point.
- Schoenoplectus lacustris** (= *Scirpus lacustris*) COMMON CLUB-RUSH. Very local. Blackadder at Nisbet Bridge, Whiteadder at Clarabad and Hutton, Leet at Wylie Cleugh, Hen Poo.
- Isolepis setacea** (= *Scirpus setaceus*) BRISTLE CLUB-RUSH. Rather local and scarce in moorland edges. Greenlaw Moor, Dronshiel, Whalplaw Burn, Lamberton Moor, Horndean Burn.
- (**Eleogiton fluitans** (= *Scirpus fluitans*) FLOATING CLUB-RUSH. Considered extinct. Dowlaw Moss 1854, Penmanshiel Moss 1853).
- Schoenus nigricans** BLACK BOG-RUSH. Rare. Gunsgreen 1981, Lamberton Moor 1979, (formerly more frequent near the coast).
- (**Cladium mariscus** GREAT FEN-SEDGE. Considered extinct. Lithtillum Loch 1853).
- Carex laevigata** SMOOTH-STALKED SEDGE. No recent record but probably overlooked in Penmanshiel and Hoprigshiel Wood. (Corsbie Bog 1892, Gordon Bogs 1869).
- C. distans** DISTANT SEDGE. Local and scarce on the coast. Gunsgreen 1981, St. Abbs Head 1969.
- C. hostiana** TAWNY SEDGE. Local but quite widespread in basic flushes in moorland.
- C. binervis** GREEN-RIBBED SEDGE. Widespread on moorland.
- C. lepidocarpa** LONG-STALKED YELLOW-SEDGE. Local but quite widespread in basic flushes in moorland and on the coast.
- C. demissa** COMMON YELLOW-SEDGE. Widespread but scarce on moorland.
- C. extensa** LONG-BRACTED SEDGE. Saltmarsh at Reed Point and Linkim Shore.
- C. sylvatica** WOOD-SEDGE. Widespread but local. Beside tracks in woodland.
- C. rostrata** BOTTLESEDGE. Widespread.
- C. rostrata** x **vesicaria** (= *C. x involuta*). Bemersyde Moss 1978.
- C. vesicaria** BLADDER-SEDGE. Bemersyde Moss, Whitehall Pond, Eccles Pools.
- C. riparia** GREATER POND-SEDGE. Local. Bishops Bog, Eccles Pools, Birgham Wood, Wylie Cleugh, The Hirsell.
- C. acutiformis** LESSER POND-SEDGE. Very locally frequent. Banks below Allanton, Lithtillum Loch, Leet Water at The Hirsell.
- C. pendula** PENDULOUS SEDGE. Dunglass Dean, coastal flushes near Lamberton. Introduced at Milne Graden.

- (*C. pallescens* PALE SEDGE. Perhaps extinct, formerly rare. Gordon Moss 1880, Hoprigshiels and Blackburnrig Wood 1853).
- C. panicea* CARNATION SEDGE. Common.
- C. limosa* BOG-SEEDGE. Brotherstone Hill 1989, (Lurgie Loch 1916).
- C. flacca* GLAUCOUS SEDGE. Widespread. Especially frequent on the sea braes.
- C. hirta* HAIRY SEDGE. Scattered, mainly lowland.
- C. lasiocarpa* SLENDER SEDGE. Lurgie Loch 1980.
- C. pilulifera* PILL SEDGE. Widespread, mainly upland.
- C. caryophyllea* SPRING-SEEDGE. Local but quite widespread on basic rock outcrops.
- C. acuta* SLENDER TUFTED-SEEDGE. Tweed at Paxton, Fishwick Mains and Dryburgh.
- (*C. aquatilis* WATER SEDGE. Considered extinct. Tweed near Norham 1916, Gordon Moss 1915).
- C. nigra* COMMON SEDGE. Common.
- C. paniculata* GREATER TUSsock-SEEDGE. Local. Gordon Moss plentiful. Longmuir Moss, Lurgie Loch.
- C. diandra* LESSER TUSsock-SEEDGE. Longmuir Moss, (Stuartslaw Pond 1893, Allanton Banks 1869, Broad Bog 1853).
- C. otrubae* FALSE FOX-SEEDGE. Scattered along the coast. Lithillium Loch.
- C. disticha* BROWN SEDGE. Widespread and locally plentiful.
- C. arenaria* SAND SEDGE. Linkim Shore, Coldingham Bay, St. Abbs Head.
- C. divulsa* ssp. *leersii* GREY SEDGE. Thirlestane Castle 1975 ("Gathered once when coming from Innerwick, by the side of the Water Eye" 1893).
- (*C. spicata* SPIKED SEDGE. Considered extinct. Blackburnrig 1916).
- C. muricata* PRICKLY SEDGE.
- (*C. muricata* ssp. *muricata*. Considered extinct. Thirlestane Castle 1878).
- C. muricata* ssp. *lamprocarpa*. Hareheugh Craigs 1987, Pease Dean 1956, Allanton 1956.
- C. echinata* STAR SEDGE. Widespread, mainly upland.
- C. remota* REMOTE SEDGE. Very local. In ancient alder woods. Paxton, Langtonlees Cleugh, Retreat, Pease Dean.
- C. curta* WHITE SEDGE. Raised mosses and smaller areas of peat. Dogden Moss, Jordanlaw Moss, Gordon Moss, Redpath Moss.
- C. ovalis* OVAL SEDGE. Widespread in poor grassland, mainly upland.
- C. pulicaris* FLEA SEDGE. Widespread in moorland in slightly basic flushes.

C. dioica DIOECIOUS SEDGE. Very local and scarce in basic flushes in moorland. Greenlaw Moor 1987, Lamberton Moor 1979, Clints Hill 1985, Coldingham Moor 1981.

GRAMINEAE

- Festuca pratensis** MEADOW FESCUE. Widespread, but apparently becoming scarce.
- F. arundinacea** TALL FESCUE. Widespread, but rather local.
- F. gigantea** GIANT FESCUE. Very locally plentiful indicating a link with ancient woodland.
- * **F. heterophylla** VARIOUS-LEAVED FESCUE. Mellerstain 1980.
- F. rubra** RED FESCUE. Very common. A glaucous form is conspicuous in coastal grassland. The sub-species have not been studied.
- F. ovina** SHEEP'S-FESCUE. Widespread.
- (**F. vivipara** VIVIPAROUS FESCUE. Considered extinct. Blackburn farm 1839).
- F. tenuifolia** FINE-LEAVED SHEEP'S-FESCUE. Few records, but under-recorded; in more heathy places than *F. ovina*, though sometimes growing with it. Whalplaw Burn, Gordon Moss.
- (**F. pratensis** × **Lolium perenne** (= × *Festulolium loliaceum*.) Allanton 1893, Cumledge Mill and Swinton 1892).
- Lolium perenne** RYE-GRASS. Extensively sown. Two subspecies occur with varieties:
- L. perenne ssp. perenne** PERENNIAL RYE-GRASS. Common. Native as well as introduced.
- * **L. perenne ssp. multiflorum** ITALIAN RYE-GRASS. Agricultural relic.
- Vulpia bromoides** SQUIRRELTAIL FESCUE. Local, rocky outcrops and ruderal. St. Abbs Head, Dowlaw Dean.
- * **V. myuros** RAT'S-TAIL FESCUE. Coldingham 1953.
- Desmazeria rigida** (= *Catapodium rigidum*) FERN-GRASS. Scarce in grassland. St. Abbs Head, Burnmouth, Lamberton Cliffs.
- D. marina** (= *C. marinum*) SEA FERN-GRASS. Scarce on coastal rocks. St. Abbs Head, Burnmouth, Eyemouth.
- Poa annua** ANNUAL MEADOW-GRASS. Very common.
- P. nemoralis** WOOD MEADOW-GRASS. Locally plentiful in woods and on walls, usually indicating a link with ancient woodland.
- * ((**P. compressa** FLATTENED MEADOW-GRASS. Possible record on garden wall at Swinton 1952, requires confirmation)).
- P. pratensis** SMOOTH MEADOW-GRASS. Widespread, but much confused with *P. subcaerulea*.
- P. subcaerulea** SPREADING MEADOW-GRASS. Widespread but somewhat under-recorded.
- P. trivialis** ROUGH MEADOW-GRASS. Common.

- * *P. chaixii* BROAD-LEAVED MEADOW-GRASS. Established in policy woodland. Chapel-on-Leader, Allanton Lodge. First record 1902.
- Puccinellia maritima* COMMON SALTMARSH-GRASS. Coastal, frequent. Linkim Shore, Eyemouth, Reed Point.
- P. distans* (agg.) REFLEXED SALTMARSH-GRASS. Unknown frequency. St. Abbs Head. (Roads near Swinton 1951).
- Dactylis glomerata* COCK'S-FOOT. Common, except in the hills. Native and sown.
- Cynosurus cristatus* CRESTED DOG'S-TAIL. Common. Native but also much sown.
- Catabrosa aquatica* WHORL-GRASS. Very local and sporadic. Gordon Moss, Greenknowe Tower, Everett Moss.
- Briza media* QUAKING-GRASS. Widespread.
- * (*B. maxima* GREAT QUAKING-GRASS. Casual from cultivation. Earlston 1956).
- Melica uniflora* WOOD MELICK. Very local, now scarce. Pease Dean, Langtonlees Cleugh, Gateheugh.
- M. nutans* MOUNTAIN MELICK. Perhaps still at Gateheugh. (Blackburnrig, Dunglass Dean, Langton Glen to 1931).
- Glyceria fluitans* FLOATING SWEET-GRASS. Widespread.
(*G. fluitans* x *plicata* (= *G. x pedicellata*). Unlocalised record 1850).
- G. plicata* PLICATE SWEET-GRASS. Widespread.
- G. declinata* SMALL SWEET-GRASS. Scattered, scarce.
- G. maxima* REED SWEET-GRASS. Tweed at Fishwick Mains 1987, established (Lithtillum Loch and Newton Don 1956, perhaps casual).
- Bromus sterilis* BARREN BROME. Widespread near the coast, but very scarce inland.
- * (*B. diandrus* GREAT BROME. Casual. Cumledge Mill 1892).
- * *B. erectus* UPRIGHT BROME. Established, Lamberton railway 1980, (Paxton 1951).
- B. ramosus* HAIRY-BROME. Locally plentiful in woods indicating a link with ancient woodland.
- B. hordeaceus* ssp. *hordeaceus* (= *B. mollis*) SOFT BROME. Widespread.
- * *B. lepidus* SLENDER SOFT-BROME. Dowlaw Dean 1963, Blanterne 1962, Cheeklaw 1959.
- (*B. racemosus* SMOOTH BROME. Considered extinct. Six scattered records in arable fields to 1893).
- * (*B. secalinus* RYE BROME. Considered extinct. "Cornfields throughout Berwickshire" 1834).
- Brachypodium sylvaticum* FALSE BROME. Locally plentiful. Ancient woodland and on banks in deans, formerly wooded. Sea braes.

- Leymus arenarius** (= *Elymus arenarius*) LYME-GRASS. Cove Harbour, Coldingham Bay.
- Elymus caninus** (= *Agropyron caninum*) BEARDED COUCH. Local and scarce by rivers in woods. Mertoun Bridge 1967. Langton Mill 1956.
- E. repens** (= *A. repens*) COMMON COUCH. Common. A bad weed of arable fields.
- E. farctus** (= *A. junceiforme*) SAND COUCH. Pease Bay 1986, Linkim Shore 1981, (near Dunglass 1853).
- * (**Triticum aestivum** WHEAT. Agricultural relic, not persisting for long).
- Hordeum murinum** WALL BARLEY. Locally plentiful about the coastal villages.
- * **H. jubatum** FOXTAIL BARLEY. A68 near Soutra 1983.
- * (**H. vulgare** BARLEY. Agricultural relic, not persisting for long).
- (**Hordelymus europaeus** WOOD BARLEY. Considered extinct. Pease Dean 1885).
- Avena fatua** WILD OAT. Widespread but perhaps now scarce.
- * (**A. sativa** OAT. Agricultural relic, not persisting for long).
- * (**A. strigosa** BRISTLE OAT. Formerly a common impurity in upland cereals, to 1874).
- Avenula pratensis** (= *Helictotrichon pratense*) MEADOW OAT-GRASS. Local. Rocky grassland on the coast, scarce inland. St. Abbs Head, Hareheugh Craigs, Greenlaw Dean.
- A. pubescens** (= *H. pubescens*) DOWNY OAT-GRASS. Local. Damp grassland. Middlethird, Fangrist Burn.
- Arrhenatherum elatius** FALSE OAT-GRASS. Common where grassland is not much grazed.
- Koeleria macrantha** CRESTED HAIR-GRASS. Local. Frequent in the coastal grasslands as at St. Abbs Head. Scarce inland. Hume Craigs, Whalplaw Burn.
- Trisetum flavescens** YELLOW OAT-GRASS. Widespread.
- Deschampsia cespitosa** TUFTED HAIR-GRASS. Common.
- D. flexuosa** WAVY HAIR-GRASS. Common. Dominant in dry places on moorland.
- Aira praecox** EARLY HAIR-GRASS. Widespread.
- A. caryophyllea** SILVER HAIR-GRASS. Two sub-species occur:
- A. caryophyllea ssp. caryophyllea.** Scattered
- * **A. caryophyllea ssp. multiculmis.** Local, especially near the railway. First record 1979.
- Anthoxanthum odoratum** SWEET VERNAL-GRASS. Very common.
- Holcus lanatus** YORKSHIRE-FOG. Common.
- H. mollis** CREEPING SOFT-GRASS. Widespread. Often dominant on sites of ancient oakwoods.

- Agrostis canina* (agg.) Widespread but scarce on moorland. Two species are recognised but have not been separately recorded:
 ((*A. canina* (= *A. canina* ssp. *canina*) VELVET BENT)).
 ((*A. vinealis* (= *A. canina* ssp. *montana*) BROWN BENT)).
- A. capillaris* (= *A. tenuis*) COMMON BENT. Very common.
- A. gigantea* BLACK BENT. Duns Railway Station 1959.
- A. stolonifera* CREEPING BENT. Common.
- Ammophila arenaria* MARRAM. Pease Bay. Coldingham Bay where it has been increased by planting to stabilise sand.
- Phleum pratense* CAT'S-TAIL. Two subspecies occur:
P. pratense ssp. *pratense* TIMOTHY. Widespread. Native and sown.
P. pratense ssp. *bertolonii* SMALLER CAT'S-TAIL. Widespread in dry grassland.
- * ((*Alopecurus myosuroides* BLACK-GRASS. Possible record Swinton 1951, requires confirmation)).
- A. pratensis* MEADOW FOXTAIL. Widespread.
- A. geniculatus* MARSH FOXTAIL. Widespread.
- Parapholis strigosa* HARD-GRASS. Saltmarsh at Reed Point.
- Phalaris arundinacea* REED CANARY-GRASS. Widespread.
- * (*P. canariensis* CANARY-GRASS. Casual, Reston 1953).
- Milium effusum* WOOD MILLET. Penmanshiel Wood 1989, (Thirlestane Castle, Bemersyde).
- Phragmites australis* (= *P. communis*) COMMON REED. A few large reed beds and some smaller colonies. Everett Moss, Bishops Bog, Lurgie Loch, Gordon Moss, Linkim Shore.
- Danthonia decumbens* (= *Sieglingia decumbens*) HEATH-GRASS. Widespread but in modest quantity.
- Molinia caerulea* PURPLE MOOR-GRASS. Widespread in the hills. Two subspecies occur:
M. caerulea ssp. *caerulea*. Widespread.
M. caerulea ssp. *altissima*. Gordon Moss.
- Nardus stricta* MAT-GRASS. Locally dominant on moorland.

ADDENDUM

While this check-list has been with the printers the richness of the aquatic flora of the River Tweed system has been further recognised by the naming of a hybrid water-crowfoot after the town of Kelso. This hybrid and another are now known to have occurred in Berwickshire. Their present status in Berwickshire is unknown but experience elsewhere indicates that they can persist indefinitely by vegetative spread.

(**Ranculus fluitans** × **peltatus** (= **R.** × **kelchoensis**). Whiteadder near Allanton 1841–86. The best herbarium specimens were collected by A. Brotherston in the Teviot near Kelso, Roxburghshire 1878 and the Latin epithet is derived from the name *Ordo Kelchoensis* which was recorded in c. 1203 for Kelso).

(**R. fluitans** × **trichophyllus** or **R. fluitans** × **aquatilis**. (The two hybrids are considered morphologically indistinguishable). Eye Water 1900).

Reference – Webster S. D. (1990) in *Watsonia* 18, 139–146.

BRYOPHYTES OF BERWICKSHIRE VC81

D. G. Long

AN OVER-VIEW OF THE BRYOPHYTES

In comparison with many of the northern and western counties of Scotland, Berwickshire does not have a very rich bryoflora, mainly because of the low rainfall and absence of alpine habitats. Nevertheless, in its position as the most south-eastern county, it has several distinctive features of topography, geology and climate which combine to give its bryoflora a unique and interesting flavour. The mild, relatively dry climate, the presence of base-rich strata, and the striking topography of the coast are particularly important, but other features such as the relict mires, raised bogs and upland burns and ravines greatly supplement this diversity.

Unlike the Flowering Plants and Ferns, the bryophytes are still poorly known. This results both from lack of bryologists and from the inherent nature of the plants: they are inconspicuous and often live in small micro-habitats and can easily be overlooked. New additions to the flora will therefore continue to be made with diligent field-work.

Even though many of the best bryological sites in Berwickshire have been destroyed or degraded by agricultural improvement and changes in forestry, pockets of richness have survived all over the county, usually on a small scale. The low levels of aerial pollution have been a bonus, and some species declining nationally are still widespread, e.g. *Tortula papillosa* on old roadside trees in the Merse.

Only a few nationally rare species are recorded: *Cephaloziella elachista*, *Buxbaumia aphylla*, *Cynodontium tenellum*, *Dicranum undulatum*, *Tortula princeps* and *Weissia tortilis* are the best examples. Many nationally scarce species occur. In a purely Scottish context the picture is quite different: many species found in Berwickshire are very rare in Scotland, in particular the 'Mediterranean' mosses characteristic of our sunny calcareous sea banks: *Desmatodon convolutus*, *Phascum curvicolle*, *P. cuspidatum* var. *piliferum*, *Pottia crinita*, *P. recta*, *Pterygoneuron ovatum*, *Rhynchostegium megapolitanum* and *Weissia tortilis*. For the last this is the only locality in Scotland, the nearest sites being in Surrey and Gloucestershire.

Away from the coast, another southern species, *Scleropodium cespicans*, is found all along the Tweed but has almost no other Scottish localities. Significant too is the occurrence in Pease Dean of several 'Atlantic'

species, virtually unknown elsewhere in the eastern half of Britain: *Cololejeunea rosettiana*, *Lejeunea lamacerina* and *Lophocolea fragrans*. Another oceanic but more northern plant recently discovered on the Berwickshire coast is *Isothecium myosuroides* var. *brachythecioides*.

In contrast to the nearby Cheviot massif, Berwickshire has a poor mountain flora, with only a few alpine species such as *Cynodontium jenneri*, *Oligotrichum hercynicum* and *Polytrichum alpinum*. From its glaciated topography and underlying basic strata, the Merse would in ancient times have contained numerous fens and mires. These habitats and their characteristic bryophytes are now virtually extinct, and the remaining relict fen and mire sites elsewhere (such as Longmuir Moss) are worthy of a secure future. The fen species *Homalothecium nitens*, until recently thought to be extinct in the county, has now been discovered in a new remote site in the Lammermuirs.

Although luxuriance of bryophyte growth in Berwickshire is often low in comparison to that in western districts, (except in humid habitats such as Pease and Dunglass Deans), bryophytes are still of great ecological significance in the county. In some habitats, for example raised bogs, they constitute the dominant part of the vegetation. In others, such as grassland, they are major components. In woodlands they often form a ground layer covering soil, rocks, stumps, logs and tree trunks. In all their habitats they are important in absorbing and retaining water, to be shared with other plants and animals, and in their physical role as shelter for a myriad invertebrates which in turn provide food for other organisms. Even on arable land and waste ground, weedy species quickly come in and stabilise the substrate and form the first step in colonisation.

Important Berwickshire bryophyte habitats

Coastal Rocks and Banks

The Berwickshire coast is one of the county's greatest natural assets and probably the least man-modified tract of land. Where the rocks are basic, the bryoflora is richest, particularly on sunny exposed banks as at Burnmouth, Siccar Point and Cove where rarities such as *Pterygoneuron ovatum*, *Rhynchostegium megapolitanum* and *Phascum curvicolle* are present. Where springs and flushes occur on the coast deposits of tufa are conspicuous, often with lush growth of *Cratoneuron commutatum* and *Gymnostomum recurvirostrum* as at Linkim shore. The cliffs themselves are less hospitable, except where dissected by shady gullies as at Earnsheugh and Heathery Carr where *Bryum elegans* and *Tortella tortuosa* have been found. At the mouth of Dowlaw Dean the cascade provides moisture for many damp rock species including *Eurhynchium speciosum* and *Rhynchostegiella teesdalei*. Drier cliffs above the Mire Loch at St Abbs Head support both *Porella obtusata* and *Pterogonium gracile*.

Grassland

In general grasslands are of low bryological diversity and interest, particularly in the acid uplands. Those on basic soils are richer, but local in an untouched state. Common, often conspicuous species such as *Rhytidiadelphus squarrosus* and *R. triquetrus* predominate, with occasional rarities such as *Thuidium philibertii* at Foulden Dean and by the Blackadder near Greenlaw. Coastal dune grasslands are almost absent, except at Pease Bay and Coldingham Sands where *Tortula ruralis ssp. ruraliformis* is almost the only characteristic dune species.

Woodland

Woodlands are a very important habitat for mosses and liverworts, especially broad-leaved woods where humidity is maintained but shade is provided in summer. Conifer plantations are almost barren, except for a few opportunists like *Plagiothecium curvifolium* and *Orthodontium lineare*. Lowland woods have occasional rarities on soil such as *Fissidens exilis* and *Pohlia lutescens* but the dense growth of higher plants swamps the bryophytes. Only on the steeper wooded banks of the rivers and deans do the bryophytes gain a good hold, especially on calcareous substrates. Lowland wooded river banks (as on the Tweed and Whiteadder near Paxton) support species such as *Anomodon viticulosus*, *Cirriphyllum piliferum*, *Eurhynchium pumilum*, *Homalia trichomanoides*, *Pohlia carnea* and *Plagiochila asplenoides*. Epiphytes such as *Frullania dilatata*, *Radula complanata* and *Ulota bruchii* are common, while on old elders *Amblystegium serpens*, *Bryum flaccidum*, *Orthotrichum pulchellum* and *Metzgeria fruticulosa* are frequent. *Pylaisia polyantha* is a local speciality on trees in damp woods, probably more frequent in the Tweed valley than any other part of Britain.

The deeper deans such as Dunglass Dean, Tower Dean and Foulden Dean are even richer with their higher humidity. Pease Dean is the best with an outstanding bryoflora including *Cololejeunea rosettiana*, *Lejeunea lamacerina*, *Lophocolea fragrans*, *Eurhynchium schleicheri*, *E. swartzii* var. *rigidum* and *Heterocladium heteropterum*. In the west of the county the Tweed and Leader have some fine wooded stretches; at Chapel-on-Leader the rare oceanic species *Metzgeria temperata* grows on birch.

Ancient oak woods are not rich in species, but *Leucobryum glaucum* forms attractive hummocks in Aikyside Wood. *Dicranum montanum* and *Plagiothecium latebricola* formerly grew in woods now destroyed near Grantshouse. Like the oak woods, birch woods have greatly declined due to grazing and consequent lack of regeneration (as at Airhouse Wood) or recent clearing for agriculture (as at Bunkle Wood). In the latter wood *Ptilium crista-castrensis*, probably now extinct in Berwickshire, formerly grew. These few relict fragments are genetic islands of the

ancient Berwickshire forest and demand sympathetic management for their interest to continue. The upland ravine woodlands with birch, rowan and hazel are also threatened but have in general fared better; they are also richer in bryophytes. Langtonlees Cleugh is one of the best with *Hookeria lucens*, *Hypnum mammillatum*, *Plagiothecium cavifolium*, *Taxiphyllum wiszgrillii*, and *Ulota drummondii*, although *Bazzania trilobata* is now extinct. In these upland woods rotten logs and stumps are an important substrate supporting *Cephalozia lunulifolia*, *Lepidozia reptans*, *Nowellia curvifolia* and *Tetraphis pellucida*.

Old roadside trees are a striking but disappearing feature of the Berwickshire landscape. These trees have characteristic epiphytes notably *Tortula laevipila* and *T. papillosa*, both common and more rarely *Antitrichia curtipendula* at Mellerstain, *Tortula virescens* at Hume and *Leucodon sciuroides* at Polwarth Church and Greenknowe Tower.

Rivers

The long open lowland stretches of the Tweed, Whiteadder and Blackadder are aggressively dominated by flowering plants. Bryophytes gain a good foothold only on rocky stretches and in shade of trees. The only truly aquatic species is *Fontinalis antipyretica* but *Cinclidotus fontinaloides* and *Fissidens crassipes* grow on rocks subject to regular submergence. Silty rocks and logs just above the water level are an important habitat with *Amblystegium riparium*, *Barbula nicholsonii*, *Leskea polycarpa*, *Orthotrichum cupulatum* var. *riparium*, *Oxystegus sinuosus*, *Scleropodium cespitans* and *Tortula latifolia* typical in many sites.

The most interesting riverside moss is an enigmatic species recently identified by T.L. Blockeel as *Hennediella macrophylla* R.Brown ter., a New Zealand moss known in Europe only from the Tweed and Thames basins. In Scotland it was first discovered near Innerleithen in 1978 and later described as *Tortula brevis* Whitehouse & Newton. It is now known in Berwickshire at Dryburgh, Birgham and Tweedhill and on the Eden Water. It grows on compacted soil particularly on fisherman's paths and is clearly a recent incomer.

Towards the hills riverbanks are more rocky with several fine sites, notably on the Whiteadder near Elba and Hoardweel, where the marginal rocks have several rarities: *Grimmia hartmanii*, *G. ovalis*, *G. retracta*, *Jungermannia paroica* and *Scapania subalpina*. Nearby the aquatic species *Hygrohypnum eugyrium* is recorded in its only Berwickshire locality. Semi-aquatics are more numerous in the hills with several common species and a few rarities such as *Jungermannia exsertifolia* ssp. *cordifolia* on the Blythe Water and *Grimmia hartmanii* on the Dye at Longformacus.

Wetlands

Open tracts of water have virtually no bryophytes and marginal species are few, usually swamped by higher plants. Reservoirs often have a fluctuating margin which permits seasonal colonisation; the Watch Water Reservoir in favourable seasons has produced *Atrichum tenellum*, *Ephemerum serratum* and *Fossombronina wondraczekii*.

The mires ('mosses') of the Merse are largely drained but the few remaining are of great interest, particularly Pickie Moss which still has *Calliergon giganteum* and *Rhizomnium pseudopunctatum*. Wetlands are better represented in the uplands, although away from the Lammermuirs most are degraded or destroyed. Longmuir Moss, former home of *Homalothecium nitens* still has the only colony of *Pseudobryum cinclidioides*. Drakemire formerly had rich fen with several rarities now extinct. Lambertton Moor is approaching the same fate, as is Penmanshiel Moss where *Homalothecium nitens*, *Splachnum ampullaceum* and *Trichocolea tomentella* formerly grew. Coldingham Moor has surviving pockets of fen, with *Leiocolea bantriensis*, *Philonotis calcarea*, *Rhizomnium pseudopunctatum* and *Scorpidium scorpioides*.

In the Lammermuirs wetlands are often more acidic. The finest raised bog is Dogden Moss, a site of major bryological importance, for its *Sphagnum* flora (including *S. imbricatum*), its small liverworts *Calypogeia sphagnicola*, *Cephalozia macrostachya*, *Cephaloziella elachista*, *C. subdentata*, *Kurzia pauciflora* and *Riccardia latifrons* and for the nationally rare and threatened moss *Dicranum undulatum*.

Springs and flushes are an important habitat in the Lammermuirs, especially where enriched with minerals. Good examples are found in the Fangrist Burn valley, with *Calliergon giganteum*, *Campylium stellatum* and *Drepanocladus exannulatus* var. *rotae*, and by the Wheel Burn with *Homalothecium nitens*, *Plagiomnium ellipticum*, *Sphagnum teres* and *S. warnstorffii*.

Moorland

Blanket peat and heather moorland cover much of the Lammermuirs. Because of extensive grazing and burning the flora is poor, except for some small patches such as one on Greenlaw Moor where *Hypnum imponens* has survived. One species apparently benefitting from burning is *Leptodontium flexifolium*, but many others such as *Racomitrium lanuginosum* cannot survive.

Exposed Rocks

Rocks are of bryological interest throughout Berwickshire. In the Lammermuirs exposed Silurian rocks are acid and often barren except in sheltered gullies and close to water. The Old Red Sandstone is softer

and base-rich and can support rich communities. At Langtonlees Cleugh the rocks have *Apometzgeria pubescens*, *Mnium marginatum* and *M. stellare*. Gateheugh has a list of rarities including *Frullania fragilifolia*, *Cynodontium bruntonii*, *Encalypta vulgaris*, *Pterogonium gracile* and *Tortula princeps*. The volcanic craigs of the Merse are the habitat for several mosses of interest, notably *Cynodontium bruntonii*, *Orthotrichum rupestre* and *Tortula princeps* at Hume, and *Cynodontium bruntonii* and *Sphenobolus minutus* on the Black Hill. On the coast rocks are frequently barren but in nearby sheltered spots, such as Dowlaw Dean, the flora is richer with *Apometzgeria pubescens*, *Neckera crispa* and *Reboulia hemisphaerica*.

Walls provide an important source of diversity in all habitats, for example many lowland walls have *Bryum radiculosum* and *Gyroweisia tenuis*, whilst in the uplands *Andreaea rupestris* is characteristic, and the rare *Cynodontium jeneri* and *C. tenellum* were found on walls.

Arable and Ruderal Habitats

These habitats are often less appealing than semi-natural areas but in recent years increased interest in them has revealed several specialities of note: *Dicranella staphylina*, tuber-bearing *Bryum* species such as *B. rubens* and *B. microerythrocarpum* and *Ditrichum cylindricum* are common. Old quarries, as at Airhouse Wood, can be of interest (*Riccia sorocarpa*) and many odd patches of disturbed ground, especially on basic soils, can yield casuals such as *Barbula hornschurchiana*. In the hills gravelly tracks may support *Racomitrium ericoides*, *R. elongatum* and *Oligotrichum hercynicum*, and building of forestry tracks in future may bring in new colonists, such as *Diplophyllum obtusifolium*, not yet recorded.

Changes in the bryoflora

Apart from additions to the flora discovered by more extensive fieldwork and with the advantage of taxonomic advances, genuine incomers are relatively few. Well-documented arrivals are *Campylopus introflexus*, *Hennediella macrophylla* and *Orthodontium lineare*, which have spread from overseas relatively recently. Others, such as *Aulacomnium androgynum*, *Dicranodontium denudatum* and *Dicranum tauricum* were not collected by Duncan or Hardy and have almost certainly spread into Berwickshire quite recently.

The abundance of those bryophyte species requiring more specialised habitats has decreased greatly. In particular, species of mires and fens, and epiphytes of ancient woodlands such as *Antitrichia curtispendula* have greatly declined.

Probable extinctions number 17, the hornwort *Phaeoceros laevis*, the liverworts *Bazzania trilobata*, *Cephalozia leucantha*, *Riccardia incurvata* and *Trichocolea tomentella* and the mosses *Amblyodon dealbatus*, *Breutelia*

chrysocoma, *Bryum alpinum*, *Buxbaumia aphylla*, *Cynodontium jeneri*, *Dicranum montanum*, *Funaria obtusa*, *Isopterygium pulchellum*, *Plagiothecium latebricola*, *Pogonatum nanum*, *Ptilium crista-castrensis* and *Splachnum ampullaceum*. Some of these may yet be re-found in new stations. Most of these disappearances can be directly attributed to human activity, in drainage of wetlands, destruction of ancient woodland, grazing and burning of moorlands, enlargement of fields and pasture improvement, and planting of conifers.

Active conservation of bryophytes is difficult, because of their small size and particular ecological requirements, but many occur in sites of high biodiversity worthy of conservation on other grounds. Fuller recognition is particularly sought of the value of the remaining wetland and ancient woodland fragments of the county.

Statistical summary

The table below gives a summary of the present totals of moss and liverwort species known from Berwickshire. Because early data are very inadequate, and few dates of first records were published by early workers, it is not possible to give an detailed summary of discoveries and losses. The totals recorded by Hardy and Duncan (corrected to follow modern taxonomy) do however give an indication of progress.

Source	Mosses	Liverworts	Total
Hardy (1868)	194	0	194
Duncan (1946)	269	76	345
Present (1990)	326	100	426

The steady increase is a reflection of progress in bryophyte recording, not in species actually gained which are probably rather few. Further field work might push this total up to 450 species or even higher.

CHECK-LIST OF BRYOPHYTES

ANTHOCEROTAE

(*Hornworts*)

ANTHOCEROTACEAE

- ((*Anthoceros agrestis* Identification doubtful. Gavinton 1831.))
(*Phaeoceros laevis* ssp. *laevis* Damp fields. Possibly extinct. Lintlaw Burn 1926.)

HEPATICAE

(*Liverworts*)

AYTONIACEAE

- Reboulia hemisphaerica* Dry basic rocks, local. Gateheugh, Elba, Earnsheugh 1924, Dowlaw Dean 1926.

CONOCEPHALACEAE

- Conocephalum conicum* Widespread; damp shady rocks by rivers and burns.

LUNULARIACEAE

- Lunularia cruciata* Widespread on damp shady walls and rocks by water. Not recorded last century and possibly an introduction.

MARCHANTIACEAE

- Marchantia polymorpha* Widespread both in man-made and natural habitats.
M. alpestris Local in basic flushes in hills. Blythe Water, Clints Hill, Greenlaw Moor, Kippetlaw Burn.

RICCIACEAE

- ((*Riccia glauca* Identification doubtful. Gavinton 1831, Bunkle 1834.))
R. subbifurca Crozals (*R. warnstorffii* sensu Corley & Hill). On damp soil, very rare. Well Cleugh Burn.
R. sorocarpa Bare soil, local, probably under-recorded. Lennel, Airhouse Quarry.

METZGERIACEAE

- Metzgeria fruticulosa* Widespread and often abundant on *Sambucus* in damp thickets.
M. temperata On *Betula* trunk in damp woodland, very rare. Leader below Chapel on Leader.
M. furcata Shady rocks and tree trunks, sometimes in turf on sea banks. Common.
M. conjugata Shady rocks, local. Drygrange, Edin's Hall, Westerside Dean.

Apometzgeria pubescens Rare; on dry basic rocks. Gateheugh, Langtonlees Cleugh, Dowlaw Dean 1924.

ANEURACEAE

Aneura pinguis Widespread on damp basic substrates, especially sea banks.

Riccardia multifida Bogs, rare. Long Moss.

R. chamedryfolia Widespread on moist basic soil.

(*R. incurvata* Possibly extinct but easily overlooked. Pease Dean 1901.)

R. latifrons Raised bogs, rare. Dogden Moss, Shiningpool Moss.

PELLIACEAE

Pellia epiphylla Damp woodlands and by water, widespread.

P. neesiana Damp acid soil and peat, scattered localities.

P. endiviifolia Damp basic rocks and soil, widespread, often abundant on coast.

BLASIACEAE

Blasia pusilla Gravelly tracks and burnsidcs mostly in the hills. Headshaw Burn, Whalplaw Burn, Longformacus 1927, Lamberton 1928.

CODONIACEAE

Fossombronina pusilla var. *pusilla* Ephemeral, widespread in east of county.

F. wondraczekii Bare soil and mud, rare. Watch Water Reservoir, Ale Water 1926.

JUNGERMANNIACEAE

Barbilophozia floerkii Acid rocks and screes, widespread in hills.

B. attenuata Mossy logs and boulders in woodlands, local. Blythe Water, below Gledswood, Edin's Hall.

B. hatcheri Dry rocks especially basalt, and rocky turfey slopes, scattered localities.

B. barbata On screes and drystane dykes in uplands, rare. Longmuir Moss.

Lophozia ventricosa Common, two varieties occur:

L. ventricosa var. *ventricosa* Peaty ground, widespread.

L. ventricosa var. *silvicola* Rarer than *var. ventricosa* but under-recorded. Blythe Water, Kyles Hill, Fast Castle, Dowlaw Moss.

L. sudetica Rocks by hill streams, rare. Hartside, Clints Hill.

L. excisa var. *excisa* Peaty soil, scattered localities.

L. incisa Wet heaths, local. Well Cleugh Burn, Gordon Moss.

L. bicrenata Peaty soil, local. Soutra, Black Hill, Greenlaw Moor, Hartside.

Leiocolea turbinata Damp calcareous soil and rocks, often on tufa. Not rare on Carboniferous rocks, especially on coast.

- L. badensis** Similar habitats to preceding, but local. Cove, Langtonlees Cleugh.
- L. bantriensis** Fens and mires, very rare. Upper Dowlaw Burn.
- Gymnocolea inflata** var. **inflata** Damp peat. Widespread in hills and moorlands.
- Sphenobolus minutus** Exposed rock ledges, rare. Black Hill.
- Tritomaria exsectiformis** Shady sandstone rocks, rare. Lamberton 1931, Ecclell Hill 1903.
- T. quinquentata** Mossy rocks, scattered but not common. Clints Hill, Elba, Cove, Dowlaw Dean.
- Mylia anomala** Damp peat on raised bogs, local. Scenes Law 1903, Long Bog, Dogden Moss, Dowlaw Moss.
- Jungermannia atrovirens** Shaded basic rocks, scattered localities.
- J. pumila** Shaded basic rocks, very local. Paxton Dean 1925, Dunglass Dean 1903, Elba 1963.
- J. exsertifolia** ssp. **cordifolia** Stones in hill burns, rare. Blythe Water.
- J. gracillima** Damp sandy ground, tracks. Widespread on acid soils.
- J. paroica** Rocks by burns and rivers, local. Headshaw Burn, Blythe Water, Elba.
- J. obovata** Shady basic rocks in hills, rare. Gully on Clints Hill.
- Nardia scalaris** Disturbed acid soil and peat. Common in hills.

GYMNOMITRIACEAE

- Marsupella emarginata** var. **emarginata** Acid rocks and soil, widespread.

PLAGIOCHILACEAE

- Plagiochila porelloides** Woodlands, rock outcrops, streamsides, sea banks, common.
- P. asplenioides** Damp woods and deans, more local than *P. porelloides* and in more humid sites.
- P. britannica** Damp woodlands. A recently described species probably widespread in basic districts. Chapel on Leader, Duns Castle, Little Dean pond, Blackadder near Allanton, Linkim Shore.

GEOCALYCACEAE

- Lophocolea bidentata** (including *L. cuspidata*) Widespread and common. Woodlands, heaths, sea banks.
- L. heterophylla** On logs in damp woods, widespread and locally abundant.
- L. fragrans** Shady rocks in ravines. Very rare. Pease Dean. The record from Elba is probably an error.
- Chiloscyphus polyanthos** Rocks by burns, ditches, wet soil. Widespread.
- C. pallescens** Marshes and fens, local. Pickie Moss, Longmuir Moss, Dowlaw Burn.

SCAPANiaceae

- Diplophyllum albicans** Neutral to acid rocks and soil, especially on shaded mossy banks.
- Scapania scandica** Streambanks, rock outcrops, usually on acid substrates. Local, Earnsheugh, Kyles Hill, Airhouse Quarry, Aikyside Wood.
- ((**S. curta** Not reliably recorded; records probably refer to *S. scandica*.)
- S. umbrosa** Damp wooded valleys and heaths, often on rotting wood and sandstone rocks. Surprisingly rare. Langtonlees Cleugh, near Seenes Law 1903, Dunglass Dean c 1930.
- S. nemorosa** Damp woods, local. Edin's Hall, Penmanshiel Moss c 1930, Longformacus c 1930, Drakemire c 1930.
- S. irrigua** Damp disturbed soil, widespread but not common. Shiel Burn, Longformacus, Bunkle Wood 1926.
- S. compacta** Dry rock outcrops, locally common.
- S. subalpina** Detritus by hill burns, rare. Longformacus 1927, Elba 1963.
- S. undulata** Wet rocks by burns, stony flushes and ditches. Widespread, especially in hills.
- S. gracilis** Shady acid rocks, rare. Pease Dean, Dowlaw Dean, Lamberton Beach.

CEPHALOZIellaceae

- Cephaloziella elachista** Peat in raised bogs, very rare. Dogden Moss.
- C. subdentata** Peat in raised bogs, very rare. Dogden Moss.
- C. rubella** Amongst *Sphagnum*. Elba area 1963.
- C. divaricata** Peaty soil, widespread.

CEPHALOZIaceae

- Odontoschisma sphagni** Amongst *Sphagnum* in bogs. Local. Dogden Moss, Drone Moss c 1930, near Seenes Law 1903.
- O. denudatum** Damp peaty banks, rare. Killmade Burn, between Tollishill and Seenes Law 1903.
- Cephalozia bicuspidata** (including *ssp. bicuspidata* and *ssp. lammersiana*) Peaty ground, decaying wood. Widespread and common.
- C. connivens** Damp peat on raised bogs, local. Below Twinlaw, Long Bog, Dogden Moss, Dowlaw Moss.
- C. lunulifolia** Damp peat, rotting wood and shaded sandstone rocks. Widespread.
- C. macrostachya var. macrostachya** Raised bogs, rare. Dogden Moss, near Press Castle 1928.
- (**C. leucantha** On log in damp woodland, very rare and not seen recently. Brockholes Wood 1929.)
- Nowellia curvifolia** On rotting wood in damp woods. Widespread.

LEPIDOZIACEAE

- Kurzia pauciflora* Peat in raised bogs, rare. Dogden Moss, near Seenes
Law 1903, Penmanshiel Moss c 1930.
- Lepidozia reptans* Damp woodlands, widespread.
- (*Bazzania trilobata* Wooded ravines. Langtonlees Cleugh, pre-1853.
Probably extinct.)

CALYPOGEIACEAE

- Calypogeia neesiana* Raised bogs, rare. Below Twinlaw, Long Bog.
- C. muellerana* Shaded acid rocks, peat and soil, widespread.
((*C. trichomanis* Old records refer to *C. muellerana*, but could occur in
Lammermuirs.))
- C. fissa* Similar habitats to *C. muellerana*, and equally common.
- C. sphagnicola* Amongst *Sphagnum* in raised bogs, rare. Dogden Moss.
- C. arguta* Shaded soil, rare. Dunglass Dean, near Press Castle 1928.

PSEUDOLEPICOLEACEAE

- Blepharostoma trichophyllum* Basic rocks, local. Press Castle 1930,
Hoardweel 1931, Headshaw Burn.

TRICHOCOLEACEAE

- (*Trichocolea tomentella* Basic flushes, probably extinct. Langtonlees
Cleugh 1833, Penmanshiel Moor 1849.)

PTILIDIACEAE

- Ptilidium ciliare* Moors and rocky outcrops, widespread.
- P. pulcherrimum* Rocks and trunks of Birch and Juniper, local. Bunkle
Wood, Aikyside Wood, Green Wood 1926, Mordington
1927.

RADULACEAE

- Radula complanata* Tree trunks and rocks, widespread.

PORELLACEAE

- Porella obtusata* Dry rock outcrops on coast, rare. Mire Loch, Heathery
Carr 1926.
- P. platyphylla* Wooded deans on basic rocks, widespread.
- P. cordaeana* var. *cordaeana* Damp woods and deans, widespread and
more frequent than *P. platyphylla*.
- ((*P. pinnata* Published record refers to *P. cordaeana*.)

FRULLANIACEAE

- Frullania tamarisci* Tree trunks and rocky slopes, widespread.
- F. fragilifolia* Dry rocks, very local. Gateheugh, Elba 1926.
- F. dilatata* Trunks of old trees, widespread.

LEJEUNEACEAE

- Lejeunea cavifolia* Shady deans. Widespread, especially near coast.
L. lamacerina Shady ravines, very local. Pease Dean, Dowlaw Dean, Penmanshiel.
Cololejeunea rosettiana Very rare. Basic rocks in ravines. Pease Dean.

MUSCI

(*Mosses*)

SPHAGNACEAE

- Sphagnum imbricatum* ssp. *austinii* Raised bogs, very rare. Dogden Moss.
S. papillosum Raised and blanket bogs, local. Long Bog, Dogden Moss, Shiningpool Moss, Coldingham Moor 1949.
S. palustre Acid heaths and bogs, damp birch woods. Widespread.
S. magellanicum Raised and blanket bogs, rare. Turf Law, Fallago Ridge Head, Dogden Moss.
S. squarrosum Damp birch woods, especially those on mosses such as Long Moss, Redpath Moss and Gordon Moss.
S. teres Basic flushes in hills, rare. Wheel burn.
S. fimbriatum Similar habitats to *S. squarrosum*, but less common. Penmanshiel Moss, Everett Moss, Gordon Moss, Redpath Moss.
S. girgensohnii Bogs, local but probably under-recorded. Turf Law, Redpath Moss, Carfrae Common, Shiel Burn.
S. russowii Damp streamsides, ditches and banks on bogs and moors, rare. Turf Law, Lauder Common, Pickie Moss.
S. quinquefarium Sheltered gullies in hills, rare. Clints Hill.
S. warnstorffii Fens and basic flushes, rare. Wheel Burn.
S. capillifolium Heaths, bogs, and damp peaty woodlands. Widespread.
S. subnitens Mildly basic bogs and mires. Surprisingly local. Longmuir Moss, Coldingham Moor, Lauder Common, Fallago Ridge Head.
S. compactum Exposed moors, on drier ground, often amongst heather and regenerating after burning. Widespread in Lammermuirs, Coldingham and Lamberton Moors.
S. auriculatum var. *auriculatum* Flushes and on basic seepage in upland areas, local. Blythe Water, Coldingham Moor, Dirrington Great Law.
(*S. contortum* Old record from Penmanshiel not confirmed.)
S. cuspidatum Pools and ditches on heaths and in bogs. Probably widespread. Long Bog, Coldingham Moor, Dogden Moss, Penmanshiel Moss.
S. tenellum Damp moorlands, local but probably overlooked. Lauder Common, Twinlaw, Dogden Moss, Penmanshiel Moor 1868.

S. recurvum var. mucronatum Bogs, heaths, damp birch woods, often in ditches. Widespread.

ANDREAEACEAE

Andreaea rupestris var. rupestris Dry rocks, screes and walls in uplands. Scattered localities.

TETRAPHIDACEAE

Tetraphis pellucida Peaty woods and wooded ravines, local. Gledswood, Kyles Hill, Langtonlees Cleugh, Aikyside Wood.

POLYTRICHACEAE

Polytrichum alpinum Well-drained moorland slopes, local. Hartside, Lauder Common, Dirrington Great Law.

P. longisetum Woods and moors, especially on disturbed peat. Scattered localities.

P. formosum Woods and moors, common.

P. commune Waterlogged ground on moors, bogs and damp woods. Common

P. piliferum Dry peaty banks, rock outcrops and wall tops. Frequent.

P. juniperinum Similar habitats to preceding and equally common.

P. strictum (*P. alpestre*) Bogs, local. Gordon Moss, Dogden Moss, Coldingham Moor.

(**Pogonatum nanum** Peaty woodlands and heaths, rare and not seen recently. Foulden Hag Wood 1925, Grantshouse c 1930, Bunkle Wood c 1930.)

P. aloides Shady moorland banks, often on sides of ditches and burns. Widespread in uplands.

P. urnigerum Gravelly tracks, roadsides, shingle by burns, old quarries. Widespread.

Oligotrichum hercynicum Stony ground in hills, rare. Kyles Hill, Harelaw Hill 1927.

Atrichum tenellum Rare. Mud by reservoir, Watch Water.

A. undulatum (including *var. minus*) On soil in woods and deans. Frequent.

BUXBAUMIACEAE

(**Buxbaumia aphylla** Probably extinct. Soil-covered wall, Brockholes Plantations, pre-1868.)

ARCHIDIACEAE

Archidium alternifolium Waterlogged soil and mud, rare. Greenlaw Moor, Auchencrow 1927.

SELIGERIACEAE

Brachydontium trichodes Shaded sandstone, very rare. Lintlaw Burn and Billie Castle, pre-1868.

Seligeria recurvata Shady basic rock faces, rare. Fangrist Burn, Cockburn Mill 1878, Tibby Fowler's Glen 1953, Foulden 1924.

Blindia acuta Stony flushes, rare. Dowlaw Burn 1927.

DICRANACEAE

Pleuroidium acuminatum Damp soil, mainly upland. Scattered localities.

P. subulatum Similar habitats to preceding, but more local.

Pseudephemerum nitidum Damp soil, mostly in Lammermuirs. Occasional. Langtonlees Cleugh since 1833, Watch Water Reservoir, Soutra, near Coldingham Sands.

Ditrichum cylindricum Disturbed soil and fallow fields, easily overlooked and probably not rare. Airhouse Wood, Langton, Watch Water Reservoir, Penmanshiel.

D. flexicaule Calcareous turf and banks, especially on coast. Locally abundant.

D. heteromallum Gravelly banks and disturbed soil, calcifuge. Mostly in uplands, occasional.

Ceratodon purpureus var. *purpureus* Very common on disturbed soil, rocks and peat. Avoids basic substrates.

(*Cynodontium jenneri* Rocks, walls and screes, rare and not seen this century. Bowshiel Dean 1849, Brockholes pre-1868, Chester Hill near Lauder, pre-1868.)

C. tenellum Very rare. Roadside wall near Elba, 1963.

C. bruntonii Dry basaltic outcrops, local. Gateheugh, Black Hill, Hume Craigs.

Dichodontium pellucidum Silty boulders, rocks and gravel by burns and rivers throughout county.

((*D. flavescens* Literature records unsubstantiated.))

Dicranella palustris Moorland flushes and burnsides. Decreasing, formerly widespread.

D. schreberana Damp basic soil, widespread by burns in hills.

D. crispa Damp sandy and gravelly ground, rare. Redpath Hill, Lamberton 1926.

D. subulata Damp rocky ground, rare. Lamberton 1924, Elba 1963.

D. rufescens Soil banks of ditches and burns, scattered. Pickie Moss, Kyles Hill, Aikyside Wood.

D. varia Flushes and seepage on calcareous rocks and soil. Widespread, often abundant on coast.

D. staphylina Arable fields and disturbed soil. Widespread but overlooked.

D. cerviculata Peat on raised bogs, local. Twinlaw, Dogden Moss, Greenlaw Moor, Penmanshiel Moss.

D. heteromalla Rocks, soil and tree bases in woodland. Frequent.

Dicranoweisia cirrata Trees, rocks and walls, common.

Dicranum bonjeanii Moorland flushes and bogs, local and decreasing. Gordon Moss, Twinlaw, Dowlaw Burn, Lamberton Moor.

- D. scoparium** Woods and moors, common.
- D. majus** Woods, cleughs and sea banks, widespread.
- D. undulatum** Raised bogs, very rare and threatened. Dogden Moss.
- D. fuscescens var. fuscescens** Rocks and tree trunks in upland woods and cleughs. Scattered localities.
- (**D. montanum** Tree trunks and stumps in woodland. Green Wood 1930. Extinct through felling of ancient oak woodland.)
- D. tauricum** Trees and logs in damp woodland. Longmuir Moss, Duns Castle woods, Bunkle Wood, Penmanshiel Wood.
- Dicranodontium denudatum var. denudatum** Rocks and logs in damp woods, rare. Pickie Moss.
- Campylopus fragilis** Peaty and rocky banks. Frequent on coast, local elsewhere.
- C. pyriformis var. pyriformis** Exposed peat on moors and bogs, widespread.
- C. flexuosus** Damp peaty moors and raised bogs, occasionally on logs in cleughs. Widespread.
- C. introflexus** Peaty woods, moors and raised bogs. First recorded 1969 in Dye Valley, now widespread. Introduction from Southern Hemisphere.
- C. brevipilus** Raised bogs, very rare. Coldingham Moor 1926.
- Leucobryum glaucum** Damp upland woods and moors. Scattered localities.

FISSIDENTACEAE

- Fissidens viridulus** Soil in lowland woods and on sea banks. Probably widespread but easily overlooked.
- F. pusillus var. pusillus** Shady basic rock faces in deans, rare. Dunglass Dean, Whiteadder near Paxton.
- F. incurvus** Calcareous banks on coast, rare. Near Cove, Siccar Point, Burnmouth 1929.
- F. bryoides** Woods and deans, on soil. Common.
- F. crassipes** Intermittently submerged rocks in rivers, local. Tweed near Paxton House and Birgham, Whiteadder near Paxton, Elba 1931.
- F. exilis** Shady soil in woodland, rare. Mertoun Bridge, Mordington 1926, Green Wood 1926.
- F. osmundoides** Basic moorland flushes, rare. Near Cross Law 1927.
- F. taxifolius ssp. taxifolius** Woods, deans and sea banks, common.
- F. cristatus** Calcareous rocks and soil. Scattered on coast, rare inland.
- F. adianthoides** Damp basic rocks and flushes. Scattered localities.

ENCALYPTACEAE

- Encalypta vulgaris** Dry basic rock outcrops, rare and probably decreasing. Gateheugh, Hume, Fangrist Burn, Elba.
- E. streptocarpa** Locally abundant on mortar of walls, local on natural basic outcrops as at Gateheugh and Langtonlees Cleugh.

POTTIACEAE

Tortula ruralis Two subspecies occur:

T. ruralis ssp. *ruralis* Dry calcareous banks and rock outcrops. Rare except on coast.

T. ruralis ssp. *ruraliformis* Sandy sea shores, local. Pease Bay, Coldingham Sands, Linkim Shore.

T. intermedia Calcareous walls and rocks, rare. Near Oxton, St Abbs 1924, Linkim Shore 1933.

T. princeps Calcareous rock outcrops, very rare. Hume Castle, Gateheugh.

T. virescens Old tree trunks, very rare. Hume Castle.

T. laevipila var. *laevipila* Old ash and sycamore trees, widespread but decreasing through loss of trees.

T. muralis Two varieties occur:

T. muralis var. *muralis* Walls and calcareous rocks, very common.

T. muralis var. *aestiva* Shady sandstone rock faces, rare. Paxton 1924, Milne Graden 1924.

T. subulata Three varieties occur:

T. subulata var. *subulata* Calcareous rocks and banks, widespread.

T. subulata var. *angustata* Similar habitats to var. *subulata* but much rarer. Clints Hill, Airhouse Quarry, Dowlaw Dean, Coldstream 1929.

T. subulata var. *graeffii* Basic rock outcrops, very rare. Earnsheugh.

T. papillosa Old tree trunks, especially ash, sycamore and elder, rarely on rock. Widespread.

T. latifolia Silty rocks, tree roots and logs by rivers. Frequent along Tweed and lower reaches of Whiteadder and Blackadder.

Hennediella macrophylla (R. Brown ter.) Par. (*Tortula brevis* Whitehouse & Newton, *Hyophila stanfordensis* sensu Corley & Hill in part) Footpaths and compacted soil on river banks. Tweed at Leaderfoot, Dryburgh, Birgham and Tweedhill, Eden Water at Stichill Bridge.

Aloina aloides var. *aloides* Dry sunny calcareous banks on coast, local but scattered along coast from Cove to Lamberton.

((*A. aloides* var. *ambigua* Records of this are based on misidentifications of var. *aloides*.)

Desmatodon convolutus Dry calcareous banks on coast. Locally common from Cove to Lamberton.

Pterygoneuron ovatum Dry sunny calcareous soil on sea banks, rare. Siccar Point, Burnmouth.

Pottia starkeana ssp. *conica* Calcareous soil on sea banks, rare. Siccar Point, Eyemouth 1949.

P. crinita Calcareous soil on sea banks, rare. Fast Castle, St Abbs Head 1928, Eyemouth 1949, Burnmouth 1924.

P. lanceolata Calcareous soil on sea banks, scattered localities from Cove to Burnmouth.

- P. intermedia** Calcareous soil on sea banks, rare. Eyemouth 1949 Lamberton 1931.
- P. truncata** Arable fields and disturbed bare soil, frequent.
- P. heimii** Soil close to sea. Scattered localities from Cove to Lamberton.
- P. recta** Calcareous soil on sea banks, very rare. Burnmouth 1924.
- Phascum cuspidatum** Two varieties occur:
- P. cuspidatum var. cuspidatum** Arable fields and disturbed soil on basic substrates, frequent.
- P. cuspidatum var. piliferum** Calcareous sea banks, rare. Siccar Point, Heathery Carr, St Abbs Head, Eyemouth 1927.
- P. curvicolle** Calcareous soil on sea banks, very rare. Cove Harbour, Siccar Point.
- Acaulon muticum** Soil on sea banks and wall tops, rare. Kelphope Glen 1903, Old Cambus pre-1868, Eyemouth c1930.
- Barbula convoluta** Two varieties occur:
- B. convoluta var. convoluta** Disturbed basic soil, common.
- B. convoluta var. commutata** As preceding but local. Mertoun Bridge, Burnmouth 1925.
- B. unguiculata** Basic soil and rock outcrops, frequent.
- B. hornschurchiana** Banks and stony ground on calcareous soil, scattered localities. Hume Craigs, Elba, Siccar Point, Lamberton.
- B. revoluta** Limy walls, occasional. Dunglass, Pease Bay, Eyemouth 1924.
- B. fallax** Basic stony and sandy ground, banks and rocks, widespread.
- B. spadicea** On basic rocks and stones by burns and rivers, scattered localities. Langtonlees Cleugh, Whiteadder at Paxton, Tower Dean, Dowlaw Dean 1924.
- B. rigidula** On walls and bridges, frequent.
- B. nicholsonii** On silty basic rocks by rivers, local. Tweed at Birgham, Coldstream and Ladykirk, Whiteadder at Whitehall and Hutton.
- B. trifaria** Damp rocks by rivers and on sea banks, widespread.
- B. tophacea** Damp calcareous rock outcrops, especially tufa. Frequent, particularly on coast.
- B. vinealis** Rocks and boulders by streams, local. Marden, Dowlaw Dean, Lamberton 1924.
- B. cylindrica** Shady banks, damp walls and rocks by rivers and burns, common.
- B. recurvirostra** Calcareous banks, rocks and walls, widespread.
- B. ferruginascens** Damp basic montane rocks, very rare. Gully on Clints Hill.
- Gymnostomum aeruginosum** Damp shady basic rock faces, rare. Dowlaw Dean, Heathery Carr.
- G. recurvirostrum** Wet calcareous rock faces and tufa on coast. Locally abundant, Cove to Lamberton.

Gyroweisia tenuis Basic rock faces and shady limy walls. Locally common in calcareous districts.

((**Anoetangium aestivum** Published record is erroneous.))

Eucladium verticillatum Damp calcareous rock faces, mostly by rivers and on coast. Frequent.

Weissia controversa Three varieties occur:

W. controversa var. controversa Dry banks on basic soil. Widespread.

W. controversa var. crispata Dry banks by sea, rare. Burnmouth 1931, Eyemouth 1949.

W. controversa var. densifolia On rocks by river, very rare. Elba 1931.

W. tortilis Dry calcareous rocks and banks by sea, very rare. Burnmouth 1925.

W. microstoma var. microstoma Dry banks, widespread.

Oxystegus sinuosus Silty rocks and boulders by water, rare. Whiteadder and Tweed near Paxton, Ale Water 1924.

O. tenuirostris var. tenuirostris Damp rock face by hill burn, very rare. Whalplaw Burn.

Trichostomum crispulum Basic rocks and soil, not rare on coast, inland at Gateheugh and Elba.

T. brachydontium Basic rocks and soil, mostly on coast. Widespread.

Tortella tortuosa Basic rocks, very rare. Heathery Carr 1924.

T. flavovirens var. flavovirens Banks and rock crevices on coast, often quite close to sea. Cove to Lamberton, locally abundant.

Leptodontium flexifolium Exposed peaty soil, especially after burning or disturbance. Local, but more frequent in west.

Cinclidotus fontinaloides Rocks and boulders in and by rivers and burns, frequent in lowlands.

GRIMMIACEAE

Schistidium maritimum Rocks close to sea. Locally frequent from Cove to Lamberton.

S. alpicola Two varieties occur:

S. alpicola var. alpicola Boulders in rivers, rare. Whiteadder, Retreat 1953, Whiteadder near Foulden 1924, Blackadder near Greenlaw c1930.

S. alpicola var. rivulare Boulders in rivers, frequent.

S. apocarpum var. apocarpum Dry rocks and walls, common.

((**S. apocarpum var. confertum** Not confirmed and probably based on misidentification.))

Grimmia donniana var. donniana Siliceous rocks, boulders and walls in uplands, local. Longmuir Moss, Kettleghiel c1930.

G. ovalis Acid rocks, very rare. Whiteadder below Elba.

- G. pulvinata** var. **pulvinata** Rocks and walls, very common.
- G. trichophylla** Two varieties occur:
G. trichophylla var. **trichophylla** Dry rocks and walls, widespread.
G. trichophylla var. **stirtonii** Dry rock outcrops. rare. Hoardweel, Lumsdaine Dean, St Abbs Head.
- G. hartmanii** Siliceous rocks by rivers, rare. Whiteadder below Elba, Dye Water near Longformacus 1927.
- G. retracta** Siliceous rocks by rivers, very rare. Whiteadder near Hoardweel 1963.
- Racomitrium aciculare** Acid rocks and boulders, usually by burns. Scattered localities in uplands.
- R. fasciculare** Dry rocks and walls especially in hills, frequent.
- R. heterostichum** Rocks and walls, frequent.
- R. sudeticum** (Funck) B. & S. Rock outcrops, very rare. Greenwood, 1949.
- R. lanuginosum** Dry rocky banks, screes and walls, mostly in hills. Frequent.
- R. ericoides** (*R. canescens* var. *ericoides* sensu Corley & Hill in part) Sandy and gravelly ground in hills, under-recorded due to past confusion with next species. Soutra Hill, Airhouse Quarry, Longformacus 1927.
- R. elongatum** Frisvoll Similar habitats to preceding. Recently added to British flora and distribution uncertain. Threeburnford, Dye Water above Trottingshaw.

PTYCHOMITRIACEAE

- Ptychomitrium polyphyllum** Dry rocks, walls and screes in upland areas, widespread but possibly declining.

FUNARIACEAE

- Funaria hygrometrica** Waste ground, roadsides, bonfire sites, old quarries. Common.
- F. fascicularis** Damp disturbed soil, rare. Lauder Burn, Langton Burn 1953, near St Abbs Head 1924.
- (**F. obtusa** Damp soil by burns and in ditches, not seen this century. Langtonlees Cleugh 1833, Penmanshiel Moor 1854, near Ellemford pre-1868).
- Physcomitrium pyriforme** Mud in boggy fields and flushes, local. Greenknowe Tower, Fangrist Burn, Edrington c1930, Greenheugh Point 1849.

EPHEMERACEAE

- Ephemerum serratum** Damp bare mud and soil, rare. Two varieties occur:
E. serratum var. **serratum** Watch Water Reservoir.
E. serratum var. **minutissimum** Near Old Langtonlees, near Burnmouth 1924.

SPLACHNACEAE

- Tetraplodon mnioides** On dung and animal remains in hills, rare. Shiel Burn, Penmanshiel Moor 1853, Drakemire pre-1868.
- Splachnum sphaericum** On dung on bogs and moorlands, local. Soutra, Dogden Moss, Greenlaw Moor, near Byreclough 1929.
- (**S. ampullaceum** On dung in fens and mires, rare. Penmanshiel Moor 1850, Coldingham Moor c1853.)

BRYACEAE

- Orthodontium lineare** Tree bases, logs and stumps in shady woods. An incomer from southern hemisphere, now widespread. First recorded Whitlaw 1965.
- Leptobryum pyriforme** Damp peaty soil and acid rocks, rare. Fangrist Burn. Normally widespread in greenhouses, but not recorded from this habitat in Berwickshire yet.
- Pohlia cruda** Clefts of rock faces, scattered localities.
- P. nutans** Peaty soil in woods and on moors, frequent.
- P. drummondii** Damp gravel by burns, rare. Dye Water at Longformacus 1927.
- P. bulbifera** Damp disturbed soil, rare. Soutra, Hule Moss 1928.
- P. annotina** Damp disturbed soil. Scattered localities in uplands. Two segregate species occur (sensu J. Shaw) but their distribution is poorly known:
- P. annotina s.str.** Watch Water Reservoir, Well Cleugh Burn, Green Wood 1925.
 - P. prolifera** Whiteadder at Elba.
- P. camptotrachela** Damp soil by ditches and reservoirs, local. Longmuir Moss, Soutra, Watch Water Reservoir, near Foulden 1924.
- P. lutescens** Shaded soil in woods, rare. Sturdon Burn near Chapel on Leader.
- P. carnea** On damp clay banks in woods and by rivers and burns, widespread.
- P. wahlenbergii var. wahlenbergii** Damp disturbed soil, springs, flushes and burn-sides, frequent.
- Anomobryum filiforme var. filiforme** Damp rocks and gravel by rivers, local. Blythe Water, Elba, Edin's Hall, Primrose Hill 1875.
(**Bryum marratii** Record based on a misidentification.)
- B. pallens var. pallens** Damp gravelly burn-sides, wet banks and flushes, widespread.
- B. inclinatum** Damp rocks by streams, rare. Lumsdaine Dean.
(**B. intermedium** Old records from Oldcambus, Ale Water and Billie Mill are doubtful and require confirmation.)
- B. capillare var. capillare** Rocks, walls and tree trunks, very common.
- B. elegans** Exposed rocks, very rare. Heathery Carr 1924.

- B. flaccidum** Rocks and tree trunks in woods and thickets, frequent. Often on Elders.
- B. pallescens** Damp basic rocks, very rare. Near Coldingham Sands.
- B. pseudotriquetrum** Marshy ground, flushes and bogs, frequent. Two varieties occur:
- B. pseudotriquetrum var. pseudotriquetrum** Frequent.
- B. pseudotriquetrum var. bimum** Rare; Lamberton Moor 1930.
- B. caespiticium var. caespiticium** Rocks, walls and fallen trees, probably widespread but reliably recorded only from Threeburnford, Oxendean and Gavinton.
- (**B. alpinum** Damp gravelly moorland tracks, very rare. Penmanshiel Moor pre-1868, Drakemire 1878.)
- B. bicolor** Disturbed soil and waste ground, frequent.
- B. gemmiferum** Damp mud, rare. River Tweed near Homebank.
- B. dunense** Sea banks and cliff tops, rare. Fast Castle.
- B. argenteum** Sunny banks, rock outcrops and wall tops. Two varieties occur:
- B. argenteum var. argenteum** Common.
- B. argenteum var. lanatum** Local. Burnmouth, Elba 1963.
- B. radiculosum** Mortar of walls, widespread; rare on basic rocks and soil.
- B. violaceum** Arable fields, local but under-recorded. Edin's Hall, Penmanshiel, near Grizelrig.
- B. klinggraeffii** Arable fields, rare but under-recorded. Near Grizelrig.
- B. sauteri** Sandy soil, rare. Bowshiel Dean.
- B. microerythrocarpum** Disturbed soil and arable fields, widespread.
- B. rubens** As preceding but more frequent on basic soils.
- Rhodobryum roseum** Woods and calcareous grassland, rare. Near Hoardweel 1956, Oldcambus 1868, Dunglass Dean 1853, Penmanshiel Wood 1849, Dowlaw Dean c1930.

MNIACEAE

- Mnium hornum** On banks, rocks, logs and tree bases in woods, common.
- M. marginatum var. marginatum** Shady rock faces, rare. Langtonlees Cleugh, Whiteadder at Ninewells 1938.
- M. stellare** Rocky banks and walls in deans and by rivers, local. Clints Hill, Langtonlees Cleugh, Pease Dean, Dunglass Dean.
- Rhizomnium punctatum** Shady rocks in woods, deans and on river banks, frequent.
- R. pseudopunctatum** Basic flushes and mires, rare. Pickie Moss, Dowlaw Burn, Drakemire pre-1868.
- Plagiomnium cuspidatum** Old walls, rare. Penmanshiel Moor pre-1868.
- P. affine** Damp grassland and flushes, rare. Clints Hill, Bemersyde Moss 1964.

- P. elatum** Basic flushes in upland areas, scattered localities.
- P. ellipticum** Basic flushes and mires, rare. Clints Hill, Wheel Burn, Fangrist Burn, Kippetlaw Burn.
- P. undulatum** On banks in woods and deans and on sea banks, frequent.
- P. rostratum** Rocks and soil in woods, deans and on river banks. Frequent in lowlands.
- Pseudobryum cinclidioides** Mires, very rare. Locally abundant at Longmuir Moss.

AULACOMNIACEAE

- Aulacomnium palustre var. palustre** Bogs, mosses and damp peaty woods, frequent.
- A. androgynum** Tree trunks and logs in damp woods, very rare. On willows, Longmuir Moss.

MEESIACEAE

- (**Amblyodon dealbatus** Basic flushes, very rare. Gunsgreen pre-1868, Ale Water pre-1868.)

BARTRAMIACEAE

- Bartramia pomiformis** Rocky banks in cleughs and crevices of rock outcrops. Widespread, mostly in upland areas.
- B. ithyphylla** As preceding, but less common.
- Philonotis arnellii** Damp gravelly ground, rare. Drakemire 1926, Foulden Hag Wood 1923.
- P. caespitosa** Damp shaded rocks and soil, rare. Manderston, Lamberton 1927.
- P. fontana** Damp streamsides, flushes, ditches and bogs, mostly in hills. Frequent.
- P. calcarea** Basic moorland flushes, rare. Wheel Burn, Greenlaw Moor, Dowlaw Burn, Lamberton Moor c1930.
- (**Breutelia chrysocoma** Damp moorlands, rare and not seen recently. Coldingham Moor 1949, Drakemire 1927, Lamberton Moor pre-1868.)

ORTHOTRICHACEAE

- Amphidium mougeotii** On basic seepage on shady rock faces, local. Whalplaw Burn, Tweed below Gateheugh, Elba.
- Zygodon viridissimus** Two varieties occur:
- Z. viridissimus var. viridissimus** Trunks of old trees, occasionally on walls. Frequent.
- Z. viridissimus var. stirtonii** Dry rock outcrops. Frequent on coast, local inland.
- Orthotrichum striatum** On trees in damp woods, very rare. Gordon Moss, Longformacus 1927.

- O. iyellii** On old trees, especially Ash and Sycamore, widespread but declining.
- O. affine** Tree trunks and occasionally rocks, common.
- O. rupestre** On dry basic rock outcrops, local. Hume Craigs, Lumsdaine Dean, Dowlaw Dean.
- O. rivulare** Silty rocks and logs in rivers. Scattered localities mostly on Tweed, Whiteadder and Eye.
- O. anomalum** Rocks and walls, widespread.
- O. cupulatum** Two varieties occur:
- O. cupulatum var. cupulatum** On rocks, often close to water, widespread.
- O. cupulatum var. riparium** Silty rocks by rivers, scattered localities. Blythe Water, Earnsclough Water, Tweed at Birgham, Paxton and Ladykirk.
- O. stramineum** On trees, widespread but usually in small quantity.
- O. tenellum** On old trees, rare. Retreat 1929, Mordington 1926, Coldingham Loch c1930.
- O. diaphanum** Rocks, walls and tree trunks, frequent.
- O. pulchellum** On Elder and Willow in damp thickets, widespread.
- Ulota drummondii** On trees (often Hazel) in ancient woodlands, local. Langtonlees Cleugh, Greenwood 1929, Dowlaw Dean 1924.
- U. bruchii** (*U. crispa var. norvegica*) On trees, mostly in upland woods and cleughs, frequent.
- U. crispa** As preceding, but less common and often confused in past with it.
- U. phyllantha** Trees and rocks, scattered localities especially near coast.

HEDWIGIACEAE

- Hedwigia ciliata** Dry acid rock outcrops and dykes, mostly in uplands. Widespread.

FONTINALACEAE

- Fontinalis antipyretica** Floating in rivers, burns, ponds and reservoirs. Two varieties occur:
- F. antipyretica var. antipyretica** Frequent.
- F. antipyretica var. gigantea** Rare. Whiteadder below Cawderstones, Lumsdaine Dean.

CLIMACIACEAE

- Climacium dendroides** Damp basic grasslands, marshes, bogs and streamsides. Frequent.

LEUCODONTACEAE

- Cryphaea heteromalla** On old Elders and Willows in damp thickets, very rare. Gordon Moss.

Leucodon sciuroides var. sciuroides On old Ash and Sycamore trees, rare and declining. Polwarth Church, Greenknowe Tower, Langton Burn 1953, Cumledge Bridge c1930.

Antitrichia curtipendula On old trees and walls, very rare and declining. Mellerstain, Foulden Dean c1930, Ale Water pre-1868, Penmanshiel 1849.

Pterogonium gracile Dry basic rock outcrops, rare. Gateheugh, St Abbs Head, Oldcambus pre-1868.

NECKERACEAE

Neckera crispa Dry basic rocks, rare. Earnsheugh, Cowdenknowes c1930, Dowlaw Dean 1924.

N. complanata Trees and rocks in woods and deans. Widespread.

Homalia trichomanoides Rocks, tree bases and roots in woods and deans. Scattered localities.

THAMNIACEAE

Thamnobryum alopecurum Shady rock faces and walls by lowland burns and rivers, often by waterfalls. Frequent.

HOOKERIAACEAE

Hookeria lucens Wet shady banks in deans, ravines and on sea banks, local. Langtonlees Cleugh, Edin's Hall, Dunglass Dean, Lamberton.

LESKEACEAE

Leskea polycarpa Silty rocks and logs by rivers, occasional. Tweed at Gledswood, Birgham and Lennel, Whiteadder above Cockburn Mill 1930.

THUIDIACEAE

Heterocladium heteropterum Two varieties occur:

H. heteropterum var. heteropterum Shady rocks in woods, rare. Pease Dean, Brockholes Wood 1926, Duns Castle Woods c1930.

H. heteropterum var. flaccidum More common than preceding. Cowdenknowes, Blythe Water, Godscroft, Dunglass Dean, Pease Dean.

Anomodon viticulosus Calcareous rocks in deans and by rivers, scattered.

Thuidium tamariscinum Damp woods, frequent.

T. philibertii Calcareous grassland, rare. Greenlaw, Foulden Burn.

AMBLYSTEGIACEAE

Cratoneuron filicinum var. filicinum Damp basic rocks and soil, frequent.

C. commutatum Two varieties occur:

C. commutatum var. commutatum Base-rich flushes, springs, fens and tufa outcrops. Widespread; frequent on coast.

C. commutatum var. falcatum Fens and basic flushes, local. Turf Law, Dowlaw Burn and scattered on coast.

Campylium stellatum Two varieties occur:

C. stellatum var. stellatum Basic flushes and fens, local. Wheel Burn, Fangrist Burn, Dowlaw Moss, Lamberton Moor c1930.

C. stellatum var. protensum Damp calcareous rocky and grassy banks. Scattered localities on coast, rare inland.

C. chrysophyllum Sea banks, rare. Lamberton Beach 1925.

C. polygamum Damp basic flushes, rare. Gunsgreen.

C. elodes Rich fens, very rare. Lamberton Moor 1950, Penmanshiel Moss pre-1868.

Amblystegium serpens var. serpens Shady rocks, banks, old walls and tree trunks (especially Elder), frequent in woods. Very common.

A. fluviatile Rocks and boulders in and by burns and rivers, widespread.

A. tenax As preceding but generally more common.

A. varium Marshy and muddy ground, often by ponds. Mire Loch, Bemersyde Moss 1964.

A. riparium Damp rocks, logs and mud by rivers and ponds, widespread.

A. compactum Shady calcareous rock faces, often in deep clefts and caves, rare. Dunglass dean, Allanton 1926, Cawderstones 1927, St Abbs Head 1932, Lamberton 1937.

Drepanocladus aduncus Springs and marshes, rare. Coldingham Loch, Penmanshiel Moss c1930.

D. fluitans var. falcatus Damp peaty hollows on blanket bogs. Scattered throughout Lammermuirs and on Coldingham Moor.

D. exannulatus Two varieties occur:

D. exannulatus var. exannulatus Basic flushes, mires, and mosses, local. Kippetlaw Burn, Shiel Burn, Penmanshiel Moss.

D. exannulatus var. rotae Basic flushes and fens, rare. Fangrist Burn, Dowlaw Moss.

D. revolvens Basic flushes and fens, local. Fangrist Burn, Greenlaw Moor, Dowlaw Moss, Lamberton Moor.

D. uncinatus Damp heathy woods and rocky banks and amongst Willows in mosses, widespread.

Hygrohypnum ochraceum Rocks in rivers and upland burns, local. Headshaw Burn, Shiel Burn, Edin's Hall, Longformacus 1927.

H. luridum var. luridum Rocks in rivers and burns. Scattered localities

H. eugyrium Rocks in rivers, rare. Whiteadder near Edin's Hall, 1929.

Scorpidium scorpioides Mires and fens, rare and declining. Dowlaw Burn, Dogden Moss c1930, Lamberton Moor 1950, Drakemire pre-1868.

- Calliergon stramineum** Bogs and mosses, scattered localities. Longmuir Moss, Blythe Water, Gordon Moss, Twinlaw.
- C. cordifolium** Mires and mosses, widespread but not common.
- C. giganteum** Fens and mires, scattered but declining. Pickie Moss, Fangrist Burn, Coldingham Moor, Lamberton Moor 1950.
- C. cuspidatum** Damp grassy ground on sea banks, in woods and deans and throughout uplands. Common.

BRACHYTHECIACEAE

- Isoetecium myurum** Rocks and trees in woods, deans, cleughs and by rivers and on sea banks. Frequent.
- I. myosuroides** Two varieties occur:
- I. myosuroides var. myosuroides** Rocks and trees, frequent.
- I. myosuroides var. brachythecioides** Sheltered sea banks, very rare. Heathery Carr.
- Homalothecium sericeum** Calcareous rocks and walls, and on old Ash and Sycamore trees, common.
- H. lutescens** Dry calcareous grassland, not uncommon on coast, local inland.
- H. nitens** Rich fens, approaching extinction through drainage. Wheel Burn, Longmuir Moss 1878, Fangrist Burn 1932, near Ellemford pre-1868, Penmanshiel Moss 1849, Coldingham Moor pre-1868.
- Brachythecium albicans** Dry grassy ground; frequent on coast, local inland.
- B. glareosum** Dry calcareous grassland and rocky slopes, local. Langtonlees Cleugh, Tweed near Paxton, Coldingham Bay, Lamberton.
- B. mildeanum** Damp grassy ground, rare. Lumsdaine 1927, near St Abbs Head c1930.
- B. rutabulum** Woods, hedgerows, river banks, deans and sea banks, very common.
- B. rivulare** Damp woods, river banks, marshes, moorland burns and flushes, frequent.
- B. velutinum** Trees and rocks in shady woods and deans. Scattered throughout county.
- B. populeum** Trees and rocks in woods and deans, widespread.
- B. plumosum** Rocks and boulders in rivers and burns, widespread.
- Pseudoscleropodium purum** Woods, moors, grasslands and sea banks. Frequent.
- Scleropodium cespitans** Silty rocks, logs and tree trunks by rivers. Frequent by Tweed from Leaderfoot to Paxton.
- Cirriphyllum piliferum** Damp woods and deans. Frequent.
- C. crassinervium** Shady rocks and tree trunks in calcareous districts. Not uncommon near coast.

- Rhynchostegium riparioides** Rocks and boulders in rivers and burns. Frequent especially in uplands.
- R. murale** Shaded basic rocks and walls in calcareous districts, rare. Redpath Dean, Langton Burn c1930, Coldstream 1929, Paxton 1924.
- R. confertum** Rocks and logs in shady woods and deans. Widespread in lowlands.
- R. megapolitanum** Damp grassy sea banks, very rare. Burnmouth.
- Eurhynchium striatum** Woods, deans and sea banks, common.
- E. pumilum** Shady basic rock outcrops, especially in deans. Scattered in lowlands.
- E. praelongum** Two varieties occur:
- E. praelongum var. praelongum** Woods, hedgerows, deans, cleughs and sea banks. Very common.
- E. praelongum var. stokesii** Damp woods, rare. Edin's Hall, Allanton 1926, Longformacus c1930.
- E. swartzii** Two varieties occur:
- E. swartzii var. swartzii** Woods, fields, river banks and on coast. Frequent.
- E. swartzii var. rigidum** Shady woods and deans on calcareous substrates, local. Pease Dean, Paxton, Milne Graden 1924, Allanton 1926.
- E. schleicheri** Deans and river banks on calcareous substrates, rare. Pease Dean, Langton Burn, Ladykirk Bridge, Lennel c1930, Ale Water 1924.
- E. speciosum** Damp shady rocks, very rare. Dowlaw Dean.
- Rhynchostegiella tenella var. tenella** Shady basic rocks and walls in deans, local. Langtonlees Cleugh, Pease Dean, Dunglass Dean, Lennel.
- R. teesdalei** Wet shaded basic rocks, local. Dowlaw Dean, St Abbs 1923, Foulden Dean 1923, River Eye 1955.

PLAGIOTHECIACEAE

- (Plagiothecium latebricola** On tree stumps, very rare and possibly extinct. Brockholes Wood 1926.)
- P. denticulatum var. denticulatum** Shady rocks, walls, banks, stumps and tree bases in woodland. Frequent.
- P. curvifolium** Tree bases in shady woods, overlooked and possibly widespread. Langtonlees Cleugh, Bunkle Wood, Tower Dean, Paxton.
- P. laetum** Tree bases and stumps in damp woods, rare. Pickie Moss.
- P. cavifolium** Basic rocks in ravines, very rare. Langtonlees Cleugh.
- P. succulentum** Rocks, banks and stumps in woods, frequent.
- ((P. nemorale** Not confirmed. Old records refer to preceding, but could occur on basic rocks.))

- P. undulatum** Upland woods, heaths and sea banks, frequent.
 (*Isopterygium pulchellum* Rock ledges, rare. Buskin Burn 1868. Other old records require confirmation.)
- I. elegans** On banks in shady woods, favouring acid soils, Frequent.
- Taxiphyllum wissgrillii** Basic rocks and banks in deans. Scattered localities in eastern half of county.

HYPNACEAE

- Pyloisia polyantha** On elm, elder and willow in damp woods, local. Stichill Bridge, Lochton, Bluestoneford, Hutton Bridge.
- Hypnum cupressiforme** Three varieties occur:
- H. cupressiforme var. cupressiforme** Trees, rocks and walls. Common.
 - H. cupressiforme var. resupinatum** Dry rocks and tree trunks, common.
 - H. cupressiforme var. lacunosum** Sunny calcareous slopes, frequent on coast, local inland.
- H. mammillatum** Trees in upland woods and cleughs, local. Langtonlees Cleugh, Pease Dean, Penmanshiel,
- H. jutlandicum** Upland woods, moors, bogs and sea banks. Frequent.
- H. imponens** Raised and blanket bogs, very rare. Greenlaw Moor, Dogden Moss 1932, Drakemire 1927.
- H. lindbergii** Damp stony tracks, burnsides, old quarries, woods. Scattered localities. Blythe Water, Duns Castle 1927, Drakemire 1925.
- (*Ptilium crista-castrensis* Old pine plantations, not seen recently. Bunkle Wood 1926, Blackhouse Dean pre-1868, Bunkle Edge pre-1868.)
- Ctenidium molluscum var. molluscum** Calcareous rocks and banks and in mires and fens. Widespread.
- ((*C. molluscum var. condensatum* Record based on a misidentification of *var. molluscum*.)
- Rhytidiadelphus triquetrus** Woods and heaths, especially on basic soils. Frequent.
- R. squarrosus** Roadsides, old pastures, heaths, woods and sea banks. Very common.
- R. loreus** Upland woods and heaths, favouring acid soils. Frequent.
- Pleurozium schreberi** Moors, upland woods and sea banks, common.
- Hylocomium splendens** Heathy woods, moors and sea banks. Common.

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Elymus	66	Hesperis	22	Lithospermum	43
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Endymion	58	Hippophae	34	Lolium	64
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Myrica	38	Pinus	17	Sarothamnus	28
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The families are printed above in systematic order using the English name of the family, the English name of typical genera, or the Latin family name where there is no convenient English name. It is hoped that readers more familiar with English names will in many instances be able to infer the family to which a chosen species relates and thus be able to turn to a likely page.

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Blanerne	83 56	Coldingham Moor	86 67
Blinkbonny, Nenthorn	67 38	Coldingham Sands	91 66
Blinkbonny, Foulden	93 56	Coldingham Shore = St Abbs	
Bluestoneford	87 55	Coldstream	84 39
Blythe Moor	57 55	Corsbie	60 44
Blythe Water	57 49	Corsbie Bog	60 43
Bowshiel Dean	78 67	Cove	78 71
Broad Bog	81 68	Cove Harbour	78 71
Brockholes	82 63	Cowdenknowes	57 37
Brockholes Wood	81 65	Craigswalls Wood	84 55
Broomhill	80 55	Cranshaws Pond	68 61
Broomhouse	80 56	Crib Law	52 59

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Cross Law	87 68	Ellemford	72 60
Cuddy Wood	74 52	Eller Burn	76 60
Cumledge	79 56	Everett Moss	60 43
Cumledge Bridge	78 56	Eye Water	map
Cumledge Mill	79 56		
Danderhall	62 32	Fallago Ridge Head	57 61
Dirrington Great Law	69 54	Fancove Head	95 62
Dogden Moss	68 49	Fangrist Burn	69 48
Dowlaw	85 70	Fans	61 41
Dowlaw Burn	85 69	Fast Castle	86 70
Dowlaw Dean	86 70	Fernyrig Bog = Bishops Bog	
Dowlaw Moss	84 69	Fireburn Mill	82 39
Drakemire	80 60	Fishwick Mains	91 49
Drone Moss	84 66	Flass Wood	62 51
Dronshiel	70 55	Flours	91 65
Dryburgh	59 31	Foul Burn	72 52
Dryburgh Abbey	59 31	Foul Burn Bridge	71 51
Drygrange	57 35	Foulden	92 55
Dunglass Burn	76 71	Foulden Burn	92 55
Dunglass Dean	76 71	Foulden Dean	92 55
Duns	78 53	Foulden Hag Wood	91 57
Duns Castle	77 54	Foulden New Mains	91 56
Dunside Hill	63 56	Foulden Pond	91 56
Dye Cottage	64 58	Gateheugh	59 34
Dye Water	map	Gavinton	76 52
Earlston	57 38	Girtrig Pond	77 50
Earnsclough Water	54 49	Gledswood	58 34
Earnsheugh	89 69	Godcroft	74 63
Earnsheugh Camp	89 69	Gordon	64 43
East Crook Burn	69 59	Gordon Bogs	63 41
East Water =?Easter Burn		Gordon Common	65 43
Easter Burn	58 53	Gordon Moss	63 42
Ecclaw	75 68	Grantshouse	80 65
Ecclaw Hill	75 67	Great Dirrington Law	69 54
Eccles	76 41	Greenheugh Point	79 70
Eccles Pools	77 41	Greenknowe	64 44
Eden Hall	76 38	Greenknowe Tower	63 42
Eden Water	map	Greenlaw	71 46
Edgarhope	54 50	Greenlaw Dean	69 47
Edington Mill	89 54	Greenlaw Kaims	69 50
Edingtonhill	90 57	Greenlaw Moor	7 5
Edin's Hall	77 60	Greenwood	83 64
Edmonds Dean	77 67	Greystonelees	95 60
Edrington	93 54	Grizelrig	78 42
Edrington Mill	93 54	Gunsgreen	95 65
Edrom	82 55		
Elba	78 60	Hagsfield	80 40
		Hallyburton	67 48

Gazetteer—Cont.

Hallydown	92 64	Ladykirk Bridge = Norham Bridge	
Harcarse	81 48	Lamberton	96 57
Hardens Hill	73 54	Lamberton Beach	97 58
Hareheugh Craigs	76 55	Lamberton Cliffs	97 58
Harelawcraigs	76 55	Lamberton Moor	95 58
Harelaw Hill	76 55	Langstruther Bog	81 67
Harkers Tile Works= Harcarse		Langton	75 52
Harrietfield	70 36	Langton Mill	76 52
Hartside	44 54	Langton Woods	75 52
Hassington	73 41	Langtonlees Cleugh	73 52
Headshaw Burn	48 57	Lauder	52 47
Heathery Carr	89 69	Lauder Burn	52 46
Hen Poo	77 54	Lauder Common	50 46
Hilton Bay	96 59	Lauder Hill	51 47
The Hirsell	82 40	Lauderdale	5 4
Hirsell Lake	82 40	Leader Water	map
Hirsell Law	82 42	Leaderfoot	57 34
Hogs Law	55 55	Leet Water	map
Homebank	80 39	Legerwood	58 43
Hoprigshiels	74 68	Legerwood Pond	58 43
Horndean	89 49	Leitholm	78 44
Horndean Burn	90 49	Leitholm Loch	7 4
Horseupcleugh	66 58	Lennel	85 40
Houndwood	84 63	Lightfield	64 41
Howpark Burn	82 66	Linkim Shore	92 65
Hule Moss	71 49	Linthill	92 63
Hume	70 41	Lintlaw	82 58
Hume Castle	70 41	Lintlaw Burn	83 58
Hume Craigs	70 41	Lintlaw School	82 58
Hume Mill	70 40	Lithillum Loch	80 40
Hutton	90 53	Little Dean Pond	91 62
Hutton Bridge	92 54	Lochton	77 38
Hutton Castle	88 54	Long Bog	55 53
Hutton Castle Mill	90 54	Long Moss	85 68
		Longformacus	69 57
Jordonlaw Moss	61 49	Longformacus House	69 57
		Longmuir Moss	47 51
Kelloe	84 53	Lumsdaine	87 69
Kelmscott	63 49	Lumsdaine Dean	86 69
Kelphope Burn	51 58	Lumsdaine Shore	87 70
Kettleshiel	70 51	Lurgie Loch	67 39
Kettleshiel Burn	70 50		
Killmade Burn	66 62	Macks Mill	66 44
Kimmerghame	81 51	Magdalenehall	62 32
Kippetlaw Burn	69 55	Manderston	81 54
Kirkbonny ?= Blinkbonny, Foulden		Marden	80 56
Kyles Hill	72 50	Meikle Says Law	58 61
		Mellerstain	64 39
Ladykirk	88 47	The Merse	7 4

Gazetteer—*Cont.*

Mertoun	61 31	Preston	79 57
Mertoun Bridge	61 32	Primrose Hill	78 57
Middlethird	68 43		
Middlethird Bog	68 43	Quixwood Moor	77 64
Millars Moss	90 68		
Millknowe Burn	68 50	Ramsheugh	77 72
Milne Graden	87 44	Ramsheugh Bay	77 72
Milne Graden Burn	87 44	Rathburne	68 57
Mire Loch	91 68	Redheugh	82 70
Mordington	95 56	Redheugh Dean	82 70
Mordington Pond	95 57	Redpath Dean	58 36
Muircleugh	50 45	Redpath Hill	59 36
		Redpath Moss	59 36
Nenthorn	68 37	Reed Point	77 72
Netherbyres	94 63	Reston	88 62
Netherbyres Mill	93 63	Retreat	77 60
New Horndean	89 49	Ross	96 60
New Ladykirk	89 48	Rotten Cleugh	56 60
Newton Don	70 37	Rumbleton	68 45
Newton Quarry	85 48		
Ninewells	86 55	St Abbs	91 67
Nisbet	79 51	St Abbs Head	91 69
Nisbet Bridge	79 51	St Helens Church	80 70
Norham Bridge	89 47	St Thomas's Island	92 49
Northfield	91 67	Seenes Law	55 59
		Shannabank	75 62
Old Cambus	80 69	Shiel Burn	58 60
Old Cambus Quarry	80 70	Shiningpool Moss	70 52
Old Lamberton Toll	97 57	Siccar Point	81 70
Old Langtonlees	73 52	Silverwells	87 66
Old Linthill	93 62	Sisterpath	75 48
Oxendean	77 55	Skaithmuir	83 43
Oxton	49 53	Smiddyhill Bridge	69 61
		Soonhope Burn	53 56
Paradise	79 56	Soutra	47 57
Paxton	93 53	Spottiswoode	60 49
Paxton Dean	93 52	Spottiswoode Loch	61 49
Paxton House	93 52	Springhill	78 38
Pease Bay	79 70	Stichill Bridge	69 36
Pease Dean	79 70	Stuartslaw Pond	85 55
Peelrig	79 52	Sturdon Burn	55 41
Penmanshiel	79 67	Stichill	71 38
Penmanshiel Moss	82 68	Stichill Linn	70 37
Penmanshiel Wood	79 68	Stot Cleugh	63 58
Petticowick	90 69	Sunwick	89 52
Pickie Moss	58 44	Swinton	83 47
Polwarth Church	74 49	Swinton House	81 47
Polwarth Moss	70 51		
Press Castle	86 65	Thirlestane Castle	53 47

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Threeburnford	46 52	West Blanterne	82 56
Tibby Fowler's Glen	94 54	Westerside Dean	88 69
Tollishill	51 58	West Foulden	91 54
Tower Dean	78 70	Westruther	63 50
Trottingshaw	64 58	Whalplaw Burn	55 55
Turf Law	47 56	Wheel Burn	56 51
River Tweed	map	White Hill	57 37
Tweedhill	93 51	Whiteadder Water	map
Twinlaw	62 54	Whitchester	71 58
		Whitehall	87 55
Union Bridge	93 51	Whitehall Pond	87 55
		Whitlaw	49 47
Watch Water	66 56	Wild Wood	77 60
Watch Water Reservoir	66 56	Wrunklaw	67 58
Wedderburn	80 52	Wrunklaw Burn	66 58
Well Cleugh Burn	73 52	Wylie Cleugh	80 43

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This is the most comprehensive catalogue to date of the flowering plants, ferns and bryophytes found in Berwickshire's countryside, offering an informed opinion of the current status of each species together with historical information. Introductory sections give a more general overview of the flora.

Cover illustrations – Bill Young

Front cover – Common Rock-rose, *Helianthemum nummularium*



Wood-sorrel
Oxalis acetosella