

## Botanical Studies

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The natural history of Lundy has been extensively studied in the fifty years of the Lundy Field Society's existence. Understandably most emphasis has been on the fauna – especially the bird life – but the flora has not been totally neglected, with the result that 517 species have been recorded at some time or another. Some of these are ephemeral and some may have been misidentified, so that the resident plant population is rather less than this figure and it is these that the visitor is most likely to see.

### Lundy's flora

For those unfamiliar with the island, a brief descriptive tour of the flora is perhaps in order here, to provide one with a feeling for what is on offer. From the Landing Beach, the way to the island plateau is by the Beach Road and, as one ascends, it is apparent that, broadly speaking, the island's floral habitats fall into two distinct categories: the vegetation of the sidelands and that of the plateau.

The Beach Road has been hewn out of the shale and the dip of the laminated rock makes it prone to rock fall and soil slippage. In this area grows the Lundy cabbage *Coincya wrightii*, unique to the island

and all the more remarkable that a brassica should find a home on such an acid soil. Also noticeable are wall pennywort *Umbilicus rupestris*, sheepsbit *Jasione montana*, ivy-leaved toadflax *Cymbalaria muralis* and kidney vetch *Anthyllis vulneraria*, which grow on the inland side of the road. On the seaward side, balm-leaved figwort *Scrophularia scorodonia*, another rarity, grows and the margin of the road is bordered with English stonecrop *Sedum anglica*.

The lower levels of the sidelands are characterised by the growth of maritime halophilic (salt tolerant) plants such as sea campion *Silene maritima*, common and early scurvy grass *Cochlearia officianalis* and *C. danica*, cliff spurrey *Spergularia rupicola*, sea beet *Beta vulgaris*, Oraches *Atriplex patula* and *A. hastata*, thrift *Armeria maritima* and rock samphire *Crithmum maritimum*.

The eastern sidelands (of which the Beach Road forms a part) show the richest and most diverse of the island's flora. Here in the spring before the growth of the all-enveloping bracken, grow primrose *Primula vulgaris*, ground ivy *Glechoma hederacea*, celandine *Ranunculus ficaria* and bluebell *Hyacinthoides non-scripta*. Bracken *Pteridium aquilinum* is not exclusively a sidelands species and neither is foxglove *Digitalis purpurea*, but both are prominent here. Though the rhododendron thickets are attractive when in flower, their nature ensures the total exclusion of other plants.

On the rock faces of the Quarries grow broom

*Sarothamnus scoparius*, royal fern *Osmunda regalis* and gorse *Ulex europaeus*, while a feature of Gannets' Coombe further north is the growth of tussock sedge *Carex paniculata*. Crossing over to the west side of the island, the sidelands are exposed to the salt-laden prevailing winds and are less interesting to the botanist but can still be rewarding to the visitor: in mid summer there is often a spectacular growth of thrift *Armeria maritima* here, which may form an almost continuous pink carpet, especially in Jenny's Cove.

The island plateau, uncultivated north of Quarter Wall, is exposed, gently undulating and mostly covered by a very thin peaty soil; indeed, the North End is chiefly bare rock. Here the main plants are heather *Calluna vulgaris*, bell heather *Erica cineraria*, cross-leaved heath *Erica tetralix*, and tormentil *Potentilla erecta*. Creeping willow *Salix repens* grows in the southern part alongside heath bedstraw *Galium saxatile*, heath milkwort *Polygala serpyllifolia*, birdsfoot trefoil *Lotus corniculatus* and sheep's sorrel *Rumex acetosella* growing in the shorter turf. The exposed nature of the North End has led to impressive stands of waved heath, the plants' growth form adapting to the strong westerly winds.

An important area on the plateau is Pondsbury, the largest area of open fresh water on the island. This is surrounded by sphagnum moss *Sphagnum cuspidatum* which forms a bog-like habitat. Here can be found the common sundew *Drosera rotundiflora*, bog asphodel *Narthecium ossifragum*, heath-spotted orchid

*Dactylorhiza maculata*, bog pimpernel *Anagallis tenella*, water forget-me-not *Myosotis scorpioides*, and lesser spearwort *Ranunculus flammula*, all of which flower in this particular habitat. Besides these, mention should be made of Marsh St John's wort *Hypericum elodes*, which grows more peripherally. The rare fern, dwarf adders tongue *Ophioglossum azoricum*, has been found at a number of sites in the grass/heath habitat north of Pondsbury.

### Botanical studies in perspective – a brief overview

Two comprehensive lists of the island's flora have been published in the Lundy Field Society's Annual Reports. The first of these was in 1971 when the 22nd Annual Report published my attempt at providing a definitive list by placing my own list, compiled between 1960 and 1971 (Hubbard 1971), in a synoptic comparison with a number of others. These were *The Atlas of British Flora* (Anon 1962); *Lundy, its History and Natural History* (Loyd 1925); *Ilfracombe Flora and Fauna* (Palmer 1946) with additions listed in the Society's 2nd Annual Report; and *Lundy* (Langham & Langham 1970), whose list was supplemented by a personal communication from Professor Harvey of Exeter University. The second list, published in the Society's 42nd report (Gibson 1991), was made by Lorna Gibson between 1989-1991. She, being an island resident over that period of time, had the advantage of observing the whole flowering season. She also

attempted to photograph all of the flowers on the island. Despite some additions and some losses, the two lists tally well.

In 1979, I had access to lists made by Dr F.R. Elliston Wright made in 1933-1935, and published in the *Journal of Botany*. In his preface Dr Wright says that he considers Loyd's list, which was itself mainly derived from an earlier list made by Chanter, to be "wholly unreliable". Nevertheless it is interesting that most of the plants listed are still to be found there.

Dr Wright's outstanding contribution to the study of the Lundy flora was, of course, the identification of that primitive brassica, a fertile hybrid, the Lundy cabbage, successively named in the scientific terminology *Brassicella wrightii* in 1936 by Professor O.E. Schultz, and then amended subsequently to first *Rhyncosinapis* and then *Coincya wrightii*. A number of articles have appeared in the Annual Reports on the Lundy cabbage (Marren 1971; Cassidi 1980; Irving 1984), all of which demonstrate convincingly how the plant has extended its range from its original locality on the metamorphic Devonian slate northwards along the granite sidelands as far as Knight Templar Rock. A note in the 1993 Annual Report suggests a total of 3,000 plants between the Landing Bay and Quarter Wall.

In the 1982 Annual Report, an important article on the Lundy vegetation appeared, written by Trudy A. Watt and K.J. Kirby (Watt & Kirby 1982). This took the form of a systematic survey of the whole island with sampling of one metre squares at 200 m intervals on

an E-W axis and 500 m intervals on a N-S axis. There were 45 sampling plots in all. The survey demonstrated the differences in vegetation between the east and the west sides. It is a valuable addition to the study of the island flora but because of the limitations of the sampling method, many prevalent species went unrecorded. In the 30th Annual Report (Watt 1979), Trudy Watt reported a survey of the grass growth on Lundy. This was followed a few years later by R. Takagi-Arigho publishing a list of the grasses found on the island between the months of May and October (Takagi-Arigho 1986).

Preliminary work by Mr P.D. Garbutt and Professor and Mrs Harvey, quoted in the 5th Annual Report (1951), on the differences in plant population between the east and west coasts, was followed in the following year by a more detailed study of the slopes on the northern aspect of Jenny's Cove on the west side, and the north flank of Brazen Ward on the east side. The gradients of the slopes and the pH and chloride content of the soil were measured, with the frequency of various species being noted against these parameters.

A vegetation survey was carried out in 1971 by Alice Dunn and Helen Bristow (Dunn & Bristow 1971) with the aim of helping Colin Taylor complete a map of the island vegetation. He had already surveyed the south end and the cultivated fields. They studied Ackland's Moor, Pondsburry, Middle Park and the North End.

In 1973, Paul Wilkins and Julian Debham under-

took a survey of the recolonisation of the North End after the fires there in the 1930s (Wilkins & Debham 1973). They found there was little difference in soil depth or plant variety between the burned and unburned areas. Heather *Calluna vulgaris*, bell heather *Erica cineraria* and thrift *Armeria maritima* were the most common flowering plants and of the non-flowering plants, lichens, sedges, rushes and grasses dominated. They believed that lichens played a significant part in soil development.

In 1974, Dr H.C. Dawkins surveyed the fescue blanket on the east end of Rat Island, which he found to be very deep (Dawkins 1974a). He then surveyed the west end, which had been burned by a flare and noted the plants which were recolonising that area. These were important observations since Rat Island is the only part of Lundy left ungrazed. In the same year, Dr Dawkins also studied the southern slopes of Hangman's Hill below the Ugly, which he likened to a small scale version of a forest with a canopy layer of blackthorn, gorse and hawthorn, and a basal layer of shade-loving plants (Dawkins 1974b).

Rhododendron *Rhododendron ponticum* was a plant introduced by the Heaven family into the Millcombe area in the nineteenth century and it soon began to spread. J.R. Chanter in 1877 comments in his book Lundy Island that the plants had become naturalised and were spreading. A fire in 1926 destroyed most of the vegetation between the northernmost quarry and St Helens Coombe, but the rhododendron regenerated

from the surviving underground roots and rapidly recolonised the whole area. P.R. Marren conducted a survey in 1972 and recorded the spread of seedlings to the island plateau. Since then much has been done to check the plant's spread and cut back established plants.

Other deliberately introduced species include *Escallonia* and *Hebe* bushes beside the path leading to Millcombe. It is clear from the study of photographs of the house and from early written records that many trees have been introduced to the island. Perhaps the most unexpected of these is the Japanese spindle *Euonymus japonica*. It is possible that birds may be responsible for the arrival of some of the berried species.

In 1978 and 1979, Dr J.J. George and others studied the flora of the Lundy ponds and the results were published in the 30th and 31st Annual Reports. There is a further study in the 37th Report. The plants found had already been included in the main lists.

Additional notes and flower lists have appeared over the years starting with the 1st Report when a permanent quadrat was staked out in a deeply burned area west of Middle Coombe. A list in the second report compiled by a number of Field Society members was added to the list in *Ilfracombe Flora and Fauna*. Since then lists have been contributed by Mrs Ann Westcott (e.g. Westcott 1969 & 1971) and others. One particularly interesting note was made in 1968 by Canon J. Stafford Wright who found honewort *Trinia glauca* -

unrecorded elsewhere (Wright 1968).

A report in 1980 by Mr Rob Randall tells how he failed to find purple spurge *Euphorbia peplis* (Randall 1980). He also examined the status of balm-leaved figwort *Scrophularia scorodonia*, which was becoming rare on the north coasts of Devon and Cornwall, but which was still flourishing on the east coast of Lundy.

Fungal species are listed in the 14th, 21st, 22nd, 23rd, 38th, and 43rd Annual Reports. Lichen species are listed in the 3rd, 13th and 23rd Reports, with a major lichen survey currently being undertaken by Peter James and Anne Allen. Liverworts are reported in the 13th and 26th Reports; and freshwater diatoms in the 3rd Annual Report.

### Trees

With the help of Mr W.H. Dyer I surveyed the trees found growing on the island in 1969 and 1970. 433 trees were counted in the eight main wooded areas, which were all on the east side. Sycamore *Acer pseudo-platanus* was by far the most successful species and showed the most signs of regeneration. Elder *Sambucus nigra*, willow *Salix atrocinerea* and *S. caprea* and ash *Fraxinus excelsior* were the next most numerous. All trees showed signs of wind damage where they were unprotected by the bulk of the island. During the summer of 1970, beech *Fagus sylvatica*, sessile oak *Quercus petraea* and three species of pine *Pinus* spp., were planted on the north side of Millcombe in the memory of Albion Harman.

Tree planting has taken place since then and there are two reports of this. Further planting was undertaken in 1983 in Millcombe Valley, St John's Valley, north of the Ugly, and St Helen's Copse. Trees have been planted to replace mature and dying trees and also in new areas in the hope that they will support wildlife and the expectation that they will enhance the beauty of the island. The species chosen were mainly those already growing on the island, but field maple *Acer campestre*, aspen *Populus tremula* and a strawberry tree *Arbutus unedo* were also planted. A.J. Parsons questioned the wisdom of planting trees in St John's Valley, holding that its ecological importance lay in its open nature. P. de Groot replied to this in 1984 saying that the *Pinus muricata*, which had been planted close to the edge of the road to provide shelter, had not fared well and many had died. The aspen and alder had been planted to provide shelter for birds.

### Management studies

In 1988, the then warden Neil Willcox, in conjunction with the Committee of the Lundy Field Society, produced the first draft of A Management Plan for Lundy (Willcox 1988); this was developed over the next few years. In 1994, English Nature published a management plan for the Marine Nature Reserve together with the island's Site of Special Scientific Interest, entitled Managing Lundy's Wildlife (English Nature 1994).

An important addition to the botanical studies mentioned above was the survey of the island's flora

and fauna undertaken in 1986 by the National Trust, owners of the island since 1969. The ensuing report (National Trust 1991) was based on the observations of a team of scientists during a visit to the island, combined with references to previously published studies and consultations with involved organisations and specialist journals. The report is divided into a number of sections describing the different vegetative communities which occur on Lundy. It highlights the presence of a number of rare plants on Lundy such as the Lundy cabbage *Coincya wrightii*, balm-leaved figwort *Scrophularia scordonia*, dwarf adders tongue fern *Ophioglossum azoricum*, and hay-scented buckler fern *Dryopteris aemula*. Mention is made too of the records of plants which have appeared from time to time in disturbed ground, such as thorn apple *Datura stramonium*, henbane *Hyoscyamus niger* and small-flowered catchfly *Silene anglica*. The report includes useful comments on the accuracy of some species identifications which have been included in floral lists. In addition to flowering plants, mosses, liverworts, lichens, fungi, sedges, rushes and grasses were included in the survey. Besides reporting on what was found, the report comments on the interaction between the vegetation, the grazing of farm animals, and the fauna. It also contains some suggestions for improving the island's overall ecological balance.

### **In conclusion**

Lundy provides opportunities for further botanical studies and it may be that, because these can be carried out in a circumscribed geographical area, comparisons can be made and lessons learned which can be applied elsewhere in what is, on the whole, inhospitable terrain.

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Plate 23

Lundy cabbage  
*Coincya wrightii*

(Lorna Gibson)

**BOTANICAL STUDIES — ELIZABETH HUBBARD**

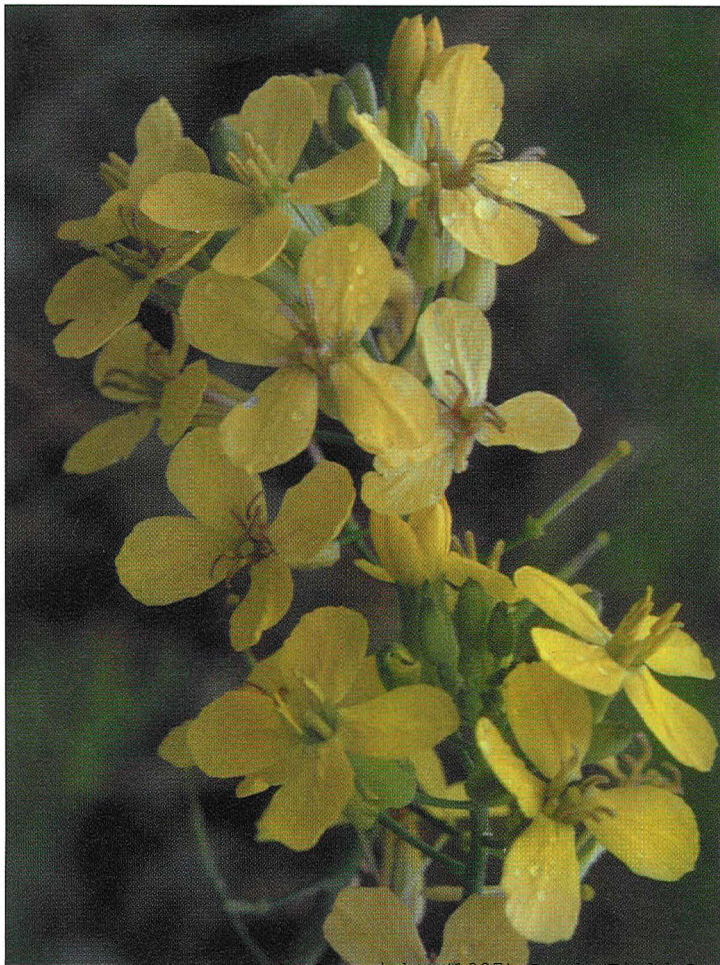


Plate 24

Flowers of the Lundy cabbage  
*Coincya wrightii*

(Lorna Gibson)

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Plate 25

Flowers of the balm-leaved figwort *Scrophularia scorodonia* (Lorna Gibson)

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Plate 26

Bog asphodel  
*Nartheceum ossifragum*

(Lorna Gibson)

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Plate 27

Heath spotted orchid  
*Dactylorhiza maculata* subsp. *ericetorum*

(Lorna Gibson)

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Plate 28

Bog pimpernel *Anagallis tenella* (Lorna Gibson)

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Plate 29

Carpet of thrift *Armeria maritima* on the west sidelands (Lorna Gibson)

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