

THE LUNDY RHODODENDRONS

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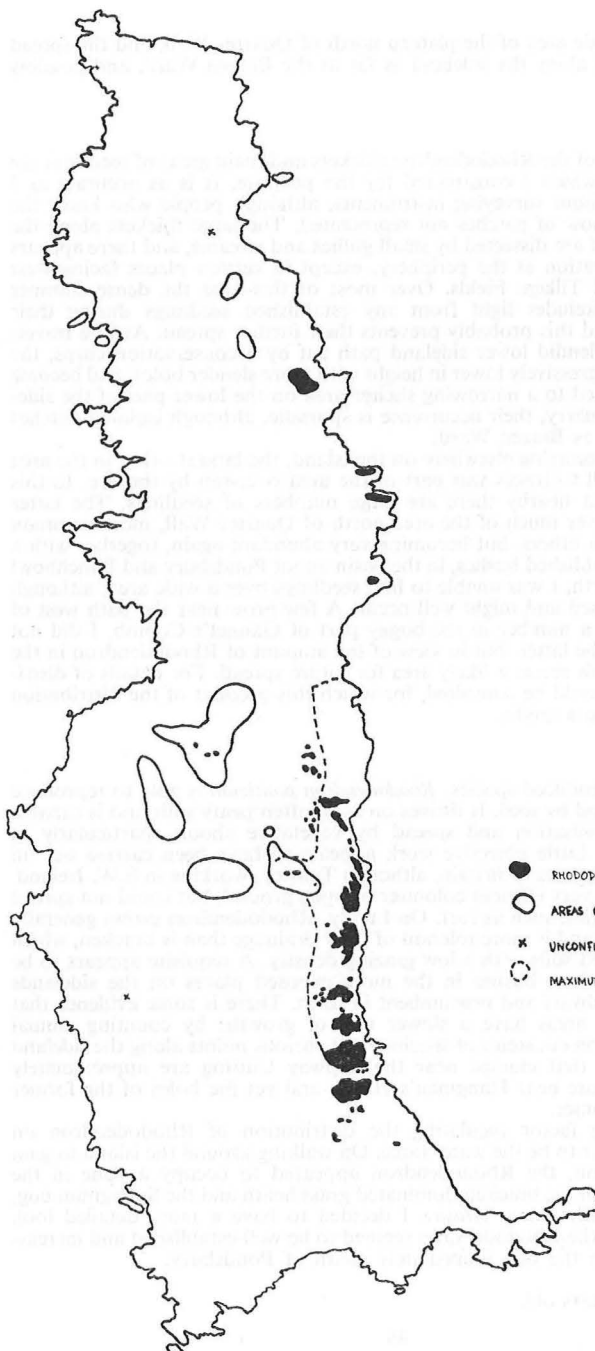
Introduction

One of the first sights to greet the visitor to Lundy, before disembarking, is the deep green thickets of *Rhododendron* extending northwards along the sideland from Millcombe. These sideland bushes form an attractive setting against the sea and the steeply rising slopes, and when in flower, enhance the character of the area considerably. In the spring, at any rate, probably few people object strongly to the colourful vista, framed by the sea, which on a warm day, has an almost tropical flavour. However the plant seems to have been spreading in recent years, as many have noticed, and the uncontrolled spread of such a plant can easily contribute a menace. *Rhododendron ponticum* is not strictly an alien, as many believe, as it was a native plant in Britain at least until the Ice Age. However, in common with many alien plants, it commonly grows as a monoculture, and supports very little wildlife—the thickets are generally too dense for sheltering animals, few birds nest in them apart from the occasional blackbird, and very few insects feed on the leaves. Wherever the thickets spread, light is virtually eliminated from the ground layer, and other plant life disappears. In addition it is poisonous to vertebrate animals. Thus wherever the *Rhododendron* spreads it does so to the exclusion of everything else. The rapid and successful spread of the *Rhododendron* in Britain is in fact a good example of an introduced plant exploiting a niche not filled by a native species. In 1972 I was given a field society grant to investigate the problem of the spread of the plant, and to produce a distribution map of its occurrence on the island. The following notes and observations were made during early August of that year.

History

The Lundy *Rhododendrons* were originally planted by the Heaven family, although the exact date is obscure. Areas of the lower East Sideland adjacent to Millcombe were converted into terraced gardens or 'pleasances', and presumably *Rhododendron*, a showy attractive plant, was one of the species planted. The outlines of the boundary walls of these enclosures are still visible today, and the parallel low patch of *Rhododendron* near the Inner Anchorage actually follows a garden boundary. On the neglect of these gardens, the *Rhododendrons* persisted, probably spreading into the artificially cleared areas. However the vital date in the history of the plant is 1926. A fire started by Martin Roles Harman during a pheasant shoot was carelessly controlled, and spread rapidly along the sideland area as far as the northern quarry. Vegetation in the area between the quarry and St. Helen's Coomb was virtually all destroyed, apart from a few isolated pockets such as the planted trees in Slipway Cutting. The *Rhododendron* roots evidently survived, however, and their shoots appeared above the burnt topsoil in the following spring. The complete lack of competition favoured the rapid colonisation along the sideland area and the clumps seen in the area today were already well-established by 1930. The limits of this fire are known and coincide very well with all the older *Rhododendron* thickets, as a glance at the map will show.

There has been comparatively little additional planting since this date. Mr. Harman planted bushes here and there, particularly around Millcombe House, and these have persisted, though many now look very unhealthy. Mr. F. W. Gade planted *Rhododendron* in V.C. Quarry, probably in 1956, but these specimens subsequently died off. Bushes now present in the quarry apparently spread there naturally from thickets lower down. An attempt was made to harvest suckering shoots of *Rhododendrons* for sale, by Mr. Gade, but the exercise proved unprofitable and was abandoned. One aspect of the recent history of the plant which must not go unmentioned is the occurrence of young plants and



- RHODODENDRON CLUMPS AND THICKETS
- AREAS CONTAINING SEEDLINGS
- x UNCONFIRMED RECORDS
- MAXIMUM EXTENT OF 1926 FIRE

seedlings over a wide area of the plateau north of Quarter Wall, and the spread of clumps to areas along the sideland as far as the Brazen Ward, and possibly Gannet's Coomb.

Distribution

The distribution of the *Rhododendron* thickets and main areas of seedlings are shown on a map which I constructed for the purpose. It is as accurate as I could make it, without surveying instruments, although people who know the island well may know of patches not represented. The large thickets along the lower East Sideland are dissected by small gullies and streams, and there appears to be little regeneration at the periphery, except in certain places facing west towards Brick and Tillage Fields. Over most of this area the dense summer bracken canopy excludes light from any established seedlings during their growing season, and this probably prevents their further spread. As one travels north along the splendid lower sideland path cut by a conservation corps, the bushes become progressively lower in height with more slender boles, and become more or less confined to a narrowing shelter area on the lower part of the sideland. After V.C. Quarry, their occurrence is sporadic, although isolated patches occur as far north as Brazen Ward.

Of the thickets occurring elsewhere on the island, the largest—that in the area west of Quarterwall Cottages was part of the area over-ran by the fire. In this and the boggy area nearby there are large numbers of seedlings. The latter also occur thinly over much of the area north of Quarter Wall, more common in some places than others, but becoming very abundant again, together with a number of well-established bushes, in the basin about Pondsbury and Punchbowl Valley. Further north, I was unable to find seedlings over a wide area, although they are easily missed and might well occur. A few grow near the path west of Brazen Ward, and a number in the boggy part of Gannet's Coomb. I did not see any bushes in the latter, but in view of the amount of *Rhododendron* in the Pondsbury bogs, this seems a likely area for future spread. For details of distribution, the map should be consulted, for which this account of the distribution is meant only to be a guide.

Ecology

Unlike many introduced species, *Rhododendron ponticum* is able to reproduce both vegetatively and by seed. It thrives on acid, often peaty soils and is capable of very rapid colonisation and spread by vegetative shoots, particularly in English woodland. Little objective work appears to have been carried out on the ecology of the species in Britain, although Tansley, working in S.W. Ireland, found that it was a very efficient coloniser of open ground, but could not spread in closed communities, such as turf. On Lundy, *Rhododendron* grows generally on deep, acid soils, and is more tolerant of poor drainage than is bracken, which requires well-drained soils with a low grazing density. A requisite appears to be some degree of shelter, bushes in the more exposed places on the sidelands and plateau being dwarf and procumbent in form. There is some evidence that bushes in exposed areas have a slower rate of growth: by counting annual growth increments on cut stems of specimens at various points along the sideland bushes, it appears that clumps near the Slipway Cutting are approximately the same age as those near Hangman's Hill*—and yet the boles of the former are very much slimmer.

Another limiting factor regulating the distribution of *Rhododendron* on Lundy would appear to be the water table. On walking around the island to gain a general impression, the *Rhododendron* appeared to occupy a zone in the boggy areas, between the bracken-dominated grass heath and the Sphagnum bog, often associated with *Juncus effusus*. I decided to have a more detailed look at two areas where the *Rhododendron* seemed to be well-established and increasing, beginning with the bog immediately south of Pondsbury.

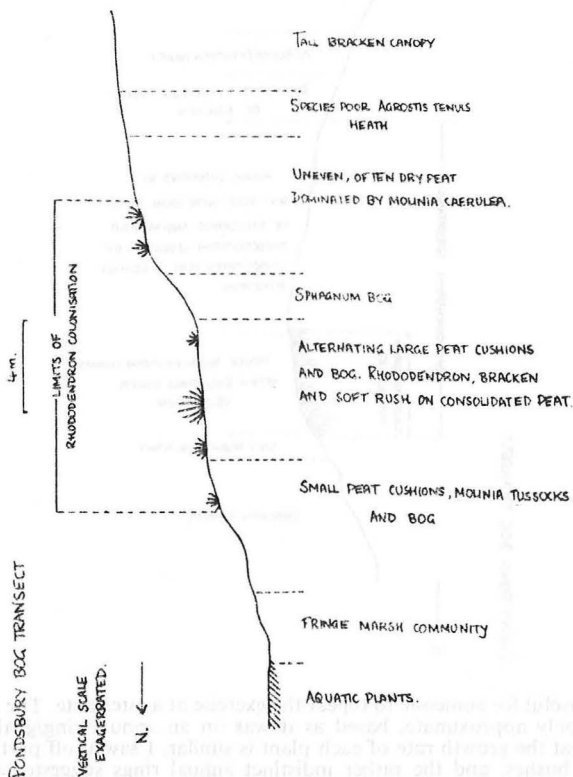
* Between 25–40 years old.

(a) **Pondbury**

Pondbury is a permanent, but shallow, body of water, lying in a basin which is dominated by Sphagnum and Molinia bog. The basin narrows sharply into Punchbowl Valley although another boggy area occurs at the source of the small inflowing stream to the south. A gradient of vegetation occurs in the Pondbury basin, from the (i) bracken on the well-drained soils at the periphery, through (ii) a narrow but varying belt of grass-heath, (iii) Molinia/Erica tetralix bog, (iv) Sphagnum dominated bog to (v) a fringing marsh community of *Eleocharis*, sp. *Potamogeton*, and *Drepanodadus fluitans*. The bog itself is reminiscent of similar habitats on Dartmoor, and contains a number of characteristic species, such as *Wahlenbergia hederacea* (Ivy-leaved Bellflower) and *Anagallis tenella* (Bog Pimpernell).

The bog complex is characterised by a series of hummocks and peat 'Crag's, which may extend well above the summer water table, and thus have different plants growing on them. These may form local 'successions' with species such as gorse and heather on the uppermost dry peat, and others such as *Juncus effusus* and Rhododendron growing lower down, or on smaller hummocks.

I extended a transect line from the bracken fringe across the bog towards the pond's southern side, in the position located on the map. I recorded all the



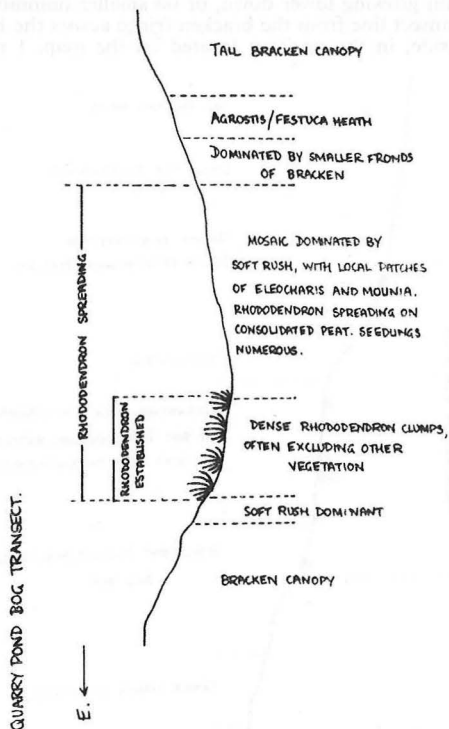
vegetation at three meter intervals, using the meter square quadrat as a sampling unit. From this data, I attempted to construct a diagrammatic section of the vegetation along the gradient, showing the zone of Rhododendron bushes.

From this, evidence, and an examination of each of the larger bushes around Pondsburry, it appears that (i) *Rhododendron* bushes establish rather damp peat, capable of considerable waterlogging in winter, and neither on the drier turf above the winter water table, or on the permanently wet Sphagnum bog.

(ii) The bushes are all low in height, and tend to be on hummocks, giving an extra degree of support to the root system.

(iii) The younger specimens and seedlings are much less selective, and occur over a wide range of conditions in the area. Although many of these would not normally grow into a flowering shrub because of lack of shelter and support among other reasons, suitably placed seedlings *might*, particularly as they are not grazed to any great degree. The main requirement for germination is the lack of competition for space and light, and therefore the open community nature of much of the peat bog is ideal.

I have mapped out the main area of *Rhododendron* occurrence south of Pondsburry, and in order to assess just how rapidly the plant is increasing, it



would be useful for someone to repeat the exercise at a later date. The references to age is only approximate, based as it was on an annual ring/girth scale, it assumes that the growth rate of each plant is similar. I sawed off part of one of the larger bushes, and the rather indistinct annual rings suggested an age of 7-10 years. The seedlings around the bushes appear to be of seed origin, and not the suckering of the bush itself from subterranean rhizomes. Several of the larger bushes produced flowers and seed both this year and last, and as the aggregate number of flowers increases it is likely that increasing amounts of wind-blown

seed will be available to colonise suitable areas elsewhere on the island. As the prevailing winds over the island are westerlies, I would guess that the plateau Rhododendron's originate from these plants.

(b) Quarterwall Cottages

The area referred to comprises a shallow, badly-drained area just west of the quarry pond and the cottages, in the position marked on the map. To the western end of this depression are signs of former peat digging. Similar conclusions were reached from the area, and it would be tedious to repeat them all in detail. The Rhododendron clumps, which forms two low ($4\frac{1}{2}$ –5') but very dense thickets, grow on the drier, more open communities, slightly above the wet Sphagnum bog. Again, the bushes evidently thrive neither in the bogmass, nor among the fringing bracken. The clumps are procumbent in habit, as a result of increasing exposure to strong westerlies, and the roots seem often to be prostrate, lying preferentially in the drier peat. The age of the larger clumps was again difficult to estimate, but would appear to be at least 10 years old. This area was also mapped out in as much detail as possible. Both maps show the locations of all the individual plants I could find, although their numbers will no doubt vary from year to year, not least due to their being pulled up by conservationists.

Summary and Eradication

- (i) The bulk of the island's Rhododendrons were in existence by the 1930s, as a result of the former vegetation being stripped by a fire.
- (ii) Of the factors governing the spread of the Rhododendron, probably the most critical are the availability of open communities, some degree of shelter, and the presence of deep soils. The bushes favour very acid, mineral poor soils, particularly warm, damp peaty substrata.
- (iii) Apart from the sideland thickets, several flowering bushes occur at other locations on the island, of which the best placed for seeds to disperse and colonise other areas is at Pondsbury.
- (iv) The area the Rhododendron is capable of colonising on Lundy is limited, but much of the remaining east sideland, and Gannet's Coomb must be regarded as threatened. In the absence of control measures, there is likely to be a cumulative increase in the plant until most or all of the available niches are filled.

Unfortunately there are no really effective ways of eradicating Rhododendrons. The Forestry Commission recommend cutting the bushes and spraying the foliage of the regrowth with ammonium sulphate at 5 lb. per gallon—applied at the rate of 50 gallons per acre. The task is too enormous to contemplate with the East Sideland thickets, and it would appear that these are there to stay, for better or worse. For the remainder, the areas are too small and isolated for spraying to be worthwhile, and in any case, many people would feel that Lundy is not a suitable place to use poisonous sprays. On the other hand, it might be possible to chop down a few bushes and apply the compound with a paint brush, as an experiment. At present, the best method of control is probably to follow the wise practise of the warden, and pull up the seedlings whenever they are found.

Acknowledgments

I should like to thank the field society for financing this brief study of the Rhododendron, and for the friendly help I was given whilst on the island. In particular, my thanks are due to Mr. F. W. Gade and to Mr. Colin Taylor, without whose valuable assistance, much of the above would never have been written.

ADDENDA TO THE LUNDY CABBAGE. P. R. MARREN.

As many members must be aware, I considerably underestimated the distribution of the Lundy Cabbage on the east coast of the island. Although the area described in the 1971 report is probably where the plant is commonest, it also