Rep. Lundy Field Soc. 49

RHODODENDRON PONTICUM ON LUNDY - BEAUTIFUL BUT DANGEROUS

By

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INTRODUCTION

The history of *Rhododendron ponticum* on Lundy is outlined by Marren (1973). It was introduced to Lundy as an ornamental garden plant in the early 19th Century and was able to take advantage of a major fire on the east side of the island in 1926, after which it rapidly established the large impenetrable thickets which still form the core population areas today (National Trust 1991). The first reference to *Rhododendron* as a problem was by the island's owner MC Harman in 1949 (Harman 1950) who suggested that the Lundy Field Society might assist in controlling it.

Rhododendron is a large evergreen shrub which produces abundant brightly-coloured flowers in the spring and early summer. *Rhododendron* is not native to the UK, but was introduced from the Iberian Peninsula or the eastern Mediterranean. It does very well in cool, humid conditions and is perhaps the most damaging invasive plant of conservation areas in western parts of the UK. This is because of its dense shading, acid leaflitter and toxic foliage that lead to *Rhododendron* bushes excluding virtually all other plant species from beneath them and eventually to the development of extensive monocultures.

By the time that its distribution on Lundy was first mapped (Marren, 1971; Figure 1) *Rhododendron* formed the dominant vegetation along a number of sections of the east of the island, with isolated plants appearing elsewhere, including small numbers inland on the plateau. Aerial photographs were taken of the area in 1974, from which Figure 2 is derived. The National Trust mapped the *Rhododendron* again around 1991 (Figure 3), and we produced an updated map in 1996/7 (Figure 4). Despite considerable efforts at containment, the maps show a general increase in *Rhododendron* cover over this period, with the major blocks tending to expand and close together. There has also been a spread towards and down the sea cliffs, and some plants are now even found low down on the cliffs, close to the high-water mark. The total *Rhododendron* cover in 1997 was estimated at approximately 8.9 ha, of which approximately 1.5 ha had been recently cleared and was in various stages of after-treatment (Compton *et al*, 1998).

THREATS POSED BY THE SPREAD OF RHODODENDRON

The most frequent cause of extinction among island endemics (species that are found nowhere else) is the introduction of alien species (Diamond, 1989). Lundy is home to one of Britain's few endemic plants, Lundy Cabbage *(Coincya wrightii)* which is unique in being the only endemic plant species that supports an endemic species of insect, the Lundy Cabbage

Flea Beetle *Psylliodes luridipennis*, as well as two other beetles different to those on the mainland (the Lundy Cabbage Weevil, *Ceutorhynchus contractus* 'var. *pallipes*' and a flightless form of the flea beetle, *Psylliodes napi*). Unfortunately for Lundy Cabbage, its small area of distribution, on the South-East sidelands and cliffs of the island, is also the area where *Rhododendron* is spreading (Compton & Key 1998). Populations of the Red Data Book species Balm-leaved Figwort *(Scrophularia scorodonia)* are also found in the same area.

The possibility that the spread of *Rhododendron* might threaten the long-term survival of the Lundy Cabbage and its insects was assessed in a recent English Nature-funded report (Compton *et al.*, 1998). The report concluded that, if it is not controlled, *Rhododendron* is capable of occupying the full range of habitats of the Lundy Cabbage and so has the potential to lead to the extinction of this species and its associated insects in the wild. The report also highlighted the problem that the *Rhododendron* of most immediate conservation concern is that growing on the cliff faces, where conventional control methods could not be employed. It was therefore recommended that pilot studies be carried out to assess the practicality of clearance from these areas.

Based on digitalised maps of the distribution of *Rhododendron* (Figs 1-4), individual patches and sections of patches were rated according to the threat they pose to Lundy Cabbage and the relative ease of access for control. It was suggested that as far as possible the *Rhododendron* should be removed in sequence, in accordance with the priority ratings of individual thickets.

Some archaeological features on the eastern sidelands of Lundy are also threatened by the extensive root systems of *Rhododendron* and some of the prior clearance efforts have been targeted to protect and expose various quarry equipment features and the VC memorial.

RHODODENDRON CONTROL ON LUNDY

Heroic control efforts have been made by Lundy Field Society members and other volunteers over many years. Control of *Rhododendron* during the 1980's concentrated mainly on the elimination of the relatively young stands of the plant at the northern edge of its distribution, around Threequarter Wall Bay and above Brazen Ward. By 1988 the complete elimination of *Rhododendron* bushes from Threequarter Wall Bay was reported (Willcox, 1988, National Trust 1991), but with the caveat that numerous seedlings were appearing. Regular seedling removal has continued, but they are still found there to this day. Fortunately, *Rhododendron* does not have a persistent seed bank (Cross, 1975), and the seedlings are probably the result of a few mature plants that were found to be growing in inaccessible locations below the cliff edge. These were largely cleared in 1998, so final elimination in this area may be in sight.

More recent control measures have included a change from uprooting to chemical control of *Rhododendron* stumps. The Landmark Trust has a Countryside Stewardship agreement with FRCA, part of which provides financial assistance for the chemical treatment of stumps after cutting by volunteers. Additional chemicals have also been donated by Monsanto Ltd. Clearance efforts through most of the 1990's have concentrated on areas of archaeological interest above Quarry Beach, above St. Helen's Copse and on plants in and near Millcombe (Parkes, 1996). Large areas of the two most southerly major *Rhododendron* thickets have also been cleared.

The pilot study to assess the practicality of *Rhododendron* clearance from the cliff-sides took place in January 1998. Angus Tillotson (Ropeworks Ltd., Bristol) was contracted by English Nature to remove those isolated *Rhododendron* bushes with the highest conservation priority ratings in Compton *et al.* (1998), in particular very isolated young bushes on the cliffs below Marisco Castle and below the eastern end of Halfway Wall, which were potential sources of new colonization. Ropeworks were also contracted to begin clearance of the most southerly of the major *Rhododendron* thickets, above Ladies' Beach. This involved specialist rope-based techniques (Tillotson & Chambers, 1996), with staff and students of the University of Leeds providing the cliff-top assistance that was required to haul up the cut *Rhododendron* and burn it. The pilot study confirmed that *Rhododendron* could be cleared successfully from the cliff-sides and it was concluded that if funding levels could be maintained, then the removal of all *Rhododendron* from the cliff-sides and the adjacent five metres of cliff-top was a realistic medium-term goal. Thanks to subsequent cliff-side clearance efforts by Ropeworks and members of the British Mountaineering Council, aided by Lundy Field Society and other volunteers, the work appears to be on target for completion around 2006 if problems with regrowth after cutting can be sorted out.

Two unexpected bonuses were found after the clearance in 1998. One was that a small number of Lundy Cabbage seedling germinated almost immediately in the cleared area above Ladies' Beach, although sadly these were grazed off later in the year. Another was that the cliff-top clearance programme revealed stone garden terracing which had been hidden for many years.

CONCLUSIONS

Rhododendron in flower is considered by many visitors to be a highly attractive feature of Lundy. Indeed, it is present in such quantities on the side of the island that is first viewed by visitors arriving on the *Oldenburg* that it is regarded as one of Lundy's major spring-time attractions. This poses something of a dilemma, as *Rhododendron* is alien to the island and a single flower head can produce more than six thousand seeds, allowing a large bush to release in excess of one million wind-blown seeds each year (Cross, 1975). Consequently, those plants in areas which are not cleared are continuously re-seeding those areas that have been, as well as leading to the colonisation of new areas. *Rhododendron* clearance work of the cliffs and sidelands will therefore need to be continued indefinitely if all the hard work and financial resources that have been put in so far are not to be wasted.

From a conservation perspective, this suggests that the long term control objective should be the complete eradication of *Rhododendron* from Lundy, as this is the only way that the need for constant, repetitive and very expensive control measures will be ended. However, that is a question for the future, given the large amount of *Rhododendron* that still remains on Lundy!

ACKNOWLEDGEMENTS

This work was financially supported by English Nature as a contribution to the Species Recovery Programme. Our thanks to those who live and work on Lundy for their help and consideration in many ways, in particular to the wardens Andrew Gibson, Emma Parkes and Liza Cole and to the various groups of volunteers who have, over the years, managed to slow the rate of expansion of *Rhododendron*. Thanks also to Monsanto Ltd. for providing quanti-

ties of Roundup for treatment of the cut stumps.

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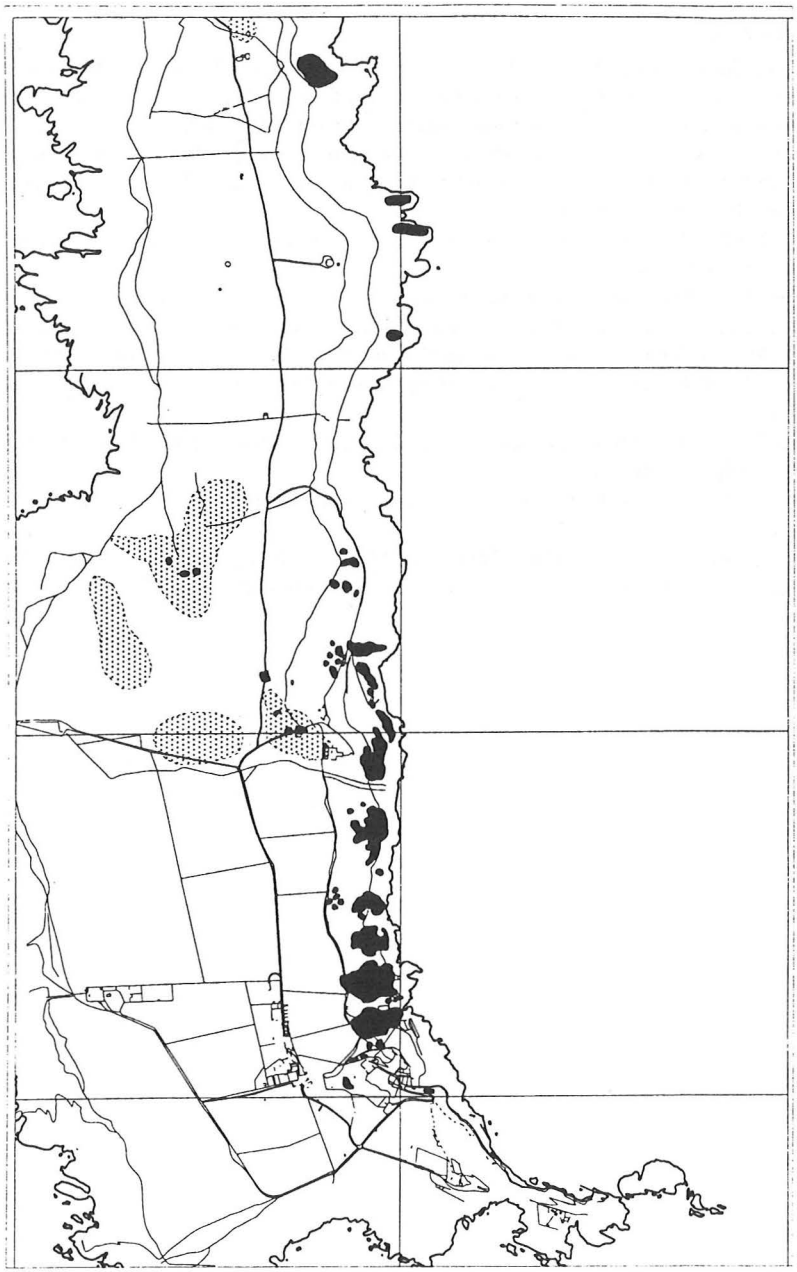

Figure 1: *Rhododendron* distribution plotted from Marren (1971) .
(Shading = areas with seedlings).

Figure 2: *Rhododendron* distribution plotted from 1974 aerial photographs.

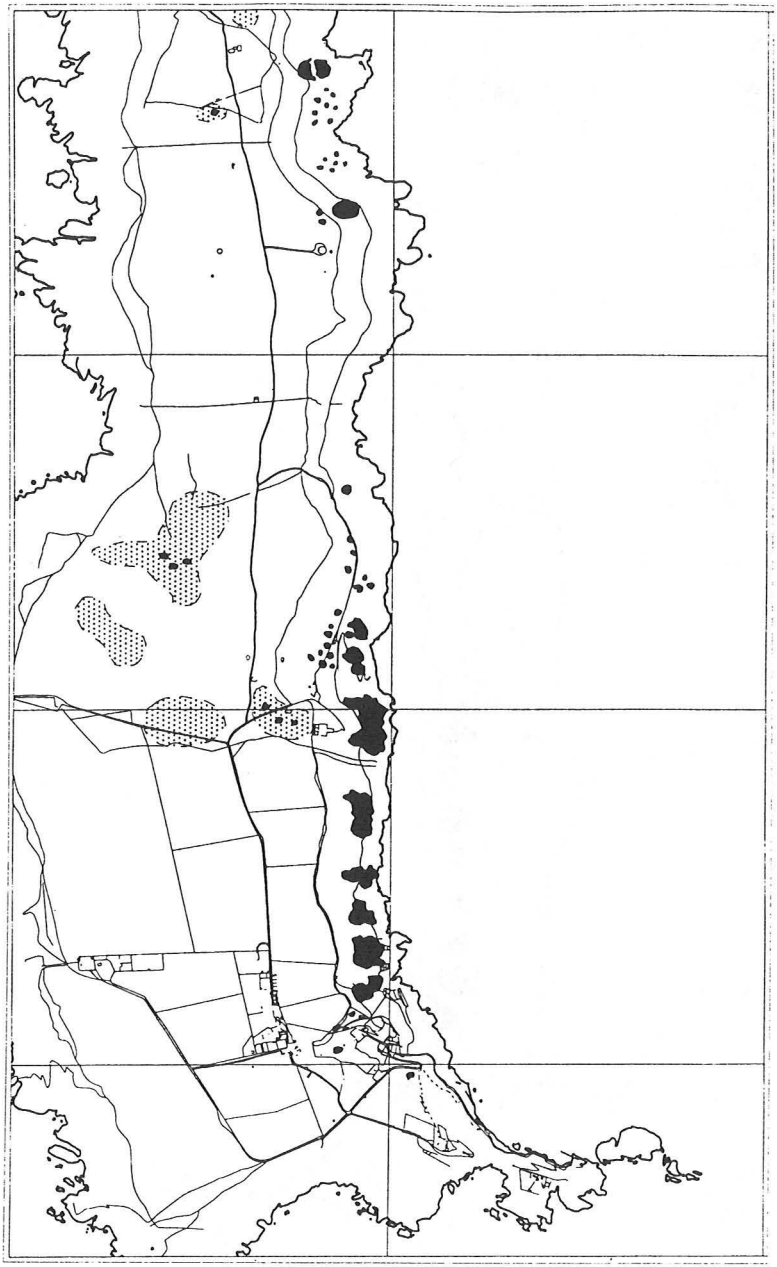

Figure 3: Rhododendron distribution from National Trust (1991).
(Shading = areas with seedlings).

Figure 4: *Rhododendron* distribution in 1997; our own surveying.