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GRASS GROWTH ON TWO AREAS OF LUNDY IN JUNE 1978

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INTRODUCTION

I visited Lundy for the first time on the Lundy Field Society Excursion to the island in June 1978. During this short visit I was able to make some brief notes on the growth of the grass in two areas. These were firstly the area on the west coast by St. James's Stone and secondly in Middle Park, between Halfway Wall and Threequarter Wall.

(a) Western Slopes by St. James's Stone

i. *Past growth*

The dominant grass species in this area is Yorkshire Fog (*Holcus lanatus*). In the past this grass typically grew here in luxuriant tussocks (H. C. Dawkins, personal communication). In a study of the vegetation of the coastal slopes of Lundy, Gabbutt (1952) noted that Yorkshire Fog was more frequently present on these western slopes than on the Eastern slopes. He suggested that it was able to tolerate the shallower soil, more frequent gales and greater salting which occur here. The ability to tolerate salt spray was also noted by Gillham (1955) & Rozema (1975) found that Yorkshire Fog seeds can germinate in up to 50% sea water. Yorkshire Fog can respond to nitrogen up to levels of 180 kg/ha/yr (Haggar, 1976). Thus, it would be expected to make rapid growth in response to droppings from seabirds or rabbits. It has also been suggested that the ability of Yorkshire Fog to spread horizontally by runners may make it more tolerant of moderate grazing by rabbits than many other grasses (Gillham, 1955).

ii *Present growth*

The luxuriant growth of Yorkshire Fog was no longer present in June 1978. The plants were stunted with a white mat of dead leaves underneath them.

There were many bare patches in between Yorkshire Fog plants and those of the other main species, thrift (*Armeria maritima*). The Yorkshire Fog plants were only about 50 mm tall and it seemed unlikely that they would flower in 1978 (undefoliated plants were already flowering on the mainland). However, thrift plants were flowering freely. They are not grazed by rabbits (Gillham, 1955) and young thrift plants had begun to colonize the bare patches from seed. If Yorkshire Fog is not able to flower it will only be able to spread into the bare patches from the edges by runners and so thrift is likely to become dominant.

iii *Possible reasons for change*

The dry summers of 1975 and 1976 imposed moisture stress on all plants. They probably also forced animals larger than rabbits to graze these slopes because grass was scarce elsewhere. Yorkshire Fog is susceptible to such treading damage. The work of Edmond, reviewed by Brown and Evans (1973) showed it to be the least tolerant of treading among the large number of grasses tested.

Plants of Yorkshire Fog which have been infrequently grazed in the past will not be well adapted to very frequent close deboliation. Intensive sheep grazing of Yorkshire Fog (derived from seed from herbage seed crops in which it was a weed) on hill land had led to poor root growth and a decline in the cover of the

species (Sithampanathan, 1963). Also, when the height at which Yorkshire Fog was cut was reduced from 100 mm to 25 mm the total yield of the grass over 6 months was greatly decreased (Watt, 1977).

(b) Middle Park

The grasses in this area are mainly fescues and bents (*Festuca* spp. and *Agrostis* spp.). These are more tolerant of animal treading, low height of grazing and low nutrient levels than is Yorkshire Fog. The plateau has been closely grazed for a long time but the large areas of bare soil were not present ten years ago (H. C. Dawkins, personal communication). It seems probable that the recent drought and increased intensity of grazing may have caused grass death and hence the large bare patches. These bare areas are now likely to be colonized more rapidly by seed from unpalatable herbs (e.g. *Plantago coronopus*) than by bents and fescues. This is because the grasses both cannot set seed and can spread vegetatively only very slowly under heavy grazing.

(c) The Future

It is possible that the damage due to moisture stress and grazing pressure during the drought may be rectified by a series of moister growing seasons. However, it may be that the damage is irreversible with the present stocking rates of rabbits and other animals. It would be interesting to fence off small areas to find out the relative effects of grazing by rabbits and/or larger animals. In addition some bare patches might be oversown (both within and outside such enclosures) with seed of the previously dominant grasses to discover whether this would restore a satisfactory sward.

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