

AN INVESTIGATION INTO SOIL ACIDITY ON LUNDY

by
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In July 1988 the author conducted a survey into the pH values of soil on Lundy.

METHODS AND MATERIALS

The soil was tested at a depth of 10cm using a bimetal probe connected by cable and battery to an ammeter calibrated directly on a pH scale ('Rapitest pH meter' manufactured by Rapitest, Corwen, Clwyd). The needle at rest is at pH 7.0 and deviates according to the soil at the site being tested.

The island was divided into test areas running from West to East along eight lines of Latitude, chosen to reflect various geographical, geological, climatic and human influences. Up to nine test 'probes' were made along each West-east latitude and at each site three individual 'probes' were made within an area of one metre in case of peculiar, but strictly limited, variation.

RESULTS

The results are shown in Table 1.

FACTORS AFFECTING pH VALUES

1. The underlying soil structure (granite or slate)
2. The depth of soil
3. The effect of prevailing westerly salt-laden winds.
4. Drainage — be it over the western sidings or to the east.
5. The type of vegetation.
6. The type of grazing.
7. Human — agriculture & use of fertilizers.

INTERPRETATION

Factors 1 & 2. By using the triple-sample method it was hoped to eliminate local abnormalities, although readings taken over slate had a higher pH value (though this occurs in the more sheltered and cared-for south eastern part of the island).

Factor 3. Readings were always more acid on the western facing and westward draining sites.

Factor 4. There was no evidence of a natural change in pH on eastward draining sites. The centre of the island, however, where the drainage tends to be towards Pondsburry, showed high acidic readings.

Factor 5. Surprisingly this did not appear to be a factor influencing pH values. The unimproved land north of Threequarter Wall gave average readings.

Factor 6. This did not appear to be important, although the area around the Rocket Pole Pond produced the most acidic readings, which could have been caused by a mixture of Factors 3 & 4, the usual absence of cattle and the presence of resting gulls.

Factor 7. Undoubtedly chemical and natural fertilizers have sweetened the soil in the enclosed fields near the southern half of the island but it is surprising that very high values were recorded both at the Ugly and on Castle Hill where fertilizers have never been spread.

Latitude North	Test Probes										
	0	1 West Sidings	2	3	4	5	6	7 East Side Path	8 East of Path	9	10
46.7 Just North of Threequarter Wall				6.5	6.7	6.0	6.6	6.9	6.3		
45.9 North of Halfway Wall				5.2	6.1	5.0	5.3	6.3	6.7		
45.0 North of Quarter Wall		5.9	6.2	5.9	5.4	4.7	6.5	6.6	6.6		
44.7				7.0 Ackland's Moor			6.7 Airfield		6.8 Brick Field		
44.3 North of Old Light Wall	6.2	6.5	6.5	6.9	6.8	6.8	6.8	6.7	7.1 Tillage Field		
44.1			5.7 Parson's Well		6.7 Lighthouse Field			6.8 St Helen's Field	6.8 Millcombe Valley	6.7 Below Millcombe House	6.0 Lower Millcombe Gardens
43.9			6.5 Southwest Field		6.8 Tent Field	6.6 St Helena's Common	6.8 St John's Valley	7.0 Ugly Area			
43.7			4.5 Rocket Pole Pond			6.6 Benjamin's Chair		7.1 Castle Hill			

TABLE I: pH values of Soil on Lundy.