then, would seem to be wind which cools exposed soil on high ground and is especially strong in the heaths of the north and west.

Hence the three components may be tentatively identified as moisture, nutrient status and wind. By far the greatest part of the variation in heath is caused by the first of these.

ANT DISTRIBUTION

The mean values of the twelve variables for the common species of ant and for unoccupied areas have been tabulated (Tables 3 and 4). Standard errors have been given as an indication of reliability but in such highly correlated data it should be realized that the usual significance tests are inappropriate.

Table 3. *Mean value of height above sea level, three soil factors and the proportion of bare ground for four species of ant and unoccupied areas*

Species	Height (m)	Soil moisture (%)	Soil organic matter (%)	Temperature in June (° C)	Proportion bare (of 8)
Lasius alienus	17·8 ± 0·46	8·8 ± 0·69	17·9 ± 1·06	17·03 ± 0·33	4·04 ± 0·23
Tetramorium caespitum	16·3 ± 0·60	12·5 ± 1·39	22·9 ± 1·82	17·31 ± 0·64	3·05 ± 0·44
No-ants	17·5 ± 0·86	14·1 ± 3·37	21·1 ± 2·34	15·94 ± 0·53	3·84 ± 0·28
Formica fusca	13·6 ± 0·34	21·8 ± 7·28	25·5 ± 4·13	16·76 ± 0·85	1·11 ± 0·48
Lasius niger	14·2 ± 0·60	89·8 ± 15·15	29·7 ± 2·94	15·29 ± 0·39	1·39 ± 0·27

Evidently *Lasius niger* lives in low-lying ground if it is wet, otherwise *Formica fusca* is more likely to be there. Such areas accumulate drifting organic matter especially after fires and decay proceeds slowly. As the soil warms up in spring they lag behind the higher drier areas unless these are exposed to cooling winds or lack insolation through negative aspect or plant shade. About 0·83 of the area is covered by plants (which must also reduce the rate of warming) and about half of this is grass, mainly *Molinia caerulea*; in this

Table 4. *Proportion (out of 8) of the main plants associated with four ant species and unoccupied areas*

Species of ant	*Calluna vulgaris*	*Erica cinerea*	*E. tetralix*	*Molinia caerulea*	*Agrostis setacea*	*Ulex minor*	*Pteridium aquilinum*	Others
Lasius alienus	0·78 ± 0·15	0·51 ± 0·11	< 0·05	0·10 ± 0·09	0·14 ± 0·09	1·04 ± 0·19	0·70 ± 0·22	0·77
Tetramorium caespitum	0·92 ± 0·35	0·69 ± 0·22	< 0·05	0·31 ± 0·21	0·44 ± 0·23	1·04 ± 0·30	0·57 ± 0·25	0·93
No-ants	1·28 ± 0·33	0·50 ± 0·22	0·11 ± 0·15	0·22 ± 0·19	0·28 ± 0·32	0·45 ± 0·25	0·22 ± 0·21	1·10
Formica fusca	1·34 ± 0·70	0·22 ± 0·79	< 0·05	0·89 ± 0·84	0·89 ± 0·47	1·45 ± 0·65	0·44 ± 0·29	1·66
Lasius niger	0·52 ± 0·21	0·03 ± 0·09	1·29 ± 0·21	2·23 ± 0·28	0·69 ± 0·26	0·57 ± 0·19	0·44 ± 0·24	0·84

respect the habitat is outstanding. *Erica tetralix* and *E. ciliaris* L. are more common than *Calluna vulgaris*, and *Erica cinerea* is absent; *Ulex minor* and *Pteridium aquilinum* are sparse. The ants *Myrmica scabrinodis* and *M. ruginodis* occur with *Lasius niger*, but infrequently.

Formica fusca though living low down is found in drier and warmer areas than *Lasius niger* but with a substantial amount of organic matter, perhaps in this case alive, for the vegetation cover (0·85) is greater than elsewhere. The grasses comprise about a third of this but *Agrostis setacea* is as common as *Molinia caerulea*. Most outstanding is the high proportion of *Calluna vulgaris* and *Ulex minor* each of which accounts for about a quarter of the vegetation. This habitat is richer than the others in infrequent plants that have not been specified.