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Vegetation of Shotts, Lanarkshire

Survey of the Vegetation of the Parish of Shotts, Lanarkshire. by G. Brown

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NOTICES OF WORK ON BRITISH VEGETATION

VEGETATION OF SHOTTS, LANARKSHIRE

Brown, G. "Survey of the vegetation of the parish of Shotts, Lanarkshire."
Trans. Bot. Soc. Edinburgh, **26**, 1913, pp. 101—118, 1 map.

The author gives the results of a four years' study of the vegetation of an area of about 39 square miles, indicating the various plant associations and their relation to the topographical, geological and climatic characteristics of the district. The surface consists largely of undulating ridges varying in height from 200 to 300 m., the altitude ranges from 100 m. up to over 300 m. on the Cant Hills which form part of the ridge separating the basins of the Clyde and the Forth. It consists entirely of Carboniferous rocks overlaid by glacial drift or boulder clay varying in composition and thickness in different parts, and in some places there are present in the clay sandstone and gravel but usually boulders of volcanic origin. The most notable feature of the geological structure is the intrusion of a number of quartz-dolerite sills in the northern part of the area, these being prominent features of the landscape; the dolerite varies from a fine-grained rock to one of coarsely granitic structure. Peat covers large areas, resting on glacial drift or on the dolerite bosses, but where the rock crops out and the coating of soil is consequently thin there is often an absence of peat, a feature doubtless accounted for by the chemical composition of the dolerite.

Statistics and diagrams are given showing the relative areas of arable and non-arable land, of permanent grass and mountain and heath land, etc. The region lies within the area of mean annual rainfall of 30—40 inches. The only natural woods present are found along the banks of streams; the others, excepting some of the small birch woods, are artificial plantations of mixed deciduous trees with conifers which are often very numerous. The beech is the prevalent deciduous tree in these plantations, but the trees rarely attain any great size, many of them being of restricted and contorted growth. The beech plantations are small and occur in the cultivated area; the mixed deciduous woods contain *Fraxinus*, *Quercus robur*, *Ulmus montana*, *Pyrus aucuparia*, *Crataegus*, *Sambucus*, *Corylus*, *Prunus padus*, *P. spinosa*, *Salix* spp.; sycamore and horse-chestnut are found in the plantations. Most of the birch woods are probably the remains of a formerly much more extensive birch formation; seedlings of birch itself and of *Pyrus aucuparia* are frequent in the woods, and the herbaceous undergrowth is that of the adjoining heath, *Calluna* occupying much of the ground in the opener and drier woods.

In the coniferous plantations *Pinus sylvestris* is dominant, but spruce and larch are mingled with it both in older and younger plantations. One pine plantation is described in detail; the trees here were from 30 to 40 years old. Measurements from the surface of the covering of needles gave depths of 30 to 45 cm., the layers being composed of humus and peat and the latter being present at the surface in the opener parts of the plantation. Owing to the dense shade the undergrowth is very limited, the only plants found being in the open spaces and clearings and the following being the chief:—*Potentilla tormentilla*, *Galium saxatile*, *Scabiosa succisa*, *Cnicus palustris*, *Rumex acetosa*, *Juncus* spp., *Anthoxanthum odoratum*, *Agrostis vulgaris*, *Deschampsia flexuosa*, *D. caespitosa*, *Athyrium filix-foemina*, *Lastrea filix-mas*, *L. dilatata*. The undergrowth of other plantations is described, and the author gives the following as characteristics of these coniferous woods:—(1) the dense shade affects both the trees and the undergrowth, the lower branches of the trees themselves decay leaving bare stems with a dense crown, while the undergrowth is absent or very sparse, the plants present being mainly the two xerophytes *Deschampsia flexuosa* and *Vaccinium myrtillus*; (2) the covering of decayed and decaying needles also prevents the development of undergrowth; (3) *Calluna* when present is found only in the opener and drier parts of the wood; (4) *Deschampsia caespitosa*, *Cnicus palustris* and *Juncus* spp. are characteristic

of the wetter parts; (5) *Athyrium* and *Lastrea* form patches, occasionally of some extent, in the less dense parts; (6) seedlings of birch, rowan and willow frequently occur; (7) many of the plants are invaders from the surrounding heaths or pastures.

There are represented in the area the three classes into which grassland may be divided:— (1) “natural pasture,” with grasses dominant, soil well drained, no peat, under this heading is included the vegetation of the dolerite sills; (2) artificial pasture and meadowland, where the soil has undergone tillage and is rich in plant food; (3) “grass heaths,” with grasses dominant but the flora that of the moorland. The natural pasture often passes into grass heath and peat bog, though easily distinguished from these at a distance by its greener covering and compact turf; there is much difference in the grasses composing the various associations, but the chief are *Festuca ovina*, *Anthoxanthum odoratum*, *Agrostis vulgaris*, and *Poa pratensis*, while the flora apart from grasses is rich and varied. The artificial pasture bears a richer grass flora, and many of the plants of the natural pasture are present along with others of which a list is given. The “grass heaths” are of two types—*Molinia* heath where the soil is wet and peaty and the plants are mainly sedges, grasses and a few heather plants, and *Nardus* heath where the soil is drier and better drained, with peat less abundant and the covering often very thin; lists are given for each type.

On the moorland, of which great stretches cover the area investigated, peat is developed more or less all over, but *Calluna* is not very abundant; *Eriophorum* covers large portions where the peat is thick and wet. The author notes the manner in which the various moorland associations merge into one another according as the environment changes, either as to the amount of water present or the thickness of the peat. Finally, an account is given of the stream and marsh vegetation, with lists, and the author concludes his interesting sketch by pointing out that much remains to be done in this area in the study of distribution and the relationships existing between dominant, subdominant and associated species.

DISTRIBUTION AND ECOLOGY OF *SPARTINA TOWNSENDII*

Stapf, O. “Townsend’s grass or rice grass (*Spartina Townsendii*).” *Proc. Bournemouth Nat. Sci. Soc.*, **5**, 1913, 7 pages, 3 plates.

About 40 years ago *Spartina townsendii* appeared on the coast of Hampshire, gaining ground at first slowly but later spreading rapidly and to an amazing extent, so much so as to alter completely the aspect of wide stretches of the foreshore and the estuarine reaches of the rivers from Chichester harbour in the east to Poole harbour in the west. The genus *Spartina* is small, the species are mostly natives of the Atlantic coast of America, and only one is really indigenous in Europe—*S. stricta*, which occurs here and there in littoral marshes from Lincolnshire and Holland to the Straits of Gibraltar, and in an isolated area at the head of the Adriatic. Two other species of well-known American origin have become established in Europe during the last century—*S. juncea* in the Mediterranean and *S. alterniflora* in the innermost corner of the Bay of Biscay and in Southampton Water; but *S. townsendii* has not been recorded from anywhere outside its English area excepting two stations near Cherbourg, where it has appeared during the last two or three years. The author describes the general habit and mode of growth of *S. townsendii*. The presence of mud is an important factor in the formation of colonies of this plant; it need not be pure mud, though the grass is most generally and abundantly found on this, but if there is an admixture of shingle and sand it must not exceed a certain amount. As the mud-flats are formed in comparatively quiet waters, the grass is confined to these and is entirely out of the zone of heavy surf and strong tides. The limit to which the grass can spread on the mud-flats is determined by the depth at high tide; it can stand much submersion, but about 3 feet of water at ordinary high tide seems to be the maximum and this marks the outer limit, while the inner limit lies close to but still clearly below highwater mark. Within these limits the grass has a practical monopoly so far as flowering plants are concerned, no other species associating with it, except in places *S. alterniflora*. The *Spartina* bed between Hythe and Calshot Castle, probably the oldest and most compact, is about 5 miles long and 400–600 yards wide, and covers over 800 acres. Details are given regarding the rapid spread of this