
Review: Snow-Flush ("Schneetalchen") Vegetation

Source: *Journal of Ecology*, Vol. 1, No. 1 (Mar., 1913), p. 62

Published by: British Ecological Society

Stable URL: <http://www.jstor.org/stable/2255469>

Accessed: 26-06-2016 12:16 UTC

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at
<http://about.jstor.org/terms>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



British Ecological Society, *Wiley* are collaborating with JSTOR to digitize, preserve and extend access to
Journal of Ecology

production of other books dealing in a similar manner with the vegetation of larger or smaller areas of the British Isles.

SNOW-FLUSH ("SCHNEETÄLCHEN") VEGETATION

Smith, W. G. "*Anthelia*: an arctic-alpine plant association." *Scottish Bot. Review*, **1**, 1912, pp. 81—89.

The author gives an interesting account of a plant association which is characteristic of the higher Alps and which was seen during the International Phytogeographical Excursion, 1911, on Ben Lawers, Scotland. In this association the liverwort *Anthelia Juratkaana* and other bryophytes play the part of pioneers in colonising a substratum which owes its origin in the first instance to topography and in the second to the action of running water. Towards the summit of the mountain, where the grassy turf becomes more limited and the most conspicuous vegetation consists of *Racomitrium lanuginosum* (woolly fringe-moss), sedges, and other mat-forming plants, there occur dark patches, represented on the summit ridge by larger tracts of almost black mossy crust. These patches and tracts are known to Swiss botanists, two of whom were with the Excursion party and pointed them out, as "Schneetälchen" or "snow-flushes."

The formation of these "Schneetälchen" has been traced in Switzerland and Tyrol, where the rocks and soil, uncovered by the melting snow, are often carpeted with flowers while the snow still lies a few yards away. As melting proceeds, the snow-water soaks through the turf, forming a system of temporary water-courses in troughs of undulating ground and along the foot of slopes and escarpments, while the rain-water in summer tends to follow the same courses. On gentle slopes or flats and in depressions, the force of the flow is not sufficient to carve out channels, as happens on steep slopes, but the water wanders slowly through the turf and deposits accumulated suspended matter as a sediment. The snow-water carries the dust it gathers on lying snow, mineral particles, and plant fragments, and collects other materials in trickling over the surface; snow dust may contain 50 per cent. of organic matter, and as this with the mineral matter is laid down among remains of last year's vegetation a rich soil is built up.

The vegetation of the "snow-flush" begins with flowerless plants, and these may remain as the dominant vegetation. The pioneer plant is apparently the liverwort *Anthelia*, not only on Ben Lawers and other Scottish mountains, but also in the Alps, Scandinavia, and Spitzbergen. This plant lies close to the surface, and in the fresh moist state forms a bluish-green carpet, but in summer is often dark brown or almost black; it is often coated with threads of a fungus, and these occur also in the rooting hairs (rhizoids) of the liverwort—doubtless forming a mycorrhiza, as in the case of various other Hepaticae. Alpine species of *Polytrichum* also occur in the snow-flushes; these mosses can withstand periodical submergence, and soon grow through the shallow deposits of sediment laid down, so helping to bind these deposits into a humous turf, while their close and compact growth also enables the tufts to withstand periods of drought.

The snow-flush is an open association, into which species of flowering plants migrate from neighbouring communities; the author gives a list showing that several of these species are identical with those found in "Schneetälchen" in the Alps. On collating the accounts given by different observers, so as to obtain an outline of the evolution of the snow-flush vegetation, we find that *Anthelia*, probably preceded by algae and other lower organisms, forms a humous turf; *Polytrichum* spp. follow later, and more or less take the place of *Anthelia*; later still, *Salix herbacea* or *Alchemilla alpina* assumes chief place, and so on. The successive phases of vegetation probably indicate stages in the evolution of the habitat, since the later vegetation will tend to give it increased stability; in time the accumulation of sediment, humus, and vegetation may be such that the snow-water is diverted to new situations, where the sequence will begin over again; and during the various phases other species secure a footing, and flourish well or ill according as the habitat suits them. The snow-flush is, therefore, a series of migratory¹ associations—that is, associations of short persistence on the same habitat, sooner or later undergoing change or destruction with renewal elsewhere, and tending to rapid degeneration from plant invasion.

¹ Crampton, C. B. "Geological relations of stable and migratory plant formations." *Scottish Bot. Review*, **1**, 1912. (See Review in this Journal, **1**, p. 47.)