

## **Factors controlling Alpine humus forms distribution (Venetian Alps, Italy)**

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Within the project “Soil Map of Veneto Region at 1:250.000 scale”, Humus Forms of 260 sites have been described in alpine and pre-alpine area (7.080 km<sup>2</sup>). For each site the most frequent Humus form has been thoroughly described and the variability related to microtopography and vegetation cover has been estimated. The chosen sites represent the most typical alpine Types of soil, morphologies and vegetation covers, both over calcareous and siliceous parent materials. Humus forms have been classified by means of the Référentiel Pédologique (AFES).

The 260 humus profiles are referred to 8 Référentiel Pédologique references and to various intergrades. The distribution of every Humus form and its relationships with Soil Types and various environmental factors have been investigated. The various forms depend on the influence and interaction among factors limiting organic matter degradation, like the presence of carbonates in the topsoil or soil reaction, climate (cold or summer dryness), or litter low degradability. Due to the naturalistic approach of Italian forestry, that allows only selective fellings, the age of the forests seems to be unimportant.

Over calcareous materials (dolomite, limestone and marly limestone) the most widespread Humus Forms are mull with OF horizon (*Dysmull*) and mull-moder with OH horizon (*Amphimull*). *Amphimull* are common in mountain and subalpine belts, in beech or coniferous forests, over soils with calcareous topsoil (rendzinas or brown calcareous) or not calcareous topsoil (brown lessived soils) and in the hilly belt, under broad-leaved forests, basically only on calcareous soils. Mull with OF horizon (*Dysmull*) and mull OLv horizon (*Mésomull*, *Oligomull*) are frequent at low and medium elevations. The most active Humus Form (*Eumull*) is very uncommon. It occurs only where all the factors cooperate to improve the efficiency of organic matter degradation: low altitudes, not calcareous soils, easily decaying broad-leaved litter and prealpine temperate climate. On calcareous substrates moder and mor forms are absent.

On siliceous parent materials (volcanic sandstones, sandstones, slates and ignimbrites) humus forms show a stronger link with Soil Types, which also depend on parent materials and pedoclimate (strongly influenced by altitude and aspect). At low elevations *Dysmull* and *Amphimull* are dominant: the first ones over brown soils or dystric lessived soils and the second ones over brown acid soils. Dysmoder are widespread at higher altitudes (limits depending on various lithologies), on brown ochric or podzolic soils. No low activity humus forms have been described in the region (*Hémimor* or *Eumor*). The overwhelming diffusion of past pasture in venetian subalpine belt and the low density of actual woods are probably the reasons for this absence.

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