

**THE EFFECT OF PLANT ROOTS ON THE SOIL AGGREGATE STABILITY OF MORaine****\*Csilla Hudek <sup>(a)(b)</sup>, Silvia Stanchi<sup>(a)</sup>, Michele D'Amico<sup>(a)</sup>, Michele Freppaz <sup>(a)</sup>**<sup>(a)</sup> Dipartimento di Scienze Agrarie, Forestali e Alimentari, Università degli Studi di Torino<sup>(b)</sup> T2M, Marie Curie Cofund Fellow

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In freshly exposed moraine the soil conditions provide an unfavourable environment for plants to survive. Such harsh environments present a constant challenge for vegetation. Still, there are a number of plant species that are able to survive and adapt to these conditions. Through their contribution are able to bring about an environment that allows late successional species to appear and further increase the diversity of the habitat and reduce soil erosional processes.

The stabilization of the soil is an important element in this process. As the vegetation period of plants is short the root system plays the major role in soil stabilization.

In this project the aim was to quantify the contribution of the root system of alpine vegetation in the soil stabilization of moraine. This was determined by quantifying the increase in soil aggregate stability by the presence of roots by employing a modified wet sieving method. Ten alpine species (early-, mid-, late successional and ubiquitous) were sampled and tested from the proglacial area of the Lys glacier in the NW Italian Alps.

The results showed that the roots significantly increased the aggregate stability of the soil. There were also significant differences found among the studied species.

Integrating root reinforcement effects on soil vulnerability to erosion processes would represent a significant step towards completing an accurate susceptibility map for mountain areas.

**Parole chiave:** moraine, alpine vegetation, root morphology, soil stabilization, aggregate stability