

Is small *Abies mariesii* forest in Pseudo-Alpine Zone spreading? :Case study in the Akitakomagatake

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Pseudo-Alpine Zone composed of Sasa and shrubs occupies on subalpine zone of mountain along the Sea of Japan in eastern Japan. It is considered that heavy snowfall on those mountains prevents coniferous trees from growing and consequently Pseudo-Alpine Zone exists. But there is Pseudo-Alpine Zone in the part of the Ou Backbone Range which is less snowfall than mountains along the Sea of Japan. On Akitakomagatake, the one of mountains which has Pseudo-Alpine Zone, small *Abies mariesii* forests are scattered.

This landscape has been hitherto considered that spreading *Abies mariesii* forest which finally results in matured coniferous forest on the basis of pollen analysis. Purpose of this study is discussing whether small *Abies mariesii* forest is spreading or not in terms of tree distribution and local environment.

As the result, *Abies mariesii* seeding is distributed only within the small *Abies mariesii* forest, not in surrounding *Sasa kurilensis* and *Fagus crenata*. In addition, soil moisture is higher in the small *Abies mariesii* forest than in the surrounding vegetation. These results suggest that the small *Abies mariesii* forest is not spreading but just being established on appropriate site.

Keywords: *Abies mariesii* forest, Pseudo-Alpine Zone, Spreading range, Soil moisture