

# Experience Restore the Disturbed Ground Cover in Pine Forest Complex

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During 5 years the natural experiment has been held using 5 species of forest herbaceous plants: *Asarum europaeum* L., *Ajuga reptans* L., *Galeobdolon luteum* Huds., *Oxalis acetosella* L., *Carex pilosa* Scop. They were introduced under the canopy of complex pine forests in anthropogenic disturbed areas of Moscow region. Some biotopes differing in degree of soil moisture and surface illumination have been chosen for the experiment. Soils of five test areas were identified as sod-weakly podzolic weakly differentiated, and in humid and wet areas – as low-land peat-gley. The undisturbed complex pine forest played the role of a control area. Places of experimental planting differed as follows: 1) shady area – with high crown density; 2) illuminated area – glade without understory; 3) moist area – with temporarily soil moisture; 4) wet area – with permanent soil moisture; 5) burned out place; 6) burned out place with the processing by herbicide «Roundup»; 7) burned out place with natural recovery. Each experimental area was divided in 5 lines. The ground litter was moved away by rake. Five quadrates (1 m<sup>2</sup>) were installed on each line on the distance of 0.5 m from each other. One species of herbaceous plants (collected in nearby forest) was planted on each quadrate. As a whole, 140 experimental quadrates and 25 control ones were installed.

After 5 years in shady area four species of plants survived – except *Oxalis*. In the illuminated area all five plants have survived, but overgrowth was observed only for *Galeobdolon* and *Oxalis*. In the moist area *Asarum* and *Oxalis* took roots, and in the wet area – *Asarum*, *Ajuga* and *Galeobdolon*. Both variants of burned out place were characterized by intensive growth of *Carex* and less intensive growth of *Ajuga*. Other plantings would be considered not very successful, especially that of *Oxalis*. *Galeobdolon* and *Ajuga* have grown intensively during the second year, but then partially starved out. *Carex* has grown rather slowly but occupied the quadrates for a long time. Thus, forest grasses, particularly *Carex* and *Galeobdolon*, can be significantly increase rate of regeneration of ground cover of disturbed forests.