
Two years effects of wild ungulates on soil fauna and water infiltration in pine and oak temperate forests (Domaine National de Chambord, France)

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R sum 

Over the last century, Europe has seen its ungulate population increases. Considered as ecosystem engineers, ungulates significantly modify the environments in which they operate, particularly the soil. However, once disturbed, soil takes time to recover. Studies on the evolution of soil properties after disturbance, particularly by wild boars, are however often contradictory.

We have set up a two years enclosure experiment in the National Estate of Chambord (DNC), under pine (*Pinus sylvestris*) and oak (*Quercus petrae*) stands. We measured, in situ and in laboratories, different soil properties, whether physical (soil hardness, soil roughness, bulk density, hydraulic conductivity at saturation, humidity and soil texture), chemical (pH, total organic carbon, exchangeable cation content, CEC) or biological (soil macrofauna).

We highlighted the impact of wild ungulates on soil properties, such as decreasing fauna or decreasing of the amount of clay and calcium in the soil. We also observed differences in soil properties along forest stands and time. However, we could not observe any impact of wild ungulates on hydraulic conductivity, humidity or roughness after two years.

This study show that soil macrofauna is the first indicator to react after ungulates disturbance, conditioning the whole process of soil recovery in a longer period than two years.

Mots-Cl s: Ungulates, rooting, fauna, water infiltration, humidity, biophysical and chemical soil properties

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