

Session: Peatlands and Environment

Chair: Bernd Hofer

Sub-session: Peatlands and Climate Change (David Wilson)

Impact of wildfires burning on peatland environment in Latvia

Laimdota Kalnina¹, Inese Silamikele¹, Anita Namateva³, Ingrida Krigere², Viktors Lipskis³, Karlis Livkiss⁴

¹University of Latvia, Faculty of Geography and Earth Sciences, Rainis Blvd. 19, Riga, Latvia

²Latvian Peat Association, Ernestīnes Street 24-3, Riga, Latvia

³Nature Conservation Agency

⁴Lund University, Division of Fire Safety Engineering

email: laimdota.kalnina@lu.lv; Inese.Silamikele@lu.lv

Peatlands including bogs and fens are ecosystems existing on peat that is rich in decayed organic matter. It is assumed that in their healthy, natural state, peatlands are quite fire resistant. However, the number of peatland wildfires has increased over the recent decades. It is usually caused by reckless human activity, but also by natural ignition, which can be partly explained by the climate change. Air temperatures soar during summer seasons, and are usually accompanied by very low volume of precipitation. Dry and hot spells like this are becoming longer, causing lowering of groundwater level in peatlands. Wildfires have occurred both in natural mires including protected nature areas and in peat fields, in different places in Latvia.

The aim of the study was to identify the location of sites where the fires occurred and determine the level of influence the fires had left on the peatland environment, as well as how quickly the nature ecosystem had recovered. Usually wildfires happened in the areas with the dominance of raised bogs or raised bog peat type, mainly *Sphagnum*. Large areas that are affected by fires are in several specially protected territories, Bazhi Mire in Slitere National Park, Teichi Bog in Teichi Nature Reserve, Kemeru Bog in Kemeru National Park. Wildfires damaged Valdgale Mire and Ramata Mire in this year. Fires change the vegetation of mire, but their rehabilitation depends on many factors. It is known that the bare peat field was colonized first by dwarf shrubs and only then by trees, predominately birches. The same scenario of succession is evident after fire in mires. Burning of fens or wet grasslands are rare in Latvia. Survey of these places (Apsšuciems, Kanieris) revealed that fire left no adverse effects on the composition of plant species.

The study also observed the fire-affected areas of peat fields with aim to determine how differently they were affected in comparison to nature bogs, as well as to what extent the peat characteristics had changed, also affecting the change in peat quality.

The results of study provide suggestions in the future management of bog ecosystems and peatlands in the light of climate warming.