

Moss litter decomposition in peatland forests

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Mosses generally have a major role in the organic matter and element cycles in pristine peatlands. Decomposition rates of *Sphagnum* mosses in pristine peatlands vary with species, but are generally considered low. This is one of the reasons for peatlands acting as carbon sinks. Early research on vegetation changes following drainage of peatlands for forestry indicated that *Sphagnum* mosses rapidly decline. Consequently, it was suggested that in the forest succession following drainage, *Sphagna* would eventually be more or less completely replaced by typical (upland) forest mosses, if the drainage system is and remains successfully functional. This has been considered as one of the reasons for peatlands turning into sources of carbon to the atmosphere.

More recent studies show that *Sphagna* may remain as an important component in the moss layer even in old drainage areas. Further, the moss layer may also remain a significant source of litter inputs. It has also been shown that the forest mosses typically colonising drainage areas may have generally as low decomposition rates as most species of *Sphagnum*. Thus, the moss layer as a whole may have a significant role in the carbon balance of not only pristine, but also drained peatlands. Moss-related processes in drained peatlands have, however, received very little attention.

Our aim was to 1) measure the decomposition (mass loss) rates for moss species growing on pristine and/or drained peatlands in their native environment, and 2) relate the decomposition rates to litter quality and environmental parameters.

Our first results suggest that moss litter decomposition is slower in drained than in pristine peatlands, and that this is not a result of species difference only. We postulate that both substrate quality and moisture deficiency retard moss decomposition in the surface layers of drained peatlands.