



Lake Drainage in Permafrost Regions Produces Variable Plant Communities of High Biomass and Productivity.

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Abstract:

Climate warming, increased precipitation, and permafrost thaw in the Arctic are accompanied by an increase in the frequency of full or partial drainage of thermokarst lakes. After lake drainage, highly productive plant communities on nutrient-rich sediments may develop, thus increasing the influencing greening trends of Arctic tundra. However, the magnitude and extent of this process remain poorly understood. Here we characterized plant succession and productivity along a chronosequence of eight drained thermokarst lakes (khasyreys), located in the low-Arctic tundra of the Western Siberian Lowland (WSL), the largest permafrost peatland in the world. Based on a combination of satellite imagery, archive mapping, and radiocarbon dating, we distinguished early (

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