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Jenny Sjöström^{*1,2,3}, Elin Norström^{*1,2,3}, Jan Risberg^{1,2}, Maria H. Schoeman⁴

¹ Department of Physical geography, Stockholm University, 106 91 Stockholm, Sweden

² Bert Bolin Centre for Climate Research, Stockholm University, 106 91 Stockholm, Sweden

³ Department of Geological Sciences, Stockholm University, 106 91 Stockholm, Sweden

⁴ School of Geography, Archaeology and Environmental Studies, University of the Witwatersrand, Johannesburg, South Africa

Corresponding author: Elin Norström (PhD), elin.norstrom@geo.su.se

Department of Geological Sciences, Stockholm University, 106 91 Stockholm, Sweden.

Fax: +46 (0)8674 7877.

E-mail addresses to first author and co-authors:

Jenny Sjöström (jenny.sjostrom@geo.su.se)

Jan Risberg (jan.risberg@geo.su.se)

Maria H. Schoeman (Alex.Schoeman@wits.ac.za)

Abstract

We present a palaeoecological reconstruction covering the last 1700 years from Lydenburg fen in the north-eastern grassland biome, Mpumalanga, South-Africa. A 300 cm peat sequence was analysed for biogenic (grass phytoliths, diatoms) and geochemical proxies ($\delta^{13}\text{C}$, $\delta^{15}\text{N}$, carbon/nitrogen content) to infer past grassland dynamics and hydro-climatic changes. The Lydenburg record reports a C_4 dominated grassland throughout the studied period, with more or less pronounced fluxes between C_4 -Chloridoideae and C_4 -Panicoideae grass subfamilies. The record reflects moderate to dry conditions from AD 400 to 1000; more mesic conditions until around AD 1250; followed by a significantly drier period between c. AD 1250 to c. AD 1350, when Chloridoideae grasses expand at the expense of Panicoideae grasses. During this phase, the $\delta^{13}\text{C}$ -record reports more enriched values indicating higher influx of C_4 grasses. Furthermore, lithological evidence indicates highly erosive conditions, with significant gravel input from the surrounding hills. After AD 1350, proxy indications

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