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10,000 years of plant diversity change due to climatic and human impact in the Silvretta Massif (Austria/Switzerland) as recorded by pollen, cryptogam spores and non-pollen palynomorphs

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A prehistorical shelter in Silvretta

Understanding today's climatic change and its impact on human societies is dependent on the accurate knowledge on historical and prehistorical interactions between man and nature. In a highly sensitive mountainous region such as the Silvretta Alps between Austria and

Switzerland even small, microclimatic alterations may have huge impact on subalpine settlement activities and former use of natural resources such as timberline lowering due to high alpine pasture and/or climatic change. Such climatic fluctuations may also have influenced human impact as reflected in the huge number of archaeological sites (from the Mesolithic to Medieval Times) known and currently excavated in altitudes above 2000 m in the Silvretta Massif (e.g. settlement structures, abris and livestock enclosures). Such hunter/gatherer and pastoral

activities had a high impact on diversity of the alpine flora and vegetation, and on prehistorical yield of cultural plants in the adjacent valleys. Here we present high-resolution palynological reconstructions including pollen, cryptogam spores, and non-pollen palynomorphs (NPPs) as well as plant macrofossil results from the small bog of Las Gondas (2360 m a.s.l.), where dendrochronologically dated *Pinus cembra* (Arolla pine) tree stems found in the peat report Holocene forest stands around the bog between approximately 6700-4700 BC more than 300 altitudinal meters above today's timberline.