

**Wastl, M., Stötter, J. and Caseldine, C. (2001):** Reconstruction of Holocene variations of the upper limit of tree or shrub birch growth in northern Iceland based on evidence from Vesturárdalur-Skíðadalur, Tröllaskagi. *Arctic, Antarctic, and Alpine Research*, 33(2), 191-203.

### **Abstract**

For palaeoclimatic reconstructions based on vegetation history in Iceland, the upper limit of tree or shrub birch growth has been proposed as an indicator of summer temperature. Plant macrofossil and pollen analyses of a series of sections and cores from Vesturárdalur on Tröllaskagi show that *Betula pubescens* grew up to an altitude between 450 m and 500 m a.s.l. during optimum conditions in the Holocene. The birch pollen and macrofossil record of core Vesturárdalur 2 at ca. 450 m a.s.l., which covers the time from ca. 9200 BP to present, thus represents the first continuous high-resolution reconstruction of the variations of *Betula pubescens* at the ecological upper limit of tree or shrub birch in northern Iceland. Between ca. 6700 and ca. 6000 BP, a distinct maximum in the influx of *Betula pubescens* pollen at this site indicates a high position of the shrub-line. This can be distinguished from a low influx of tree or shrub birch pollen from ca. 6000 to ca. 5600 BP, and a very pronounced minimum of *Betula pubescens* in the pollen record around ca. 3300 BP. The inferred depressions of the shrub-line can be correlated with evidence for glacier advances and increased slope activity in northern Iceland.