



Dates of budburst in birch provenances during the period 1992-2017 as related to climatic variables in northern Fennoscandia

Oddvar Skre (1) and Frans Emil Wielgolaski (2)

(1) Skre Nature and Environment (NMV), Fana, Norway (oddvar@nmvskre.no), (2) Institute of Biology, University of Oslo, Oslo, Norway (f.e.wielgolaski@ibv.uio.no)

Mountain birch (*Betula pubescens* ssp. *tortuosa*) is the main treeline species in Northern Europe, and the recent increase in treeline elevation in Fennoscandia due to changed climate and land use has made mountain birch an important bioindicator. Birch seedlings from ten populations were therefore transplanted to three northern Fennoscandian sites (one oceanic, one continental mountain site, and one arctic coastal site). Annual measurements were carried out on growth parameters and date of budburst from 1992 onwards. At the coastal site measurements covered the whole period 1993-2010, while at the two other sites measurements only covered the period 1993-97 (mountain site) and 2010-17 (both sites). During the last period (2010-17) measurements were made on a new set of seedlings, transplanted in 2002.

In general, budburst occurred earlier in populations from northern and continental populations than from southern and coastal populations. When looking at between-year variations, budburst seemed to occur earlier in years with high mean January-April temperatures than in years with low temperature.

At the coastal arctic site, preliminary tests indicated that the results from four of the five replicates (I-IV) were significantly different from the fifth replicate (V). Replicates I-IV were all situated on a peat bog and strongly influenced by a local snowbed, while Replicate V was situated on a dry sandy terrace with early snowmelt and sheltered by a willow thicket. The measurements on the new set of plants were initiated in 2010, after the plants had recovered from transplantation, and continued until 2017. The preliminary data show that the mean date of budburst occurred one week earlier at the sheltered site than in the snowbed, and seemed to be closely related to the length of the snow-free period.