

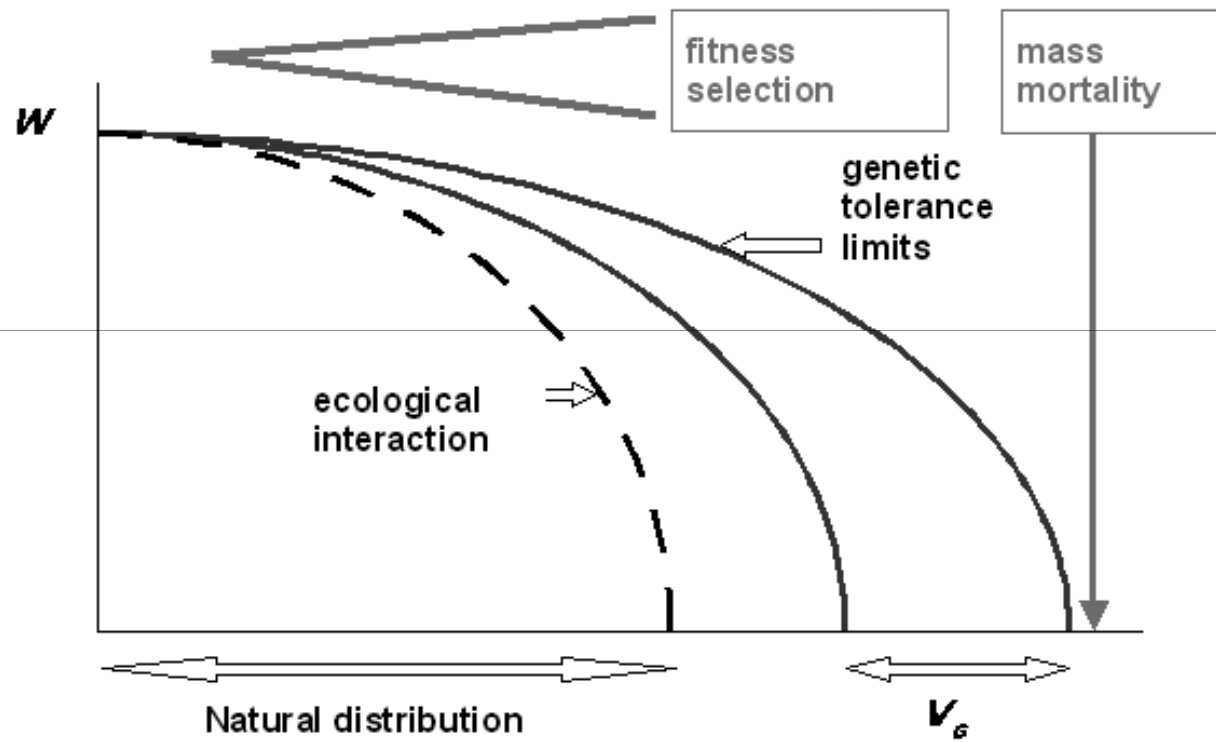


Growth response modelling on genetic basis

Nagy, L., Mátyás, Cs., Ujvári-Jármay, É.

EVOLTREE – Forests at the limit

11-15th May 2009, Sopron



Growth and survival of locally adapted populations transferred and tested in other environments (common garden tests) can be interpreted as a simulation of climatic changes at the original sites.

Mátyás, Yeatman 1987, Mátyás 1994

Mátyás, Yeatman 1987

Mátyás 1994, Schmidtling 1994

Persson, Beuker 1996

Rehfeldt et al. 1999, 2003

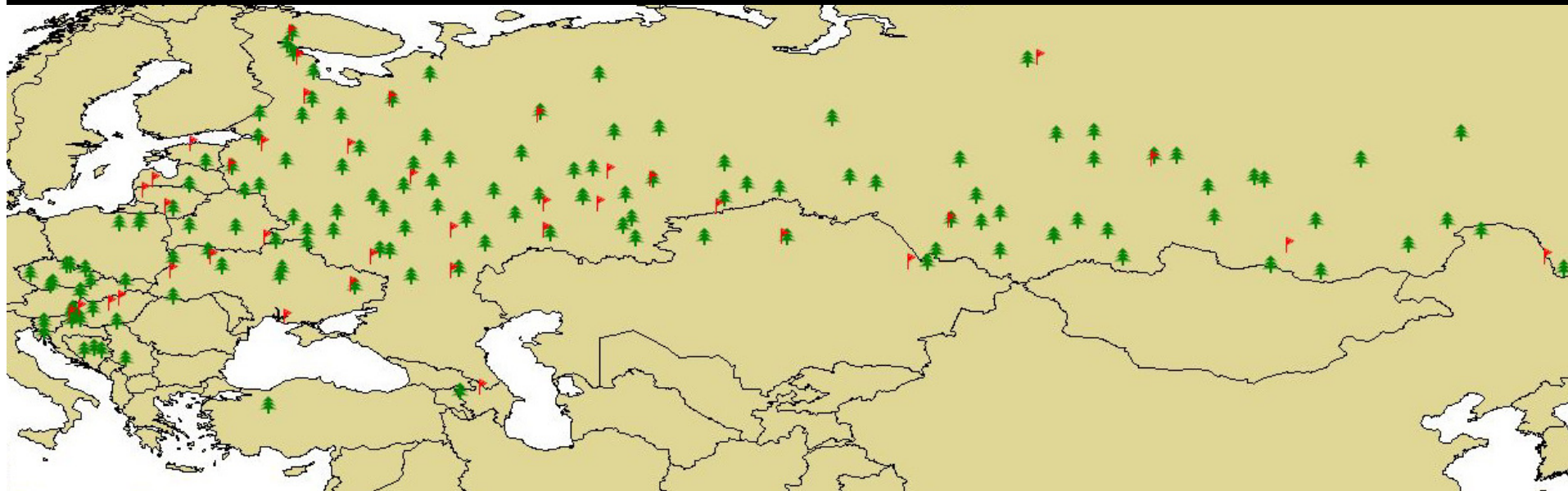
Andalo et al. 2005

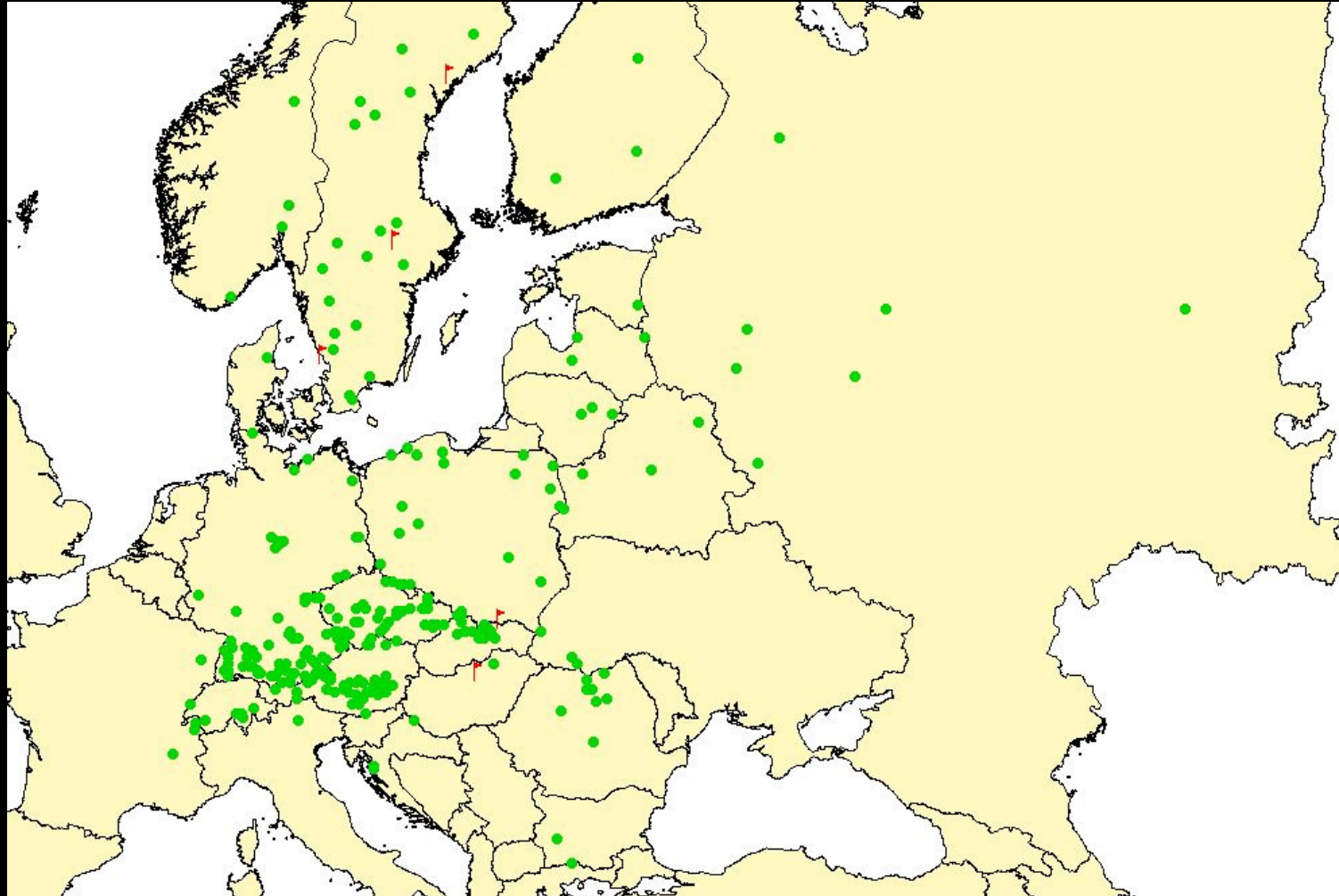
Mátyás, Nagy 2005

Wang et al. 2006

Reich, Oleksyn 2008

Mátyás et al 2009





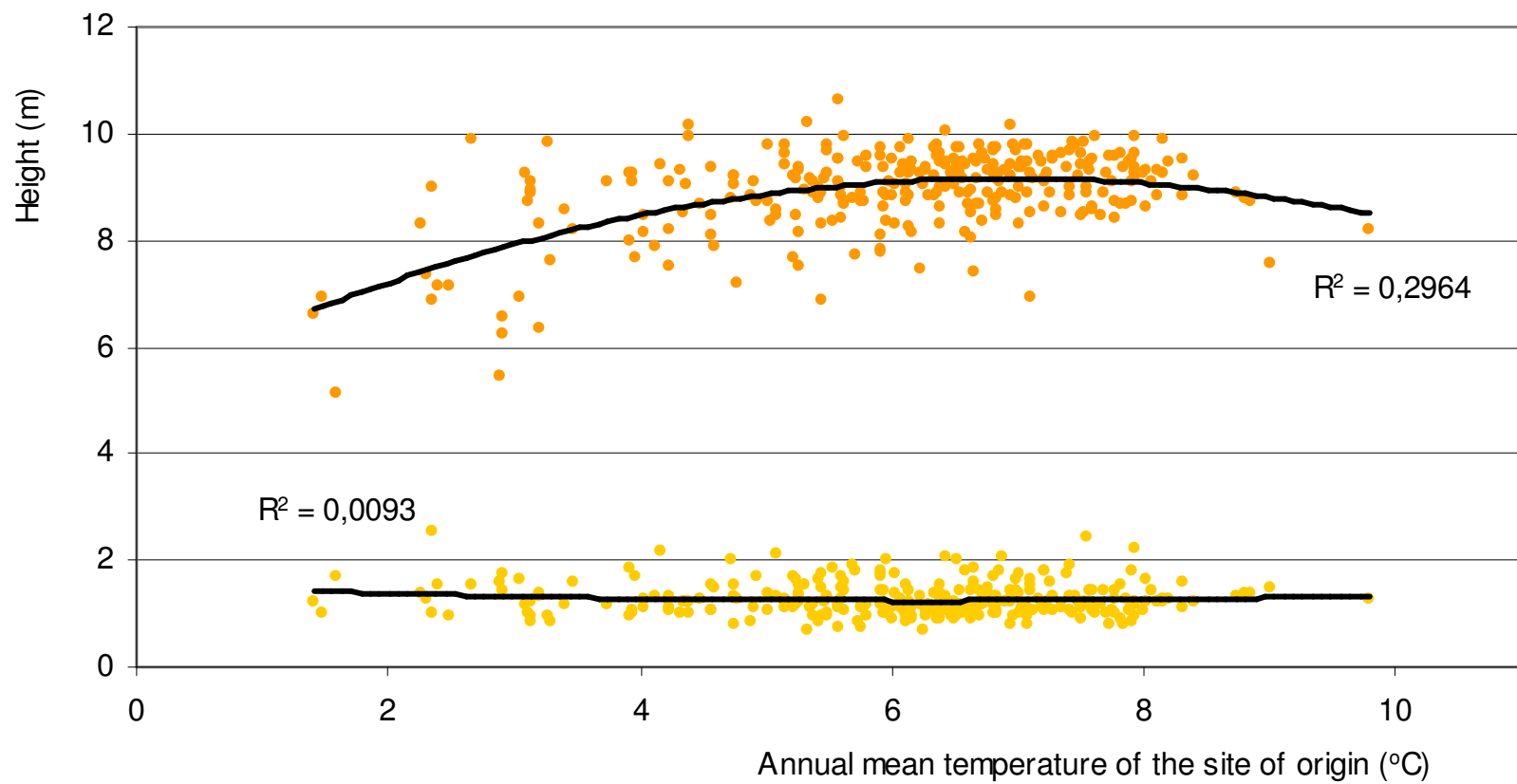
The changes caused by transfer of populations will exceed the predicted climatic changes for Central European environments

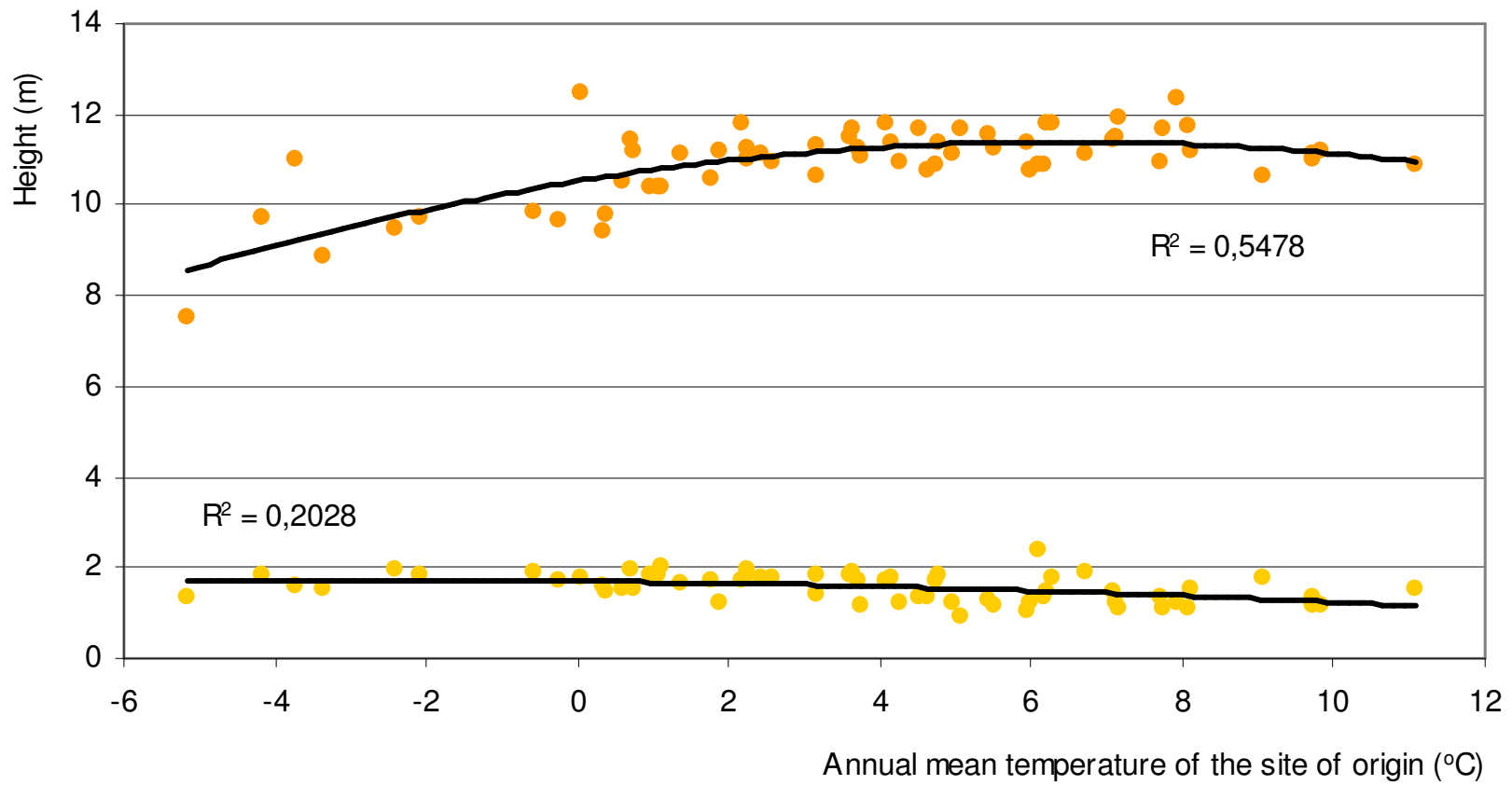
therefore field observations provide valuable information on adaptive responses, which are not obtainable from theoretical models

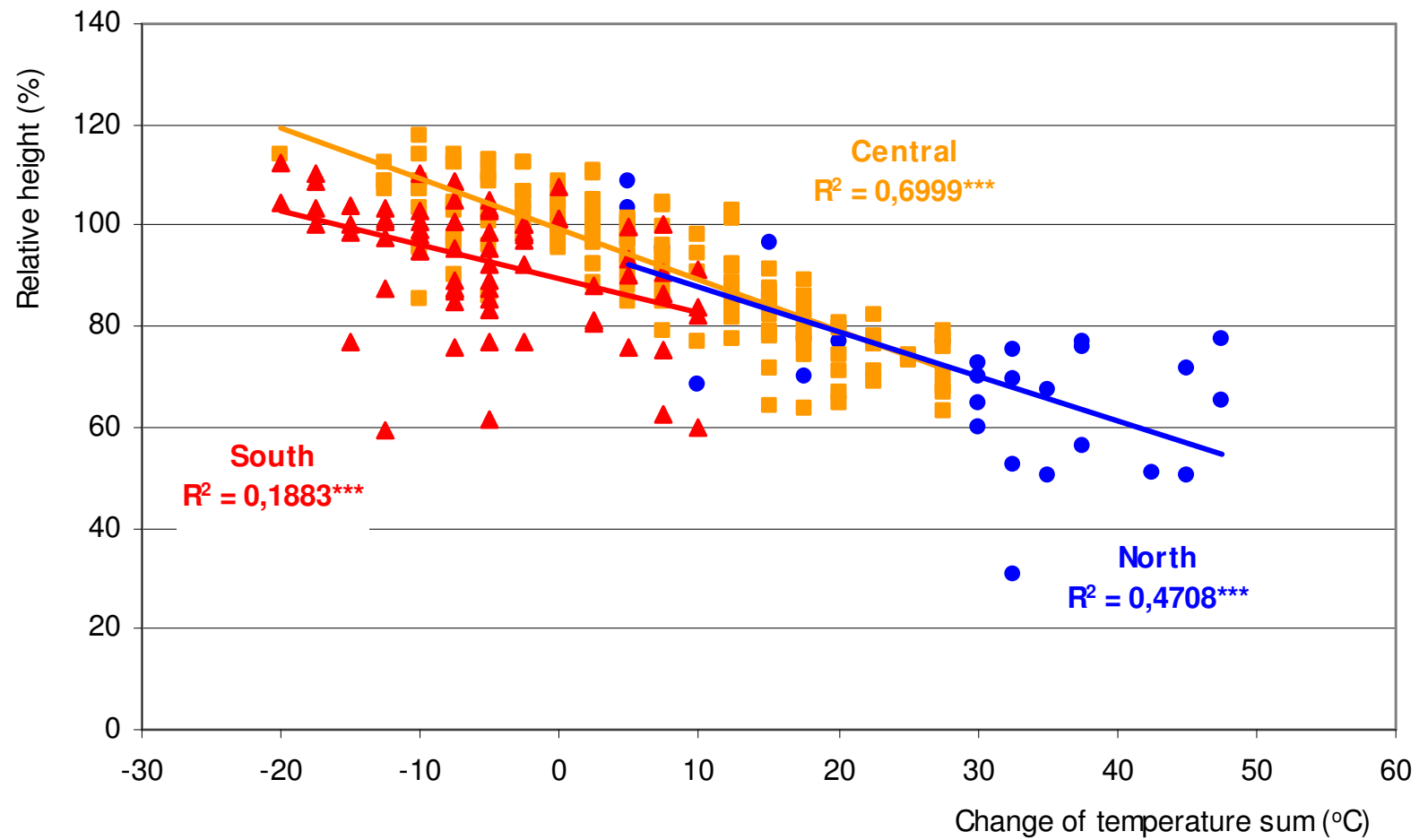
Lack of extreme test sites

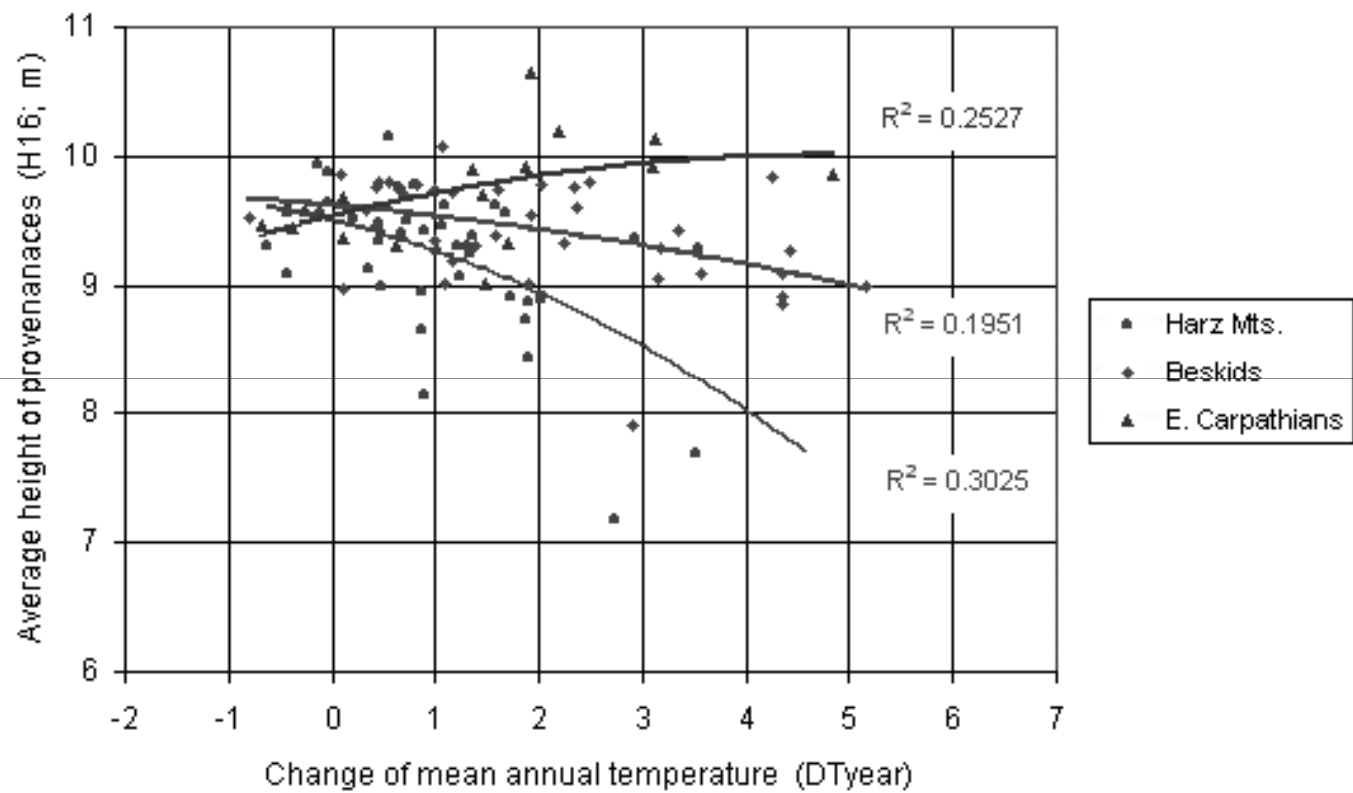
existing tests primarily provide data on phenotypic plasticity

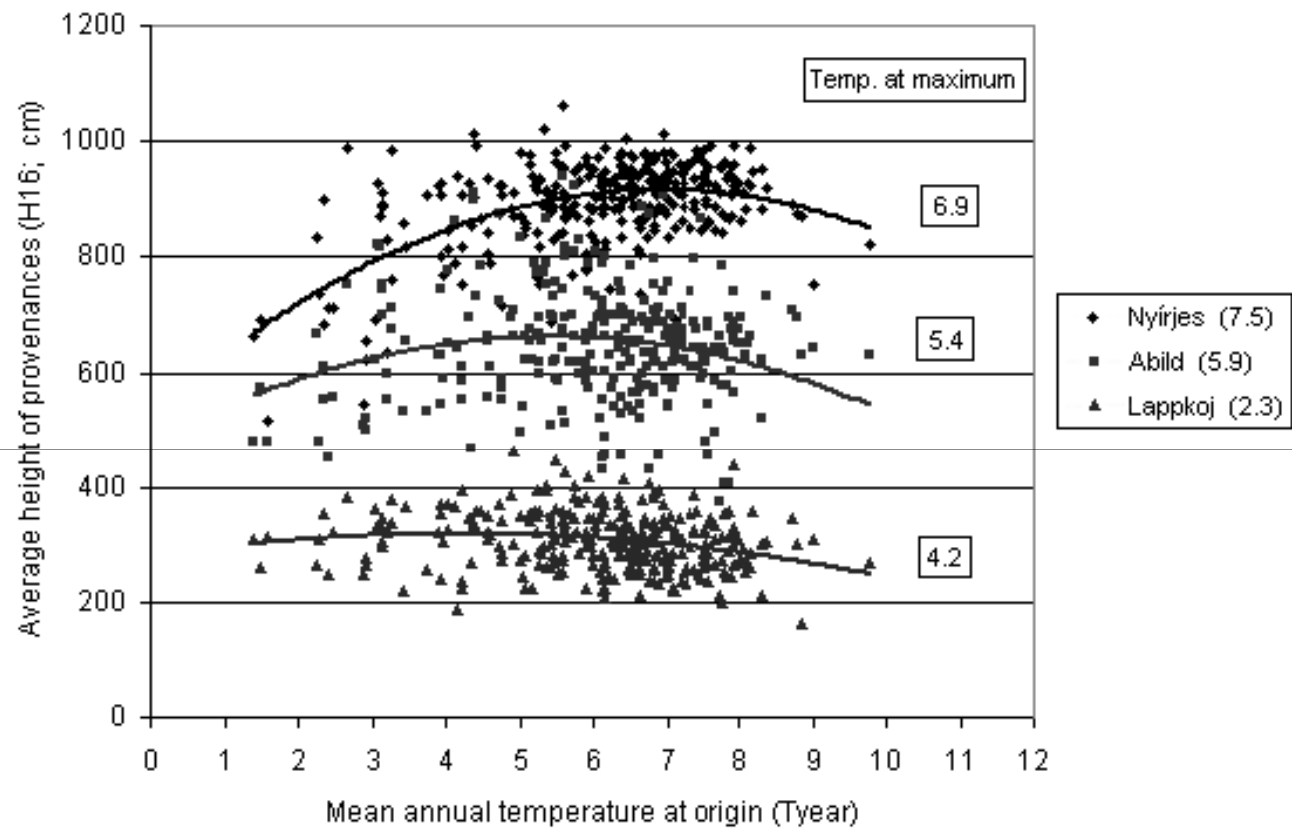
Phenotypic plasticity: the ability to maintain a certain level of fitness across a wide environmental range











Limitations of bioclimatic modelling

genetically set (potential) tolerance limits may be wider than the realized (actual) ones,

persistence, longevity (temporal presence/absence),

role of extreme weather events at the xeric limit,

limited precision of precipitation data,

rearranging consumer communities and interactions,

statistical correlations vs causal relationships

