

BLACK ALDER (*ALNUS GLUTINOSA*) – A FURTHER THERMOPHILIC TREE SPECIES ESTABLISHED IN SWEDISH SUBALPINE MOUNTAIN BIRCH FOREST. LIGHT ON MODERN CLIMATE WARMING AND POSTGLACIAL TREE IMMIGRATION PATTERNS

SCHWARZERLE (*ALNUS GLUTINOSA*) – EINE WEITERE THERMOPHILE BAUMART ETABLIERT SICH IM SUBALPINEN BIRKENWALD IN SCHWEDEN. ASPEKTE DER KLIMAERWÄRMUNG UND EINER POSTGLAZIALEN BAUMEINWANDERUNG

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SUMMARY

This paper reports recently discovered specimens of relatively warmth-requiring Black alder (*Alnus glutinosa* (L.) Gaertn.), growing far to the west and at a much higher elevation than previously known in northern Sweden. The uppermost young tree has become established in the subalpine birch forest belt (*Betula pubescens* ssp. *czerepanovii*), where *Alnus glutinosa* and other thermophilies grew during the Holocene thermal optimum, more than 8000 years ago. This new finding concurs with records of some thermophilic broad-leaved deciduous tree species (*Quercus robur*, *Ulmus glabra*, *Acer platanoides* and *Betula pendula*), recently established at nearby stations. Reasonably, they have all spread eastwards over the Scandes by wind and water from Norway in the west. Thereby, they indicate the practicality of an early Holocene west-east immigration route for trees and other plant species. This option may have been operational during the early Holocene, when the Atlantic and the Bothnian Sea were less physically separated than today. Furthermore, and with a shorter time perspective, the results adds to a currently ongoing process of restructuring the forest-alpine tundra ecotone in a context of secular climate warming.

Keywords: *Alnus glutinosa*, subalpine, spreading, climate warming, postglacial immigration, Scandes

ZUSAMMENFASSUNG

Aktuell wurden relativ wärmeanspruchsvolle Baumexemplare der Schwarzerle (*Alnus glutinosa* (L.) Gaertn.) in Nordschweden gefunden, die westlicher und in größeren Höhen als bis-