

Current MSc-Project at WSL Cadenazzo and at Paleoecology section of IPS and OCCR, University of Bern

Exploring growth and factors affecting decline, senescence and death in giant chestnut trees

When grafted and cultivated for fruit production, sweet chestnut trees (*Castanea sativa* Mill.) display extraordinary longevity and can develop trunks of more than 2 m in diameter. In southern Switzerland a systematic inventory of giant chestnut trees carried out between 1999 and 2004 resulted in a collection of 315 individuals. Each giant tree has been described in terms of dimensions and healthy characteristics and a series of digital photo recorded the stem structure and measuring points. This database offers now a unique opportunity to study the development and declining patterns of the inventoried veteran trees.

The aim of this master study is to assess and quantify the changes that have occurred over the last twenty years in the population of giant chestnuts, especially in terms of health, size and structure of trunk and branches and number of dead or missing specimens. Acquired knowledge should allow to better understand the evolution trend in monumental trees and provide essential information for developing optimal conservation policies and management strategies. Inventoried trees will be re-measured and photographed. For a selection of specimens of particular interest tree ring core samples will additionally be taken and – where possible – accurate 3D models of the trunk produced. The new data will be compared with the former dataset in order to establish the evolution of these very old chestnuts in terms of growth, tree structure and vitality, as well for better estimating their age and the extinction risk of this biocultural heritage.

Methods: tree surveys in the field, tree-ring analyses, statistics in the laboratory



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