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Monitoring of live and woody elements

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This study deals with surveys operated on crib walls in Casentino and Versilia (Tuscany), where Salix alba cuttings did not develop as expected from literature data.
After more then 10 years since realization and and an initial very high survival rate, a few plants are yet alive among those put in place and the root strengthening is localized in the first 0.30 m just below the structure front face, while at further depth the detected root area ratio (R.A.R.) does not determine a noticeable increase in soil cohesion (Guastini et al., 2012).
Mortality curve in willow cuttings is comparable with growing curve in Alnus nigra plants born in front of the structure, due to shading as failing cause.
Assessing quantitatively the residual strength of the timber elements and estimating their possible duration allow comparison with the time needed for a complete stabilisation of the para-natural succession. The two spans of time must be almost similar to avoid unexpected collapse of the frame or unacceptable costs for oversized structures.
Since the realization of a new live crib-wall in Casentino we sampled Alnus and Salix cuttings to compare rooting, survivability and evolution in randomized block design.
Tests with Resistograph carried out on timber elements gives a good relationship between test results and density; through the non-destructive test it is possible to differentiate portions of wood with a noticeable residual strength from the decayed parts without any more load bearing capacity.
MOR value (flexural strength) of timber elements has been estimated on the basis of the effective section verified by the Resistograph (Guastini et al., 2012), and then confirmed through rupture in bending of the same elements (Wood Technology DEISTAF lab), by proving the non-destructive test utility.