naturalea

Experiences with soil and water bioengineering techniques

Vegetated log cribwall

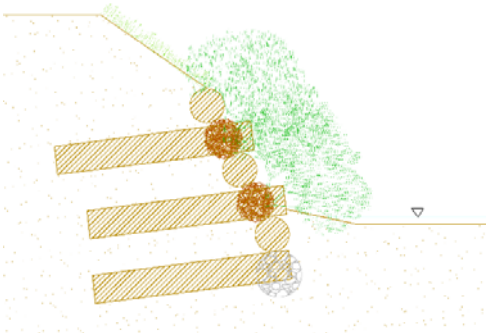
General characteristics

Structure of wood made of a cribwall of logs making a frontal cell with living stakes or plants in container with the objective that the future development of the plant substitutes the log cribwall.

It is used as a transverse structure for bed consolidation in steep gullies and for slope stabilization, or as longitudinal structures for bank protection in riparian and mountain zones. It can be applied in water courses with high energy and solid transport, knowing its behavior and dimensioning the structure according to it.

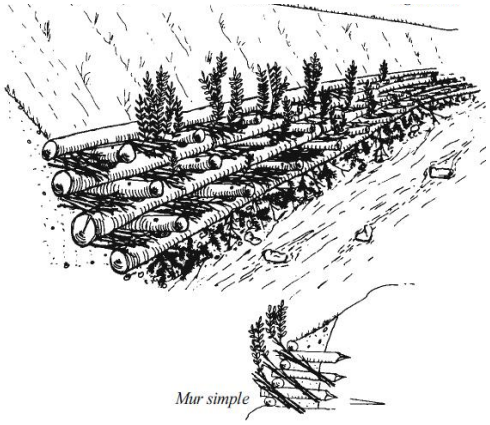
Technical characteristics

This structure of woods made of a cribwall of logs (trunks of peeled conifer, chestnut…) has a space between logs which is filled with ground and where the living stakes or plants in container are planted and in the frontal of it stands a fascine to retain the soil. This fascine has also an important role to retain moisture. The logs are secured with steel bars.

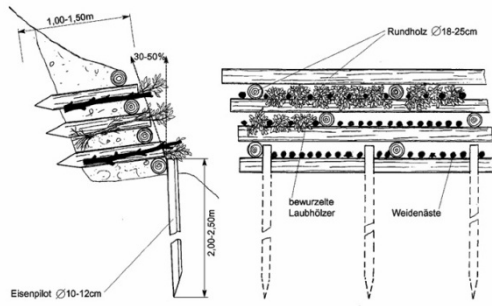


The structure always needs a certain foundation depending on its location and the load it can support.

On the other hand, if this technique is used as a structural wall to stabilize margins, and it is necessary for the structure to support heavy loads, it is recommended to construct the cribwall Krainer. In case of constructing the cribwall in the river bed, the base is protected with rock or more resistant materials such as flexible tube gabions like Rock Roll.



It is basic to choose a plant of species, ecotype and quality appropriate to the area of work, because the plant is the one that will guarantee the future viability of the technique.



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The frontal part of the cribwall must not be vertical but it should have some gradient in favour of the slope.

As we construct the cribwall, the parallel logs to the current will be removed until they are aligned with the back part of the lower log.
The depth of the cribwall will depend on the needs in each action that will determine the necessary foundation height.

It is preferable to use wood of low degradation such as chestnut. The presence of plants assures a better stability of the slope or fluvial bank, also in the successive phases, because once the wood has been degraded, and the plants are developed, the integration of the action in the landscape and its strength increases.

Cribwall evolution:

Technique evaluation

Technique for a rapid stabilization of the riparian vegetation. It is very important to choose the right plant, and use plant in forest alveolus instead of stake in areas with low humidity. It is necessary to make sure that the fascines are of a stable diameter and that they do not lose volume over the time and thus guarantee the there is no loss of soil.
As in the case of the cribwall Krainer, the variant “Naturalea” from the simple cribwall can also be made by coconut fiber rolls (instead of fascines) and tubular flexible gabions at the base.

(Pictures showed in this document are from interventions carry out by Naturalea)