

## TREPHOR

### Description and instructions

Trephor (patent pending n° PD2004A000324) is a tool specifically designed for extracting small cylindrical wood fragments named microcores (15 mm in length and 2 mm in diameter) from living trees. The microcores contain the outmost stem tissues (bark, phloem, cambial zone) and the most recently formed tree rings.

Two simple and distinctly innovative technical characteristics, regarding the tool shape and material used, enable it to perform rapid and high-quality sampling with little damage to the stems. The inner conical shape of the cutting tube limits friction and abrasion to the microcores. The cutting tube is constructed to provide a

compromise between hardness and elasticity. The tube is subject to appreciable stress and for long term use it must have good resistance to wear and tear. The stainless steel is carefully tempered to confer specific properties on each part. The harder, sharp cutting tip can be driven into the wood without damage to its edge and the tougher steel base part does not shatter when struck by the hammer during sampling procedures (in order to extend the life of the tool even further, it is recommended using a plastic or rubber hammer instead of a steel one). The innovative shape, technical characteristics and the materials used allow high-quality microcores to be obtained, even after taking hundreds of samples.

The tool is named after a rocky tower in the Cinque Torri group (Cortina, Italy), which is the location of some of the study sites where it has been tested throughout the 2004 growing season with satisfactory results.

Trephor has been designed specifically for repetitive sampling in the forests and for the requirements of our Laboratory in San Vito di Cadore. However, wide and interesting fields of application are emerging including analyses of wood formation (mechanisms and timing of the xylem cell production and differentiation), assessment of climate factors influencing the xylogenesis, and investigations in plant pathology (parasites producing tracheomycosis and wood decay fungi). High-quality sampling minimises damage to the stems so Trephor is very well adapted not only for forests but also for urban areas and parks. Cutting head's standard dimensions are: length -16mm, diameter - 1.9mm. On request it is possible to order items having with different sizing. The picture on the right shows an example with the blue Trephor bigger (cutter length 35mm) than the standard silver one. Price and delivery time will differ from the standard Trephor, depending on the required size.

“Trephor” tool is patented by the University of Padua (Italy) built by an handicraft factory with a long tradition and experience (“Costruzioni Meccaniche Carabin C.”, Valle di Cadore, Belluno, Italy) that markets it as well.

### Bibliography

Rossi S., Anfodillo T., Menardi R., 2006, Trephor: a new tool for sampling microcores from tree stems. *IAWA Journal*, 27 (1), 2006: 89–97.

Boura A., De Franceschi D, 2008. An easy technique to collect wood and bark samples for anatomical studies. *ADANSONIA* 30 (1): 7-15.



## Instructions



drive in the trunk the tool's blade using exclusively a rubber or plastic hammer.



the tool driven in the trunk



grasp "Trepbor" how shown in the picture, rotate and extract it



using the "extratcing needle" push lightly the microcore on the top ...



...and then the microcore goes in the slit of the tool



the microcore is ready to be kept in an appropriate storage container.

**To complete all the 6 stages you take than a minute!**