Short Term Scientific Mission (STSM)

Scientific Report – COST E42

Sinca Ionut-Cristian

in Universitat fur Bodenkultur Wien – Institute of Silviculture (Vienna)

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- **Purpose of the visit**

  My Short Term Scientific Mission (STSM) regarded Valbro state-of- the-art in Austria (Vienna - Universitat fur Bodenkultur BOKU, Department of Silviculture).

- **Description of the work carried out during the visit**

  The period spent in **BOKU – University** involved two major parts during the whole period:

  a. Reading various materials (e.g., journal papers, articles, books) and performing field trips and
  b. Discussions with Prof.dr. Eduard Hochbichler and other experts about the role and importance of valuable broadleaved tree species in Austrian silviculture.

The time spent in the BOKU library was used in order to know more about the silviculture of valuable broadleaved tree species applied in Austria and other West- and Central European countries with a long-standing tradition in this field. The books that I have read provided me information about site requirements of valuable broadleaved tree species as well as measures taken in Austria in order to grow trees aiming at obtaining the best possible mixed broadleaved stands (**photos 1 and 4**).

Other reading materials focused on activities that need to be performed in order to improve the timber quality, including their costs of application. Those papers have also emphasized the factors that influence most the price of timber (**photo 2**).

In these two weeks I have also performed many and very useful field trips. The first field trip was in the Vienna Forest region and up there I was able to visit some research plots that Prof. Hochbichler established in a high forest stand many years ago. During the visit I had encountered (for the first time) the Austrian managing system of high forest stands. With this occasion I've also seen the coppice with standards system developed (in Austria from year 1000 a.D.) on sites suitable especially for pure oak stands or for mixt stands of oak with other species (sycamore, cherry, wild service tree, hornbeam, etc.-**photo 5 and photo 6**).

On this kind of forests they are having now standards of 140 years old and an under storey of 50 years old, meaning that 1 or 2 age classes are missing. and from total volume only 5 % can be sold as veneer. This situation is occurred because of the managing system in silviculture in the late 50 years. In present times, from total volume only 5 % can be sold as veneer.

The coppice with standards system offers the possibility of an artificial enrichment of the stand by planting broadleaved tree species in rows from 10 to 10 meters to complete the natural regeneration.

During another field trip, in a different region of Austria, offered me the opportunity to visit some research plots where different treatments were applied and subsequent results were observed and measured.

The target tree management system applied especially in high forest system stands was something worth seeing for me because in Romania this managing system is at the beginning and is being applied for research plots only. Applying this managing system correctly, meaning after completing all the phases (selection of plus trees, early interventions, thinning, pruning and sometimes formative pruning), it's most likely that we could obtain a 7 to 9 meters free-branch bottom log when performing the second thinning and a final spacing of 10 to 12 m.

The research plots that I visited were established in a natural regenerated forest. Although different kinds of measures were taken for a different number of broadleaved tree species, it occurred a different problem that I could expected: the correct number of target trees. This problem I think is very important because in the plots we found several sycamore trees dead because of a still unknown disease (caused by fungi??) - **photo 7**.

In the experimental plots thinning regarded only the plus trees meaning that all plants around them were cut in a radius that varied between 1 and 2.5 m. Also all the competitors in dominant and co-dominant tree layer were cut in order to obtain a well developed crown.

While discussing with persons involved in similar research projects it came to my knowledge the fact that valuable broadleaved tree species are not always treated as they should (e.g., by performing some high pruning or formative pruning **- photo 3**) by the forest owners. It is a pity because they tend to sell most of their valuable wood at lower prices as energy wood instead of targeting to obtain high quality timber and prices from trees as wild cherry, sycamore and other valuable broadleaved tree species.

- **Description of the main results obtained**

<u>Better knowledge of target tree management system was one of the results obtained during STSM.</u>

Being at his beginnings in Romania and also constrained by our forest laws this managing system is not use in a large scale but only on research plots for the moment. Seeing the management system applied made me understand how much this system can increase the value of forest production.

<u>Understanding that heavy thinning are necessary for earlier achievement of a Dbh of 60 cm</u>.

Research shows that it is possible to obtain diameters of 50 – 60 cm in only 50 – 60 (70) years for cherry and in 60 to 80 years for sycamore. Very important thing to know for all the forest engineers because it can be avoided the colored heart wood and the presence of rot in timber wood.

Another result obtained, and probably the most important one for me, was that the STSM gave me the opportunity of visiting many interesting research plots in Austrian forests and seeing being applied and the results of different management systems which in Romania aren't that common.

- **Future collaboration with host institution**

  Collaboration with host institution in the future will be possible because researches for valuable broadleaved tree species aren't that many in Romania and managing systems need to be changed and what other best ways of doing it than to communicate the results obtained in our experiments.

Photo 1.

Photo 2.

Photo 3.

Photo 4.

Photo 5.

Photo 6.

Photo 7.

Eng. Ionut-Cristian Sinca, Ph.D.
University “Transilvania” of Brasov, Romania