SHORT TERM SCIENTIFIC MISSION

Resilience of oak (Querqus petraea) coppice forests to drought: Partial crown dieback of oak trees after dry years, and recovery strategy through epicormic resprouting during subsequent moist years

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STSM Scientific Report

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STSM Topic: EuroCoppice

COST Action: FP1301

Period: from 2015-01-16 until 2015-03-16

Purpose of the STSM

The main goal of this STSM was to study the resilience of oak (Querqus petraea) coppice forests to drought: partial crown dieback of oak trees after dry years, and recovery strategy through epicormic resprouting during subsequent moist years. The aim of the mission was development of a metodology for data collection, as well as the processing and analysing of the data. To improve ecological databases of Montenegro, which would be provided by a multifunctional and sustainable forest management in Montenegro, we discussed to correct mistakes which were made in the traditional management of coppice forests. One of the objectives of our visit was the exchange of experience in the management of coppice forests with colleagues from Germany.

Activities

During the STSM in Germany, we got familiar with management and the state of coppice forests in this part of Europe, that when we carried out the comparison and analysis coppice forests in Montenegro with Germny. On this occasion were observed great difference in percentage representation of coppice forests in Germany (very small percentage) and in Montenegro (coppice forests is 40 % of forests), as well as differences in the way management of coppice forests. While, we discussed about some new opportunities and ways of managing coppice forests.

We studied the literature about coppice forests, and we studied the basic knowledge of how to analyse the sites, species composition, structures, habitat qualities of forests in general, but with special attention to coppice forests, which are widespread in Montenegro. In this regard, we had a series of lectures, Prof. Dr. Albert Reif (Vegetation Science), Dr. Ulrih Steinrucken (Pedology).

During this mission, we attended several short courses, which were kept by professors from Albert-Ludwigs-University Freiburg and experts from the company „Soilution“. The first two weeks we had a lecture on the topic: The Water Balance Concept (Toward a rational classification of drought intensity of a site), where we introdused with characterization of drought and the impact of drought on sessil oak (Querqus petraea). At the same time, we analyzed the climate in Montenegro and the possible impact of the drought on coppice forests, these lectures us kept Professor Dr Albert Reif, he presented us literature and research in this area. In addition we had a course „Introduction and operation of the statistical program R“. Statistical program R we used for data processing, which we have collected in the field during

the vegetation period in 2014, date were collected from 43 sample plots on the mountain Bjelasica, in north Montenegro. Sample plots were set up with the aim of creating a doctoral dissertation, due to the low proportion of coppice forests in these sample plots, we were not able to display results. But we used these sample plots for development and improvement of methodology of data collection and design and space planning sample plots for vegetation period in 2015. After the vegetation period in 2015, in which we going to set up another 240 sample plots on location mountain Bjelasica, we will be able to present the latest results and condition of coppice forests in north of Montenegro.

In connection with development and improvement of mehtodology of data collection and design and space planning sample plots, we had lectures and training by experts in that field of GIS technology. They were introdused and trained us to work in GIS programs, we are a great benefit when we planning scientific research for a forthcoming vegetation period. Also, that knowledge will benefit us when we mapped coppice forests, as well as other types of forests and potential forests vegetation in Montenegro.

Also, we was in coppice forest on location „Messerschmiedfelsen“ near Staufen. We got familiar with the history and development of coppice forests in this part of Europe. On this location we noticed different habitats of sessil oak (coppice forests), and we analyzed the impact of drought on sessil oak. While we have noted that sessil oak is species, which optimum is humid climate and that in the case of drought, especially on shallow and poor soils, it is prone to drying and decay.

During this STSM, we were working on research question, the distribution and condition of coppice forests in north of Montenegro. This present beginning of scientific work that will develop and complete after vegetation period in 2015. In this scientific work we will show results, which we got in two-year research on location mountain Bjelasica. Mountain Bjelasica is, because its climate, vegetation and other characteristics, representative area for north Montenegro.

The most important result of this mission is great cooperation with German professors and people from the forestry profession, which will as we hope, to continue in this and future scientific researches.

The content of the report of Milan Gazdic with respect to his visit to the University of Freiburg is correct and summarizes his activities. Not mentioned are the benefits he had through being forced to communicate in English language.

Freiburg, 15.4.2015

Prof. Dr. Dr. h.c. Albert Reif