



## International Meeting “Payment for Ecosystem Services-Forest for Water” (CA15206 PESFOR)



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A meeting related to the European scientific program COST (European Co-operation in Science & Technology) took place from 25<sup>th</sup> and 27<sup>th</sup> September, 2018 r. in the Congress Center of Flamingo Grand Hotel (Snapshot 1). Representatives of 39 countries and organizations as the European Forest Institute and the United Nations Economic Commission for Europe/ FAO participate in the cost action PESFOR-W, Snapshot 2. Chairpersons of the action are D-r Gregory Valatin (United Kingdom), and Vice Chairmen – Prof. Gebhard Shueler (Germany) [1]. The hosts of the meeting were Prof. Dr. Mariana Lyubenova from the Faculty of Biology, Sofia University and Assoc. Prof. Alexander Shikalanov from the Faculty of Information Sciences, University of Library Studies and Information Technologies, who are the members of Management Committee of the Action.



Snapshot 1. The meeting in action.

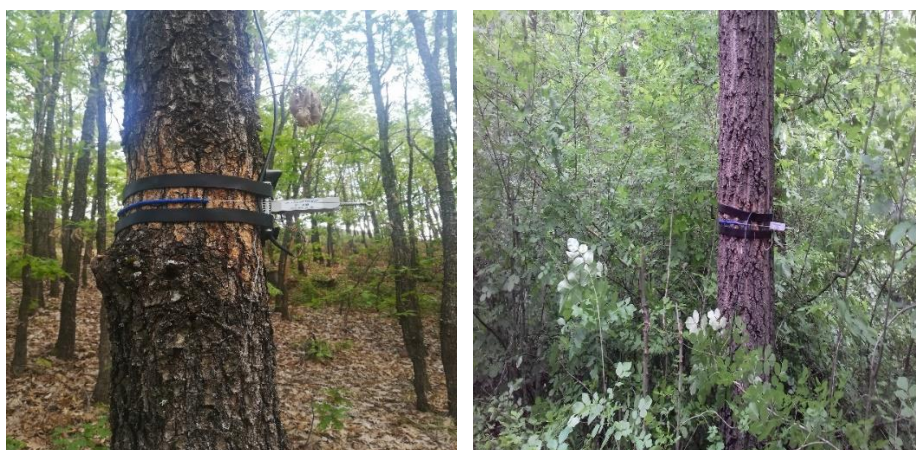


Snapshot 2. Participants in front of the Green Center.

The main objective of international scientific cooperation is to collect and validate good practices of forest ecosystem services assessment for the quantity and the quality of water in adjacent areas (selection of complex water flow and water quality indicators). The expected practical outcome of international science cooperation will be to synthesize knowledge, promote joint research to improve Europe's capacity to use Payments for Ecosystem Services (PES) for achieving the Water Frame Directive (WFD) objectives and other policy goals through incentives for planting forests to reduce diffuse pollution from agriculture. Also the result will be the development of PES Schemes, the creation of a

protocol and algorithm for calculating the cost- effectiveness of forest systems and the schemes developed.

The representatives of Bulgarian institutions presented their original achievements related to the management of water resources (Basin Directorate "Black Sea Region"), development of payment schemes (Institute for Economic Research, BAS and WWF-Bulgaria), management of forest resources in Bulgaria, mapping and assessment of forest ecosystem services and legislation developments (Executive Forest Agency, Forest Institute, BAS). The first results from the Bulgarian project „Development of an ecosystem services assessment scheme, their effectiveness for purification and protection of water and other natural components in the regions“ [2] (National Scientific Fund, Ministry of Education and Sciences), were presented (Sofia University, University of Library Sciences and Technology). Some of the first dendrometers in natural forests were tuned, installed and put into action, that monitor the 24-hour radial growth of *Quercus frainetto* Ten. and *Quercus cerris* L. Long-term observations would make it possible to create a database and participate in international projects (Snapshot 3 - 4). Professor Margaret Shannon of Baldy SUNY Buffalo Law School presented the subject "Critical Transformational Deliberative Science: A Critical Element for PESFOR - F for W".



Snapshot 3. Dendrometer on *Q. frainetto* tree. Snapshot 4. Dendrometer on *Q. cerris* tree.

One of the focus of meeting in Albena is the sistem of field protective forest belts in Dobrudja [3-5]. The role of wetlands for water regime of the regions, for the biodiversity protection, as a bio-carbon storage and for the natural components purification, is also on the focus of international scientific cooperation. The Bulgarian experience in the construction, maintenance and management of field protective forest belts in the Bulgarian part of Dobrudja was reported (Northeastern State Enterprise, Forest Protection Station -Varna, State Hunting Farm –Balchik, State Forestry Farm - General Toshevo). The system of belts in Dobrudja as a unique phenomenon in the agroforestry practice and an original ecology-biological phenomenon caused a great interest of participants (Snapshot 5). Everyone agreed that the forest belt system in Dobrudja is not only a national wealth, because of its uniqueness and the complex of benefits (services) it offers. This national wealth must be preserved, maintained and developed. It is necessary to develop PES schemes that provide funding for their sustainable management, as well as for the reconstruction and creation of new belts. The high professionalism and experience of Bulgarian foresters needs to be exported to Europe as a

good and successful practice that will greatly help to create protection belts in the other European countries and to find funds supporting the maintenance of Bulgarian shelter belts.

The biodiversity of wetlands in the Shabla and Balchik Municipalities as one of the main factors determine ecosystem sustainability in the context of climate change as well as the ecosystem services provided by wetlands were also discussed on the field trip.



Snapshot 5. Discussion on structure and benefits of forest belts.



Snapshot 6. Duranculak Lake and its biodiversity.



Snapshot 7. Longozes in Baltata Manage Reserve. Snapshot 8. Archeological findings on B. Island



The protected area "Durankulak lake" (Snapshot 8), which is one of the most significant and best preserved coastal wetland in Bulgaria, registered under the Ramsar Convention and included in the Natura 2000 network was visited [6]. It is a natural liman fed by karst waters and separated from the Black sea by sand dunes and a beach strip. The Via Pontica road passes through and making it a suitable destination for ornithological tourism. Participants in the international meeting visited also the managed reserve "Baltata", located in close proximity to the Albena resort, where the northernmost longoza forests occupy a place (Snapshot 7). These forests are unique communities in the vegetation of Bulgaria with significant biodiversity and richness of conservation - significant species [7]. The forests are formed in the lower course of Batova River, which originates from the village of Kumanovo, the Frangen Plateau. The total length of Batova River is 39 km, the minimum run-off is 200-300 l / s. Longozes occurred at the end of the glacial period on quaternary deposits, rich, wet and deep soils. An important factor for their normal development is the soil moisture. The presence of evergreen and warm-loving species, as well as a more diverse species composition of tree layer, also a greater amount of wood and grass lianas distinguish these forests from the other riparian forests in Bulgaria (Regional Inspectorate of Environment and Water – Varna, Shabla Municipality, Green Educational Center). The managed reserve was commented on, as a natural example for the role of forests for the surface water purification.

There are 5 villages in the course of the river. The town of Balchik and v. Kranevo are resorts and Albena is a preferred resort on the seashore. They are located in the lower reaches of the river. During the summer season, the recreational load is strongly expressed. The agricultural lands also occupy a large area. Two roads from the State road network pass through the valley of the river. Extremely high pollution of the surface water flowing into the Batova river bed can be expected. According to the data from the national monitoring, the Batova River valley is characterized by medium to slightly polluted water and pure water flows into the sea. In this case, for the good ecological status of surface water in the Batova basin and coastal seawater, the regulating and supporting ecosystem services of longoze forests are of great importance. The maintained reserve "Baltata" also contributes significantly to the unique natural conditions that are offered to the visitors - a unique combination of preserved nature and a modern tourist resort providing various forms of recreation and ecotourism.

During the field trip, the rich cultural and historical heritage of Dobrudja and Durankulak as a complex archaeological site, where the highlights of Dobrudja's prehistory have been presented - an attractive center for the cultural and archaeological tourism [8-10]. The Big Island in Durankulak Lake and the Museum Collection in the Green Educational Center – Shabla were visited. On the Eneolithic settlement mound (Big Island), the oldest stone architecture in Europe (Dr. I. Weissov, NAM, BAS) was found (Snapshot 8). The activities of Green Educational Center at Shabla Municipality for the environmental education is the most direct route for PES schemes realization and for sustainable development of region.

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