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**MENDEL UNIVERSITY IN BRNO  
FACULTY OF REGIONAL DEVELOPMENT AND INTERNATIONAL  
STUDIES**

# **The Role of Forest Functions within Ecosystem Services**

## *Book of Abstracts*

International Scientific Conference

April 5 – April 8, 2016, Křtiny, Czech Republic

Organized by:

Department of Environmental Studies and Natural Resources, Faculty of  
Regional Development and International Studies; University Forest  
Enterprise Masaryk Forest in Křtiny  
Mendel University in Brno, Czech Republic

Publisher: Mendel University in Brno, Zemědělská 1, 613 00 Brno, Czech Republic

<http://www.icabr.com/forests/>

[http://rafa.frms.mendelu.cz/en/vystupy\\_projektu/funkce\\_lesu?lang=en](http://rafa.frms.mendelu.cz/en/vystupy_projektu/funkce_lesu?lang=en)



## HOW CAN WE DEFINE FOREST FUNCTIONS AND SUSTAINABLE FOREST MANAGEMENT IN THE CASE OF TUSHETI REGION OF GEORGIA?

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### ABSTRACT

There are several protected areas in the region of Tusheti, Georgia (National Park, Strict Nature Reserve - IUCN and Protected Landscape Area). Their management has considerable gaps (inventory and forest management principles are missing). The condition of protected areas is not satisfactory and dynamic changes occur recently (vegetation dieback, occurrence of insects under bark). These are reasons for which the monitoring of forest ecosystems has to take place and forest management measures have to be adjusted in order to allow careful exploitation of forest ecosystems in line with the management targets.

There are declared needs in this region: non-existence of the forest inventory; occurrence of forests, grasslands, pasturelands and their acreage has not been determined precisely; forest areas have not been precisely defined and forest types have not been determined – the characterization of natural conditions does not exist; definitions of quantitative and qualitative characteristics of wood-producing resources and forest functions do not exist; the health condition of forest ecosystems is not assessed; methodological procedures and necessary care for the damaged forest ecosystems; requirements of local communities for using the forest ecosystems are not respected; indicators of timber volume in the given area are not defined (annual increment, timber supply, timber use possibilities, logging limits, regeneration possibilities etc.); species composition and representation of individual species in the given area are not defined or determined etc.

On these lines we expect an implementation of forest protection principles into forest management, based on the recorded and evaluated data, framework principles of forest management will be proposed with regard to the significance of individual biotic and abiotic factors at a general level so that they could be applied in another area too.

All these kinds of information should be entered into the evaluation of forest functions. The activity includes field investigations in the pilot area focused on the determination of the fulfilment of forest functions such as soil protection function (recording of erosion rills, landslides or impact of grazing on the vegetation cover), water retention function (determined will be forest types affected by water – wetland alder woods, alluvia of streams etc., their size and acreage in the selected area) and ecologic-stabilization forest functions (biodiversity, value of biotopes). Social functions of the forests will be assessed from the perspective of recreation, zones of prohibited entry, hazardous terrains, possibly also pollution with waste. For this case, a questionnaire campaign is used to address local inhabitants. Production functions of the forests are assessed from the perspective of their economic use.

A basic model of sustainable forest management will be built on actual data obtained about the natural condition of forest ecosystems. Within the solution, a simple forest management plan should be set up that would provide a general view about possibilities of using wood for the local population with respect to the current condition of forest stands within the framework of forest classes. Emphasis will be put on the underpinning of negative factors, namely the occurrence of forest insect pests.

**Key words:** natural conditions, Georgia, Tusheti region, mountains, sustainable forest management, forest function.