

## STRUCTURAL-DYNAMIC ORGANIZATION OF PHYTOCENOSES OF FOREST AND FOREST-STEPPE VEGETATION TYPES IN SOUTH-WEST PRE-BAIKAL

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### ABSTRACT

The problem of assessment of the state of ecosystems and of the forecast of changes in them in the whole and in vegetation cover structure in particular is basic for modern biogeographic, geobotanical, biocoenotic and ecological studies. Studies of spatial-temporal organization of vegetation reflecting practically all environmental changes during a concrete time period for concrete physical-geographic conditions on any territory requires a synthesis of different research fields for studies of different types of phytocoenoses. At such approach, a phytocoenosis is considered as a system, which forms and develops as a unit and makes interdependent links with systems of other hierarchical level and ecotope conditions. Revealing of phytocoenoses structure and of their response to climatic fluctuations in the zones of contact of different vegetation types, communities typification and classification under transitional environmental conditions allows to determine trends of their formation under modern environmental conditions and to find out the development way of vegetation on the background of dynamics and variability of climate in a concrete region.

**Key words:** forest and forest-steppe, structural-dynamic organization of vegetation, South-West of Pre-Baikal

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## IMPROVEMENT OF GREEN PUBLIC SPACE IN RESIDENTIAL COMPLEXES: A TOOL FOR GREEN COMMUNITY

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### ABSTRACT

One of the critical issues in housing quality in urban areas is to develop and adopt effective strategies for enhancing the quality of community, eventually revitalizing the idea of green housing in contemporary residential complexes. Based on the assumption that the characteristics of contemporary residential communities might differ from those of traditional ones, this research aimed to reinterpret strategies for the activation of green public spaces in a modern context. This research conducted a questionnaire survey to investigate the conditions in selected residential complexes in metropolitan areas in Iran, and the residents' perceptions and demands on the concept of green community. Based on the results of the survey, planning scenarios as well as a green community model were proposed, then applicable methods and services extracted from the scenarios was developed.

**Keywords:** green community; residential complex; public space

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## DOPPLER ULTRASONOGRAPHY WAVEFORMS CHANGES IN IUGR AND THEIR VALUES IN THE RELEVANT MANAGEMENT OF PREGNANCY

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### ABSTRACT

Intrauterine Growth Restriction (IUGR) means the ultrasonography recording by estimated foetal weight (EFW) below than 10<sup>th</sup> percentile for its gestational age. This group includes foetuses that do not reach their genetic potential for intrauterine growth and indicates a small foetus that is deprived compared to the previous ultrasonography assessment (usually for a placental reason). This retrospective study includes unique complicated pregnancies with IUGR, between 26-37 weeks GA, in the years 2014-2017 and is performed in University Hospital of Obstetrics and Gynecology "Koço Gliozheni", in Tirana, Albania. The inclusion criteria in this study were: the exact age of pregnancy (LMGA or from the ultrasound before 20 weeks); EFW in ultrasound < p.10th; the early beginning of placental insufficiency is when PI > p.95th for GA and CPR < 1.04; all of the pregnant women included in this study had more than three Doppler ultrasonography examinations before delivery, where Doppler parameters of AU were obtained: presence of diastole, absence or reverse flow. Patients with chromosomal anomalies have been excluded from the study. The monitoring intervals and the moment of birth were done by the doctors who followed the pregnancy. Neonatal features, birth details, indications and birth delivery, age of pregnancy, birth weight, Apgar, are recorded for each patient. In the baby's birth day were recorded all the changes in the Doppler and the progression of Doppler abnormalities from one examination to the other. Although is calculated the time from the occurrence of abnormal Doppler until the baby was born.

**Key words:** age, artery, growth, gestational, intrauterine, restriction, umbilical.

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**BIOMASS ALLOCATION IN RELATION TO PRECIPITATION,  
TEMPERATURE AND SOIL PROPERTIES IN THE GRASSLAND OF  
CORUH RIVER BASIN, TURKEY: USING STRUCTURAL EQUATION  
MODELLING WITH AMOS****Musa Dinc<sup>1\*</sup>, Ahmet Duman<sup>2</sup>, Mustafa Tufekcioglu<sup>2</sup>, Aydin Tufekcioglu<sup>2</sup>**<sup>1</sup>*Forestry and Forest Product Program, Vocational School of Forestry, Artvin Coruh University, Artvin, Turkey;*<sup>2</sup>*Artvin Coruh University, Faculty of Forestry, Artvin, Turkey;*\*Corresponding Author Musa Dinc<sup>1\*</sup>: [musa\\_dinc20@artvin.edu.tr](mailto:musa_dinc20@artvin.edu.tr); [dincmusa20@gmail.com](mailto:dincmusa20@gmail.com);

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UOI license: <http://u-o-i.org/1.01/ijeess/73337637>**ABSTRACT**

Aboveground biomass (AGB) and belowground biomass (BGB) of grasslands are important parameters for characterizing regional and global carbon cycles in grassland ecosystems. Compared with the relatively detailed information acquired for AGB, data regarding the BGB has been poorly reported at the regional scales. In this study, AGB, BGB, and soil samples for their organic matter, texture and pH level were collected from the 49-plots across the grasslands of the four different sub-watersheds (Bicakcilar, Kilickaya, Oltu and Uzundere) within the Coruh River Basin to compare the differences in AGB, BGB, total biomass (TB) and the ratio of below to aboveground biomass (B/A) in those sub-watersheds. The relationships among parameters including AGB, BGB, TB, B/A, climate and soil were also examined. It was found that AGB, BGB and TB differed significantly among the grasslands of four sub-watersheds while B/A did not differ. Structural equation model (SEM) analyses indicated that mean annual precipitation (MAP) and mean annual temperature (MAT) were the strongest positive driver for the allocation of AGB, BGB and TB. AGB and TB were positively correlated with soil organic matter and negatively related with pH, whereas BGB and B/A were positively related with pH and negatively correlated with soil organic matter. Climatic variables, MAP and MAT, were negatively correlated. The results demonstrated that BGB and TB were positively correlated to MAP ( $p < 0.01$ ) and were negatively related to MAT. B/A was negatively related to AGB ( $p < 0.01$ ). With all data pooled, TB and MAP were strongly correlated, as the relationship between MAP and TB ( $R^2 = 0.72$ ). These results indicated that increase in precipitation positively influence grassland biomass production in Coruh River Basin grasslands. In addition to these, precipitation and temperature had strong control on AGB, BGB and TB in semi-arid grassland ecosystems.

**Keywords:** aboveground biomass (AGB), belowground biomass (BGB), precipitation, temperature, structural equation model.

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## IMPACT OF ARCHITECTURAL FEATURES ON ENERGY CONSUMPTION IN SCHOOLS: AN APPROACH TO ECOLOGICAL ARCHITECTURE

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### ABSTRACT

Energy consumption of the public buildings in urban areas represents an important cost of the balance of economic life of city. Moreover, public buildings, in particular schools, should provide an environment with elevated comfort levels because students and teachers spend much time in these buildings. This study was intended to provide a scientific frame for development of a design guideline for sustainable school buildings. Based on a careful review of available literature, energy consumption strategies and performance levels that affect heating and cooling energy consumption in selected primary schools in Tabriz were analyzed as a reference baseline building. Computer simulations were performed using Energy Plus software to analyze the sensitivity of each of the influencing variable and energy strategies to overall performance of the school. Analysis of variance (ANOVA) was also conducted to estimate the relative importance of each factor to find out the priority of each energy factor.

**Keywords:** building, energy, process, sustainability

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## A CASE STUDY ON CARBON FOOTPRINT IN ERZURUM CITY OF 2012, TURKEY

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### ABSTRACT

Today, climate change is considered one of the greatest environmental problems of the world. It has observable serious effect on ecological system by reducing the biodiversity, threatening flora and fauna, affecting water, energy, carbon and other essential element cycle and shifting in the distributions of plant species which currently provides important ecosystem services by controlling erosion, soil conservation, carbon sequestration, nutrient cycling, and maintenance of water quality. Due to its global effect, Turkey has to deal with the challenges of climate change as well. As a parting in Appendix I of United Nations Framework Convention on Climate Change (UNFCCC), Turkey has an obligation to inform the UNFCCC, to develop and implement new policies for fighting climate change and to report the existing data of greenhouse gas emissions. In this work, we monitored carbon dioxide emissions which is the main greenhouse gas in the Erzurum City, Turkey with the fact that most of the global emissions are generated by cities. The main point of this study is to calculate carbon footprint of Erzurum city by GPC-Global Protocol for Community-Scale Greenhouse Gas Emissions, Pilot Version 1.0, and to establish a basement for further studies in order to reduce the using of fossil fuels by encouraging to spread the cleaner energy sources and renewable energy investments in the long period. The results also provide to guide for adverse effect of climate change by analyzing the current situation for further researches on environmental and ecological studies of Erzurum City.

**Keywords:** Climate change, Carbon footprint, Erzurum city.

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**BIOLOGICAL ACTIVITY OF EXTRACTS FROM THE MYCELIUM OF  
MEDICINAL MUSHROOM *INONOTUS RHEADES***Borovskii G.B.<sup>1,2\*</sup>, Borovskaya M.K.<sup>1,2</sup>, Gornostay T.G.<sup>1</sup><sup>1</sup>*Siberian Institute of Plant Physiology and Biochemistry, Siberian Branch of RAS, ul. Lermontova, 132, 664033,  
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DOI license: <http://u-o-i.org/1.01/ijeess/07057550>**ABSTRACT**

The search for bioactive natural compounds potentially having antitumor activity - important problem of modern science. We have previously demonstrated high *in vitro* antiradical activity of water ethanol extracts (WEE) from the mycelium of *Inonotus rheades*. In the present study we evaluated the effect of 30% and 70% of WEE from mycelium *I. rheades* on the cell culture of human tumor cells HEp-2. 50% cell death is achieved after 24-h incubation in 53 µg/ml 70% WEE (dry weight), whereas 30% WEE at 550 µg/ml only, i.e. an order of magnitude difference between the concentrations, which indicates that high cytotoxic activity was shown WEE a radical change in the qualitative composition of extractives with increasing ethanol concentration. Incubation of cells with 250 mM H<sub>2</sub>O<sub>2</sub> resulted in approximately 40% cell death, whereas pre-incubation with both 30% and 70% of WEE resulted in 100% survival of cells in a large range of concentrations. This indicates a WEE protective effect under oxidative stress. Thus, WEE of the mycelium *I. rheades* in high concentrations exhibit cytotoxic activity. At the same time, a wide range of concentrations extracts can neutralize the oxidative stress and cell death caused by the addition of H<sub>2</sub>O<sub>2</sub>.

**Key words:** antioxidant activity, cytotoxic activity, *Inonotus rheades*, mycelium

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## ASSESSING AND MITIGATING STUDIES OF THE ENVIRONMENTAL AND ECOLOGICAL IMPACTS OF 2011 WINTER UNIVERSIADE IN ERZURUM, TURKEY

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### ABSTRACT

Nowadays, the environmental and ecological impacts of international sporting events have received increasing attention despite its difficult assessment. These events have potential impact on local eco-systems by contributing greenhouse gas emissions related to climate change and utilizing more water and natural sources causing the water and soil pollution due to significant re-development of host city. Therefore, environmental management systems are required for mega sports events in terms of their contribution to air, water and soil pollution. This paper examines three such implementation processes that the mitigation for the greenhouse gases caused by newly constructed and renovated of existing buildings and transportation improvements caused by the contribution of new motor vehicles to city center and recycling the wastes for the environmental management of Erzurum 2011 Winter Universiade pre- and during games. Therefore, the aim of this study is to calculate the carbon dioxide emission related to climate change from re-insulated buildings designed for accommodation in Athletes Village, to reduce the transportation-based air pollution with emission controlling all motor vehicles newly joined in city traffic and to disseminate the waste recycling originated from sports venues with the recycling equipment during the games. It is achieved a 68.4% carbon reduction of total carbon dioxide emission with the insulation of re-constructed accommodation buildings while it is accomplished nearly 75% waste recycling of total wastes generated during 25th World Universities Winter Games which was hosted in Erzurum in 2011.

**Keywords:** Environmental management, sports events, recycling, greenhouse gas.

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## COMPREHENSIVE ANALYSIS OF THE QUALITY OF WATER BODIES IN BAIKAL NATURAL TERRITORY

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### ABSTRACT

This research is concerned with the sanitary-ecological and hydro-chemical condition of Lake Baikal's water and of surface and ground waters. The study revealed a tendency for changes in the chemical properties from the past to the present. The degree of safety of the water bodies for the population is determined.

**Key words:** Lake Baikal, surface and ground waters, comprehensive assessment, water quality, chemical elements, microorganisms.

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