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Plenary session

(E building *Auditorium*)

BIOLOGIC CONTROL OF *CRYPHONECTRIA PARASITICA* IN ROMANIA

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Cryphonectria parasitica has infected all the forests (and orchards) from the two most important natural centers of chestnut distribution in Romania - Maramureș and Oltenia. In Maramureș region, between 1984 and 2002, *C. parasitica* have infected 73.7% of chestnut stands (35.1% were severely affected). In 2005, 85% of chestnut stands had week vitality and in 2012 all mature forest trees (from untreated stands) have been destroyed by *C. parasitica* (some old trees still survive only by several epicormic branch / sprout). Chestnut forest survived by natural regeneration of stool-shoots and (in lower rate) seedlings. Sessile oak has been also infected (in mixed stands with chestnut), but fungus produced only cankers, rare branch or (suppressed) tree dying. Between 2005-2008 biological control of *C. parasitica* has been successfully tested in Baia Mare region. Natural regeneration of chestnut is completely healed in parcels subject of three years consecutively treatments (3-5 treatments), in other parcels healing process is intermediate. Untreated forests are dead and their regeneration is successive killed by the invasive fungus. In Oltenia region (Tismana Forest District, Gorj County), in 2013 *C. parasitica* has severely infected all the chestnut stands, the dying process being in rapid evolution (it is presumed in the next few years all the mature chestnut trees will die). The biological treatment of C. parasitica in relative young regenerated stands of Tismana F.D. has been started in the summer of 2013.

Notes:

ACCOUNTING FOR THE WIND-THROWS RISK INTO THE FOREST PLANNING

Marian DRAGOI

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The paper deals with the Markov chains and Bayes probabilities applied in forest management planning in order to adjust the annual allowable cut according to the amount of timber harvested as salvage cuttings due to the windthrows produced in the first n years of each decennial period. For each stand, the likelihood of being affected by a windthrow is being assessed as a Bayes conditioned probability and all likelihoods are further used for modelling the Markov chain, while the expected annual area to be reforested depends on windthrow likelihood plugged into the Markov chain model.

Notes:

TRENDS AND SPEEDS IN ONSET DATES: A COMPARISON BETWEEN ABOUT HALF-CENTURY SEPARATED PHENOLOGICAL SERIES

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Phenology, defined as the "study of synchrony in repeated biological phases or with a- and biotic forces, and the interrelations between same or different species" represent the ideal way of emphasizing the reaction of alive organisms to climate change"". Different phenological behaviors of the species in relationship with the climate factors were found in Europe, i.e. between N/W/E, the last being less included in analyses due to missing of data. Aim of the paper is to provide information about trends and speeds in onset dates of the phenophases of forest species from Romania, at two different moments, in relation with main geographical determinants (latitude, longitude, altitude). The used datasets (Ţiţu - 1895, Tomescu - 1965) come from the national forest phenology database, where were digitized the main published/available date from Romania. On this base, were developed multivariate linear regressions between the onsets and covariables, from which the trend was considered as a trigonometrical function of the rapport between the coefficients of latitude/longitude, while the speed as the number of days required to cross a specific distance (here 1o geographical). Due to data heterogeneity and, sometimes, the reduced number of records/species, the speed was calculated only global, for all the species. The general trends are common for both datasets, excepting the seed ripening (SSE-NNW Ţiţu vs. WNW-ESE Tomescu). On phenophases, other dominant trends were NW-SE (NNW-SSE) (28% from total) in flowering, and NNW-SSE in seed ripening. The autumn phenophases were more heterogeneous, the main directions being NW-SE (NNW-SSE)(55% of species) and SW-NE (31% of species). As speed, from spring phenophases, the flowering and leafing were the faster and slower, respectively, and in autumn, the leaves fall and seed ripening (both datasets). The altitude, a surrogate for temperatures, have influence on the phenophases known to be dependant (bud burst, leafing, flowering, seed ripening) in Tomescu dataset. The increase of altitude means a delay in the phenophase onset, with higher influence on seed ripening (2.8 days/100 m, $p<0.001$), almost similar to leafing (2.2 days/100 m, $p<0.001$) and less (1.2 days/100 m, $p<0.01$) for bud burst and flowering. In Țițu dataset, the only significant influence was in leafing ($p<0.001$). On species, the altitude influenced the budburst of black alder, ash, and black locust ($p<0.05$). Even the resulted trends are common to European, the results is the first information for Romania. Excluding expected determinant (species requirements or range), when interpreting the results should be accounted the influence of sampling (iregular in both cases). A future analysis, with better tools could provide details at finer scales, with better application to practice.

Notes:

A COMPARISON BETWEEN SOME MAJOR DIVERSITY INDICES

Ciprian PALAGHIANU

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Biodiversity and generally, diversity represents an important and trendy subject of modern studies. That's because diversity is often associated with stability and resilience of a heterogeneous system. Diversity shows the degree of variation of certain characteristics of an ecosystem and there are different approaches used to assess this feature. This study presents a software tool - BIODIV, used to evaluate the main diversity indices and also analyse the particular characteristics and qualities of these indices. The results show a segregation of the indices values in, at least, two groups with similar significance – the first group is represented by the following indices – Shannon, Simpson, Brillouin, Berger-Parker, McIntosh. The second cluster is more diverse considering the obtained values, grouping indices like Gleason, Margalef and Menhinick. Comparing the indices values it seems that the first group is more expressive than the second one, due to a more complex mathematic formula, that includes not only the number of observation and number of classes, but also the proportion of each class.

Notes:

FUNCTIONAL SIGNIFICANCE OF FOREST BIODIVERSITY IN EUROPE – ROMANIAN CASE STUDY

Olivier BOURIAUD, Laura BOURIAUD, Daniel AVACARITEI, Iulian DANILĂ, Gabriel DANILĂ, Gabriel DUDUMAN, Liviu NICHIFOREL, Ionut BARNOAIEA

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The presentation it's about FP7 FUNDIVEurope project - Functional significance of forest biodiversity in Europe. The research platforms from FunDivEUROPE project framework has the aim, the covering a big range of ecological conditions, the analysis of forest and management type from Europe. The USV's team helped at processing and sampling protocol of dendrochronological dates which will be used in quantification of stands productivity from sample plots established in all exploratory sites from Europe.

Notes:

AN OVERVIEW OF THE REGULATIONS REGARDING ACCES TO NON-WOOD FOREST PRODUCTS BASED ON 14 EUROPEAN CASE STUDIES

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Based on the 14 case studies integrated in the STAR TREE project, the analysis looks at the variety of regulations set at national and local level regarding the provision of non-wood forest products.

Notes:

SEASONAL ACTIVITY OF THE NORTHERN BARK BEETLE, *IPS DUPLICATUS*, IN THE SPRUCE STANDS FROM THE PREMONTANE AREA OF SUCEAVA COUNTY

Mihai-Leonard DUDUMAN[1], Nicolai OLENICI[2], Valentina OLENICI[2], Vasile-Doru DRĂGHICI[1], Constantin COCA[1]

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Ips duplicatus L. (Coleoptera, Curculionidae) is one of the most important pests of the Norway spruce installed at altitudes below 1000 m, causing severe damages especially in the tree stands growing outside or at the lower altitudinal limit of the spruce natural area. The biology and ecology of this insect species have been only scantily studied so far and usually are stated similarities with the biology and ecology and of *Ips typographus*. In this context, observations on seasonal activity of this species in a spruce stand located in the premontane area of Suceava county have been conducted during April-October 2013. The adult flight activity during the growing season and the emergence dynamics of the new generation from infested trees were monitored. In 2013, the flight began in 17-18 April and ended around October 2. There were three maxima of flight, one just at the start of flight and the other corresponding to the periods in which the emergence of the beetles from new generations occurred. Mass emergence of the new generation beetles was marked by a significant increase of the male proportion in the pheromone trap captures. Under specific conditions of 2013, *Ips duplicatus* developed three complete generations per year. The duration of a generation was at least 40 days, depending on environmental temperature dynamics. About 7 weeks lasted the emergence of all young adults from a tree, but most of them (about 85%) left the tree in the first two weeks. Between 746 and 2013 viable beetles of *Ips duplicatus* developed on one square meter of bark, the maximum density being at the upper level on the stem, where the attack has began.

Notes:

Forest and Environment session

FORESTS THAT ARE HABITATS FOR RARE, THREATENED OR ENDEMIC PLANT SPECIES (HCVF 1.2.) AND FOREST AREAS WITH CRITICAL SEASONAL USE (HCVF 1.3.) OF NATIONAL FOREST FUND

Diana VASILE[1], Virgil SCĂRLĂTESCU[2]

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The idea of High Conservation Value Forests (HCVFs) was developed by the Forest Stewardship Council (FSC) and first published in 1999. This concept moves the forestry debate away from definitions of particular forest types (e.g. primary, old growth forests) or methods of timber harvesting (e.g. industrial logging) to focus on the values that make a forest important. By identifying these key values and ensuring that they are maintained or enhanced, it is possible to make rational management decisions that are consistent with the maintenance of important environmental and social values. The HCV approach describes six exceptional values or attributes of a forest area, which cover a wide range of biodiversity, ecosystem services and sociocultural values. The research objectives were to identify HCVF 1.2. – Habitats for rare, threatened or endemic plant species and HVCF 1.3. Forest areas with critical seasonal use, on the surface of 23 County Forest Administrations (CFA) of national forest fund managed by National Forest Administration – Romsilva. For HCVF 1.2 and 1.3. Identification there were used: Plannings and forest districts maps; Biological studies; Annex 3 of the Toolkit. The methodology of the research involves three stages: The first stage: the planning of the process; the second stage: the preliminary assessment and the third stage: the full assessment. The researches have led to the identification of 365.1 ha with Forests that are habitats for rare, threatened or endemic plant species (HCVF 1.2.) representing a percentage of 0.20% of the total area with HCVF and of 7,436.1 ha with Forest areas with critical seasonal use (HCVF 1.3), representing a percentage of 3.9% of the total area with HCVF. The largest areas with protected plant species are the areas with Common yew and with Butcher's broom, being spread across four, respectively three CFA. The largest areas with critical seasonal use are the areas with capercaillie and the migration routes or corridors for birds. These have been identified in eight, respectively in one CFA. Planning, management and monitoring of the attributes that make a forest management unit a HCVF, in our case: rare, threatened or endemic plant species; protected animal species, should be based on existing scientific and indigenous/traditional knowledge, to ensure that these attributes do not come under threat of significant reduction or loss and that any threat of reduction or loss is detected long before the reduction becomes irreversible. In case a threat has been identified, early preventive actions, including halting the existing actions, should be taken to avoid or minimize such a threat, even if the threat causes and effects are not scientifically confirmed.

Notes:

ARE THE GAP CHARACTERISTICS OF AN OLD-GROWTH MIXED BEECH-SESSILE OAK FORESTS RELATED BY THE SLOPE AND ALTITUDE?

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The researches was carried out in the best preserved part of the Runcu-Grosi natural reserve, which is located in Zarand Mountains, western part of Romania (22°07' E, 46°10' N). The reserve is composed by mixed beech-sessile oak-hornbeam forest. This area extends between 334 to 686 m above sea level with slope inclinations varying between 1 to 34 degrees. The main objectives of this study were to determine: I) the influence of some morphometric characteristics (altitude, slope and aspect) on gap traits (surface, diameter, and perimeter) and II) the proportion of beech and sessile oak in expanded gap. In the research area we identified and mapped 321 gaps using Field Map Data Collector. The investigations were carried out in all the gaps. For each of 321 gaps has been determined altitude and slope. Further we divided those in 5 classes of altitude with a 50 meters step, respectively in 5 classes of slope with a 5 degrees step. Also, we used the regression analysis, separately and combined, of slope and altitude for gap elements mentioned above. The dependent variables for that the significance level was less than 0.05 are: surface, perimeter, gapmaker number and ratio of participation of beech (*Fagus sylvatica*). Gap frequency increased with altitude. At the altitudinal class four, 99 gaps were encountered, while at class one, only eighteen gaps were found. The largest gap detected had 1387 m2 in size (at 578 m), while the smallest one had 11 m2 in size (at 471 m). Regarding to the slope, the highest frequency of gap (140) was detected at class 4. In the same class gaps with the largest surface were determined. The number of gapmaker was positively influenced both by the slope and by the altitude. Has been pointed that, in expanded gap ratio of participation of beech increase with altitude while ratio of participation of sessile oak decrease with altitude. Therefore the terrain topography plays an important role on the gap traits, on the gap formation as well as on the characteristics of future stand.

Notes:

INFLUENCE OF TEMPERATURE AND HUMIDITY ON THE WOOD COMPRESSIVE STRENGTH

Alexandru Potorac, Dorel Prodan

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Wood is an organic material with a fibrous tissue structure, which consists of plant cells. This is why wood is an anisotropic and inhomogeneous material. These characteristics are easy to prove by observing the direction of the fibres and by applying a mechanical stress on a wood specimen in the direction of the fibers and perpendicular to it. The mechanical endurance of wood shows different behaviours to stress depending on its macrostructure and microstructure. There are differences from one group of trees to another and also within the same group, from a species to another. Moisture, temperature, specific gravity and the direction of stress relative to the fibre are also important factors. The many defects of form, structure, as well as the nodules also contribute to the difference in behaviour to similar operating conditions. Therefore, this work's aim to determine the compressive strength, parallel to the fibber direction is appropriate. Standardized specimens will be used, so that the results can be compared to those from the literature. General issues concerning the mechanical tests of wood are reviewed. It is pointed out that wood is an organic material, inhomogeneous and anisotropic, which decisively influences its mechanical proprieties. The tensile-compression wood testing machine from the Mechanical Testing Laboratory of the Faculty of Mechanical Engineering, Mechatronics and Management, as well as its operating system are presented. Summarizing aspects of the procurement and execution of test specimens and methodology for experimental tests (general and specific requirements) are being presented. A program for the experimental tests for a set of specimens of different essences is being designed. The goal is to determine the qualitative and quantitative influences, the impact of temperature and humidity on the mechanical characteristic under study. The results are registered, processed and used to draw conclusions. Directions for further research are mentioned.

Notes:

INFLUENCE OF TEMPERATURE AND HUMIDITY ON THE WOOD DYNAMIC FLEXURAL STRENGTH

Dorel Prodan, Alexandru Potorac

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Wood is an organic material with a fibrous tissue structure, which consists of plant cells. This is why wood is an anisotropic and inhomogeneous material. These characteristics are easy to prove by observing the direction of the fibers and by applying a mechanical stress on a wood specimen in the direction of the fibers and perpendicular to it. The mechanical endurance of wood shows different behaviors to stress depending on its macrostructure and microstructure. There are differences from one group of trees to another and also within the same group, from a species to another. Moisture, temperature, specific gravity and the direction of stress relative to the fiber are also important factors. The many defects of form, structure, as well as the nodules also contribute to the difference in behavior to similar operating conditions.

Notes:

WOOD BIOMASS ASSESSMENT IN SHORT CICLE, MULTICLONALE COMPARATIVE CULTURES OF HYBRID POPLAR OF DIFFERENT PROVENANCE (METHODOLOGY AND PARTIAL RESULTS)

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Timber production in short term production cycles using fast growing species is a solution to satisfy the growing need for biomass and represents a major interest in industry. In this context, the assessment of the wood biomass in multiclonal poplar cultures were represented by participating in the STROMA project, partially financed by EGGER Romania, Radauti Department. The aim of the research was to assess the biomass production, clone and provenience establishment and identifying by experiment in which case the productivity is maximum. The methodology was adapted to the biomass assessment protocol:

- sap wood weighing, separately for trunk and branches;
- wood humidity assessment by weighing sap and dry wood rondes, taken at the height of 2 m and a random sample;

The experimental materials were obtained by selecting 360 trees, 180 for each experiment. The results show the superiority of the trees originating from long cuttings over those from short cuttings, regardless of the clone used in the experiment and the planting distance.

Notes:

THE STUDY OF SOIL BIODIVERSITY AND THE INFLUENCE OF SOIL MAINTENANCE ON THE DEVELOPMENT OF HYBRID POPLAR CLONES IN THE DORNEŞTI-SATU MARE AREA, SUCEAVA COUNTY

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This paper approaches the subject of soil biodiversity of short-term rotation hybrid poplar production in the Rădăuți area. The research was conducted in the STRoMA project (Sustainability of short-term rotation cultures of trees on marginal lands). Thus, taking into account the following indicators: the influence of soil granulometry on the maximum depth of occurrence of poplars radicelar system and on the maximum depth of insects and small mammals galleries. During the investigations also was highlighted the influence of depth and granulometry of the alluvial deposits of these soils on height of hybrid poplar specimens. Regarding the influence of the culture and maintenance of soil planted with hybrid poplar clones, in the spring of 2013 an experiment was installed which provides further development of clones (AF8, AF2 and Pannonia) by way of maintenance (uncultivated field, black field and green field) located in two experimental blocks (with and without mycorrhiza). The soil of the experiment subject area is Phaeoziom type (USDA-1998), intense humificated, saturated with bases, well supplied with nitrogen and moderately supplied with phosphorus and potassium. In conclusion this soil is optimal for growing hybrid poplars."

Notes:

ASSESSMENT OF BIODIVERSITY IN HABITATS WITH DIFFERENT DEGREES OF HUMAN INTERVENTION - METHODOLOGICAL ISSUES AND PRELIMINARY RESULTS

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The research aimed at comparative evaluation of biodiversity in four habitat types, whose degree of human intervention is determined by how they are used: poplar intensive cultures with short production-cycle, wheat crops, pastures and floodplain forests. Thus, field observations concerning the spectrum and the abundance of vascular plants, the presence and abundance of ground beetle species and the presence of various species of reptiles, amphibians, birds and mammals in the four habitat types were made. Field work focused on two areas with similar types of habitats (Satu Mare and Dorneşti - Suceava), in each area being all the four types of studied habitats. The field observations on vascular plants were made during the growing season in 2013 and consisted in conducting surveys to identify all cormophyte species with their abundance and dominance. For insect study, five Barber traps were installed at the end of April in each analyzed habitat and they were fortnightly inspected until October 2013. Observations on reptiles, amphibians and small mammals were made on biological material captured both in the pitfall traps used for insects, as well as in specific traps for small mammals. The birds and the large mammals have been regularly observed on route since March 2013. The spectrum of identified cormophytes is characteristic for each of the analyzed habitat types: grassland species are dominant in the pasture, many mesophilic and ombrophlic species are present in floodplain forests, in wheat crops some segetal species are present and in poplar cultures numerous segetal and ruderal species were found. The most ground beetles were caught in the poplar culture at Dorneşti and in the wheat crop at Satu Mare, and the fewest on pasture in Satu Mare. Diversity of observed animal species (macro- and micromammals, birds, amphibians and reptiles) decreases in both investigated areas from the forest vegetation to pasture land and it is the lowest for poplar plantations. Also the species richness is higher in the Satu Mare, compared with Dorneşti, for all habitat types. Based on the data collected in the field one can say that animal biodiversity is influenced by the surrounding landscape diversity, the structural diversity of vegetation and regional species pool. In the case of poplar plantations, the major factor influencing animal diversity is the landscape context in which they are growing.

Notes:

IDENTIFICATION AND MAPPING OF MARGINAL LANDS AND RECENT AFFORESTATION IN NORTH-EASTERN ROMANIA

Ovidiu IACOBESCU, Ioan CIORNEI, Adriana Roxana BARNOAIEA, Ionuţ BARNOAIEA

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Marginal lands, defined as low quality lands, unsuitable for agriculture, can become production sources for fuel wood by ecological reconstruction through reforestation. The design of ecological reconstruction requires an updated inventory of the suitable lands. In this context, the paper presents an inventory of the degraded lands in Suceava and Botoşani counties, done by photointerpreting digital orthorectified aerial images and the assessment for newly afforested lands in the NE area to identify plots with short-term plantations.

Notes:

USING SATELLITE IMAGE CLASSIFICATION AND DIGITAL TERRAIN MODELING TO ASSESS FOREST SPECIES DISTRIBUTION ON MOUNTAIN SLOPES – A CASE STUDY IN VARATEC FOREST DISTRICT

Ionuţ BARNOAIEA

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The relation between ecological conditions and geomorphological factors is considered the basis for species distribution in Romania. In this context, the location of each species within parts of the mountain slopes is difficult on a medium to brad scale level. The paper presents methodology to combine vegetation data, obtained from IKONOS satellite images, and Digital Elevation Model obtained from digitized topographic maps. The study area is a northern slope of the Stanisoarei Mountains with a gradient of species from beech mixed and coniferous stands.

Notes:

BIOMECHANICAL BEHAVIOR OF TREES FACING EXTERNAL DISTURBING FACTORS

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Basic characteristics of plants in general and trees in particular - such as support, root system and protection against environmental factors - depend on the geometric and biomechanics configurations, the biomechanical design. Relationships between environmental and mechanical characteristics of plants may be specific and direct, same as their response to external factors (strong wind, snow, etc.), therefore reinforcement of the structure helps their survival. Some characteristics - such as leaf toughness - can provide protection from several types of stress. Adaptive capacity of mechanical features may vary, depending on habitats. Current scientific research on the biomechanics of plants and trees is targeting the visco-elastic behavior of wood, structural and material anisotropy, heterogeneity, temperature dependence, inherent biological variation, static and dynamic effects, roots anchoring mechanical characteristics and amortization mechanisms known as biomechanical hysteresis. This paper presents the biomechanical behavior of trees facing abiotic disturbance - wind, snow, temperature etc. The study is performed considering the tree a biological solid of equal resistance with anisotropic structure, using the structural visco-elastic or visco-elastic-plastic body model, simple or complex."

Notes:

IMPACT OF WHITE MISTLETOE (VISCUM ALBUM SSP. ABIETIS) INFECTION ON NEEDLES AND CROWN MORPHOLOGY OF SILVER FIR (ABIES ALBA MILL.)

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White mistletoe (*Viscum album* ssp. abietis) is a hemiparasite species and, in Romania, occurs only on silver fir (*Abies alba* Mill.). It is one of the most significant biotic factors that have affected silver fir stands located on the Eastern border of natural area. The present study tried to quantify the mistletoe impact on crown degradation of silver fir trees. The study was carried out in one damage silver fir stand in Solca forest district (North part of Eastern Carpathians) where over 70% of trees are affected by mistletoe. The results indicate that mistletoe is producing crown degradation by a significant reduction of photosynthetic tissue.

Notes:

ASH DIEBACK IN NORTHERN PART OF SIRET BASIN

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Ash dieback is a new threatening disease produced by Hymenoscyphus pseudoalbidus Queloz 2011 (anamorph Chalara fraxinea Kowalski 2006), an asian fungus, living saprophite on dead leaves of Fraxinus mandshurica (Hosoya 2013). H. pseudoalbidus produces severe ash dieback, both on Fraxinus excelsior and F. angustifolia (F. ornus is resistant), in the last two decades, first in Lithuania and Poland, now spreading throughout the whole north and central part of Europe. In Romania, ash dieback has been recorded starting with 2005 in Snagov F.D. (Ialomita meadow - Bucharest Field) and 2006 (Prut and Barlad meadows – Moldavian Central Plateau) (Chira and Chira 2006, 2007). Ash decline has continuous recent histrory (from 2010) in different forests of Suceava Plateau: Zamostea Lunca (Adancata F.D.), in meadow conditions with relative constant humid climate (both high air and soil humidity), first observed after the flooding of 2010, affecting middle aged ash forests (both pure and mixed stands), Codrii Voivodinei (Marginea F.D., noticed from 2011), on flat plateau with low water drainage (poor luvisoil with compact clayey B horizon), on old tress (90-100 years), Adancata (Adancata F.D.), on flat plateau with similar clayey poor luvisoil, but in young pure ash plantations, Patrauti (Patrauti F.D.), on flat plateau with soil fluctuant water regime on middle aged pure ash stand. Fruitbodies of H. pseudoalbidus has been first recorded in Zamostea Lunca (abundant on infected ash rachis felt in the previous year), then in the other forests. All future dying trees are more easy recognised after root and collar rot (produced by Armillaria sp.). This symptom first occurs on roots, below the ground level on apparently healthy trees (green crown, with 15-30% transparency). Then, the rot is gradually reaching the collar, and the crown shows step by step the degradation symptoms (leaf lost, shoot or branch dead), the parasitic fungus fruitbodies being observed only on the rachis of the dead felled leaves. In Zamostea Lunca all dying trees have severe root and collar rot. The final process may be relative quick to chronically, some apparently healthy trees have been seriously damaged (to dead or dying trees) in several months, but many others resist more. Till now, the dying process is continuously both locally (in affected forests) and regionally (in Suceava County)."

Notes:

VASCULAR FLORA ANALYSIS IN THE ”FANEȚELE SECULARE PONOARE” RESERVE BOSANCI, SUCEAVA COUNTY

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The paper presents an analysis of the vascular flora in the ”Fanețele seculare Ponoare” Reserve Bosanci, assessment done within the framework of the specialized literature and continuing with the data collected between 2012 and 2013 in the region. Numerous superior plants mentioned in the literature have not been found in the field, but we have identified other plant species, not mentioned in previous studies. We have also highlighted the species included on the red list.

Notes:

ASPECTS REGARDING SPECIES REINTRODUCTION AS METHOD USED IN ORDER TO CONSERVE BIODIVERSITY. CASE STUDY: CHAMOIS (RUPICAPRA RUPICAPRA) IN RODNEI MOUNTAINS

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The paper presents the advantages, disadvantages and the experience gained from the practice of this conservation method in our country and around the world. A special attention is paid to the situation of the chamois (Rupicapra rupicapra) in the Rodnei Mountains. Around 1930 the species dissapeared from this location and between 1964 and 1970 a programme for the resettlement of this species was initiated. The used reintroduction procedures, their results, the evolution of the chamois and the principal factors that has influenced over time the Rodnei Mountains population are analysed. In this evolution, several distinct periods can be highlighted, each of it influenced by different natural, social and economic factors. As a result of the analysis a set of conservation measures was assessed in order to preserve a stable and healthy population.

Notes:

TROPHY EVALUATION FORMULA ANALYSIS FOR ASIATIC WILD GOAT CAPRA (IBEX) SIBIRICUS PALLAS, 1776, CAPRA SIBIRICA MEYER, 1794

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The present work is a short presentation of the Asiatic ibex wild goat – species less known in Europe, even if it belongs to the European ibex.
The trophy valuation way of the Asiatic ibex, according to CIC formula used at Budapest exhibition in 1971, is compared to the formula used at Plovdiv exhibition in 1981
As a conclusion, Plovdiv formula avows better the cynegetic value of the Asiatic ibex trophy.

Notes:

THE INFLUENCE OF WILDSTOCK'S VEGETATIVE STAGE AND GRAFTING LEVEL ON PICEA PUNGENS VAR. ARGENTEA GRAFTING'S SUCCESS

Georgel Constantin MAZARE

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The propagation of Picea pungens Argentea was one of the important gardeners'problem, and that because of the neddles'feature. The needles'silver colour is the most important landscape character of this species. But, if the species is obtained by seeds, in time the colour became green. For that the gardeners tried to keep the silvery colour of the needles using the vegetative propagation. The experiment was a bifactorial one, and it was made during three years. The purpose of this paper is to see which the best moment to graft is and which the best grafting level on the wildstock is. For that there were used two kind of wildstock. The first was a less active one, regarding the beginning of the vegetation season, and the other one a well active wildstock. The second factor of the experiment was the grafting level. This factor has three graduations, the grafting being made on the first, on the second and on the third growth on the wildstock. Considering the results obtained in this experiment, we concluded that there is no significant difference between the grafting moments. So, if we make the grafting when the wildstock's activity could be seen only at the roots level or when the buds are opening, we will have the same results. That is important to be known in the situation that we have a lot of exemplars to be grafted and we have no enough workers. The second factor of the experiment shows us that the grafting on the third wildstock's level is the grafting with worse results. The difference between the other two graduations is no significant. This is not a good fact, because the grafting on the third level ensures a plus in growth."

Notes:

THE IMPLICATIONS OF MUSHROOMS INTOXICATION ON CHILDREN'S HEALTH

Margareta GRUDNICKI, Alice Nicoleta AZOICAI

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The paper presents some aspects regarding health degradation following the ingestion of toxic mushrooms. The study was conducted on the children hospitalised in "Sfanta Maria" Hospital in Iasi that exhibited the specific simptoms of intoxication with toxines found in mushrooms.

Notes:

THE ASSESSMENT OF FOREST PRODUCTIVITY IN RELATION TO SPECIES DIVERSITY IN RÂȘCA FOREST DISTRICT, ROMANIA

Olivier BOURIAUD, Daniel AVĂCĂRIȚEI, Gabriel DUDUMAN, Ionuț BARNOAIEA

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Forest productivity in relation to radial and basal area growth were analyzed in respect to species composition for 28 plots located in Râșca forest district. The target wood species were Norway spruce (*Picea abies*), silver fir (*Abies alba*), European beach (*Faqus sylvatica*) and sycamore (*Acer pseudoplatanus*). The radial growths were determined for three periods: last year, last 5 years and last 10 years, for every cored tree in the sample plots. Using variation analysis we highlighted the species combinations that ensure the maximum wood productivity.

Notes:

PLANT COMMUNITIES DYNAMICS ON MINE WASTE FROM CRUCEA AREA – SUCEAVA COUNTY

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Old abandoned mine waste are a great example of natural plant succession. In the study case of a mine waste from Crucea mining area, there were identified multiple situations of colonization by various local plant species. These situations are analyzed in terms of floristic spectrum (vascular plants) but also in terms of ecological indices by H. Ellenberg. Thus, some conclusions were drawn.

Notes:

Environmental Economics and Forest Policy session

ENABLING FACTORS OF ADAPTING FORESTS TO THE CLIMATE CHANGE – A COMPARATIVE ANALYSIS OF REGIONAL CASE STUDIES IN EUROPE

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The implementation of the simulation prediction in practice or in policies embraces the classical aspects of a science/policy interface interaction in enhancing societal changes. In this study we reviewed the adaptive forest management strategies proposed in several European forest regions in relation with the existing institutional frame and based on Ostrom' IADF approach. The aim was to make an assessment of the likelihood that the forecast adaptive management were implemented and to identify the enabling conditions for a such change. The results show that some arenas are more favourable to change in policies and practices than others, according to the type of the driver for change and the pattern of interaction identified.

Notes:

ENVIRONMENTAL POLICY AND GOVERNANCE RELATED TO WOOD MARKETS (CONSUMPTION, PRODUCTION AND TRADE)

Maria-Loredana POPESCU, Antoniu PREDESCU

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The present global economic crisis represents, nowadays, one of the main causes due to which wood consumption is increasing dramatically, especially in 'less' developed (e.g. emergent) countries. In these countries, characterized by the fact governments cannot and do not improve quality of life, in the long term, on one side, and, on the other side, managing, badly, economies plagued by persistent and high unemployment rates, also in long term, local communities, at least, tend to ravage 'a lot of' forestry. In the last thirty years global economy witnessed a deforestation process at global level, that space, previously tree-based, so to speak, being, thereon, converted to/for other utilizations, mainly agriculture or building projects, in other words positive projects with negative side-effects. Statistics reveal an increasing demand for paper, paper products, wood products and wood-based energy. So is it important to analyze, among other factors, where wood came from and where it is going, as primary and/or secondary products? We do think this is not only important, but crucially important, for, in (rather) undeveloped countries, such as Romania, it is too easy to export primary wood product without evaluating the consequences. In perspective, developed countries, like Sweden, export value added products which bring them higher value and profits to their economies and require greater manufacturing and marketing skills (e.g. IKEA). That is, in order to capitalize both on consumption and on environment economies' managers can do more that uselessly complain: exempli gratia government policy can introduce trade barriers to decrease the consumption (like export taxes). This paper concludes with asserting, using pertinent arguments, what will long-term consequences by for global economy, environment protection, and forestry, and, more important, in what manner should a proper economic 'procedure' be projected so as, for economies and communities, to both minimize and profit from negative aftermath of extensive wood exploitation."

Notes:

AN OVERVIEW OF THE REGULATIONS REGARDING ACCES TO NON-WOOD FOREST PRODUCTS BASED ON 14 EUROPEAN CASE STUDIES

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Based on the 14 case studies integrated in the STAR TREE project, the analysis looks at the variety of regulations set at national and local level regarding the provision of non-wood forest products

Notes:

A TYPOLOGY OF RENT SEEKING BEHAVIOUR AND THE ESTIMATION OF RENT CAPTURED BY FOREST OWNERS IN VAMA AND DOLHASCA FOREST DISTRICTS

Liviu NICHIFOREL, Ionut BARNOAIEA, Laura BOURIAUD, Ramona SCRIBAN, Couvent M. MARGOT

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The implementation of the simulation prediction in practice or in policies embraces the classical aspects of a science/policy interface interaction in enhancing societal changes. In this study we reviewed the adaptive forest management strategies proposed in several European forest regions in relation with the existing institutional frame and based on Ostrom' IADF approach. The aim was to make an assessment of the likelihood that the forecast adaptive management were implemented and to identify the enabling conditions for a such change. The results show that some arenas are more favourable to change in policies and practices than others, according to the type of the driver for change and the pattern of interaction identified.

Notes:

USING LANDSAT IMAGES TO IDENTIFY AND MAP FOREST DISTURBANCE IN THE NORTHERN PART OF EASTERN CHARPATHIANS

Liviu NICHIFOREL, Ionut BARNOAIEA, Cosmin COŞOFREŢ

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The implementation of the simulation prediction in practice or in policies embraces the classical aspects of a science/policy interface interaction in enhancing societal changes. In this study we reviewed the adaptive forest management strategies proposed in several European forest regions in relation with the existing institutional frame and based on Ostrom’ IADF approach. The aim was to make an assessment of the likelihood that the forecast adaptive management were implemented and to identify the enabling conditions for a such change. The results show that some arenas are more favourable to change in policies and practices than others, according to the type of the driver for change and the pattern of interaction identified.

Notes:

AN ANALYSIS OF FOREST HARVESTING AND MANAGEMENT RIGHTS IN EASTERN EUROPE

Laura BOURIAUD, L., NICHIFOREL, L., G. WEISS, A. BAJRAKTARI, M. CUROVIC, Z. DOBSINSKA, P. GLAVONJIC, V. JARSKÝ, Z. SARVASOVA, M. TEDER, Z. ZALITE.

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A property rights-based approach is proposed in the paper to underline the common characteristics of the forest property rights specification in ten ECE countries, the specific patterns governing the harvesting of timber in private forestry and the role of the forest management planning in determining the content of the property rights. The analysis deals with the private forests of the individuals (non industrial ownership) from ten countries, covering 7.3 million ha and producing yearly some 25 million m3 timber. The study shows that the forest management rights in private forests belong to the State and that the withdrawal rights on timber, yet recognised in the forest management plans, are in reality strongly restricted from an economic viewpoint. The study highlights that understanding and comparing the regime of the forest ownership require a special analysis of the economic rights attached to each forest attribute.

Notes:

ATTITUDES AND PERCEPTIONS OF THE CLIMATE CHANGE AMONGST THE FOREST ENGINEERS IN ROMANIA

Mihaela MUTU, Laura BOURIAUD, Liviu NICHIFOREL, Corina DUDUMAN, Marian DRĂGOI

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The analysis of the adaptation to the climate change shows that the adaptation depends on the individual’s perceptions about the reality of the climate change and its effects on the forest ecosystems. This nationwide study provides insides about how concerned are the forest engineers on the climate change. The results are useful in the context of the formulation of the national strategies for adaptation to the climate change.

Notes:

A POSITIVE APPROACH OF LEGAL FRAME IN TIMBER BIOMASS PRODUCTION ON AGRICULTURAL LANDS

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The demand for biomass increased in the latest decade, following also the implementation of EU instruments on renewables energies. The interest on producing biomass on agricultural land is growing, as well as the areas planted now with forest species such Plopulus, Salix or Catalpa for biomass production. The study shows that, besides the forest laws and norms, there are no legal acts to regulate properly the culture of the forest species out of the forest fund for producing biomass and that the forest regime is not an appropriate legal instrument to regulate this issue.

Notes:

A ROUGH ESTIMATION OF THE VALUE AND STRUCTURE OF THE FOREST MUSHROOMS PRODUCTION AND COMMERCIALISATION CHAIN IN SUCEAVA AREA

Ioana JITARIUC, Laura BOURIAUD, Liviu NICHIFOREL, Carmen NASTASE

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The mushrooms and berries are traditional products of the forests, but the chain is not very well known, particularly because of the lack of data on the availability of the raw material and on the behaviour of mushrooms pickers and traders. The study brings empirical data about the production and commercialisation of the mushrooms in the year 2013 and underlines some problems regarding the access to the raw material and the exclusion in case of renting forests specifically for mushroom picking.

Notes:

IMPLICATIONS OF THE CONCEPT OF TEHNOETHICS IN THE MANAGEMENT OF NATURAL RESOURCES

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The techno-ethics concept deals with the responsible use of the technologies. Main of the scholarly debate on technics and ethics are dedicated to the precautionary and risk-reducing behaviour. The appropriate approach should integrate the intents, the values and the norms. In this study we advance the idea that the current debate on the sustainable management of the natural resources is failing to integrate ethics value. The technology should be kept under control and should not be allowed to develop in the interest of a certain group that can afford it (Bunge, 1984). The study argues that there are limited capacities in science to describe in operational terms why and how "sustainable" management. this is perpetuating 'technics' as a "technical, problem-solving mindset" (Marck, 2000) that may exclude ethics. The concept can be used to described the conceptualisation of the sustainable forest management within the forest regime institution that put away the main concerned category – the forest owners, from the decision regarding the utilisation of their own forest resource.

Notes:

WOOD FOR ENERGY USE: A SHORT PERSPECTIVE

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Energy from wooden biomass comes as the most noteworthy distinct use for the world's wood harvest. During the last decades more than 50% of the annual wood production (3-4 billion m^3) was used directly as firewood. Only the rest of harvest delivers feedstock for mills, saw-, pulp mills and wood-based panel fabrication. All of these processes generates substantial wood residues suitable for energy production, characteristically 20-40% of the entire wood feedstock. Therefore, if the wood primary processing industry's supply of a substantial amount of its private energy necessities from residues, we must take into account - at this time - that only 60-70% of all wood crops is used as fuel. Energy produced from biomass (comprising wood) presently exemplifies approximately 14% of the world's primary energy stock. Though, projections advise that the amount of energy available from biomass in 2050 could be 50% of the world's expected energy request. The intensification of demand for biomass (together with wood) as energy depends on the availability and cost of fossil fuels. Currently oil, natural gas and coal provide cheaper, more convenient but more environmentally damaging sources of energy. The developed countries rely heavily on fossil fuels for energy, with only 2% of total energy consumption being derived from wood, although it varies from country to country. In Northern Europe, encouraged by supportive government policy and a readily available wood supply, forest biomass donates nearly 20% of primary energy. In developing countries much of the domestic and industrial energy supply comes from wood. Unfortunately in the majority of developing countries wood fuel use is via inefficient technologies

Notes:

Poster session

FIR GROWTH VARIABILITY ON AN ALTITUDINAL GRADIENT IN NORTHEASTERN ROMANIA

Mihai LUPESCU

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The variability of annual tree ring size for fir (*Abies alba* L.) was analyzed the importance of altitude and slope exposition on tree growth. The area covered was the North – Eastern part of Romania, between 46 degrees northern latitude and 48 degrees northern latitude and 25 degrees eastern longitude and 26 degrees eastern longitude. 36 stands of the National Forestry Inventory were studied from which 422 growth samples were taken. These were processed and measured. The measurements make up the growth curves which where than standardized. Growth curves were elaborated and were analyzed in terms of altitude, slope exposition and latitude. At lower altitudes, fir achieved the highest growths, at middle altitude, trees achieved average growth, and at high altitudes, trees achieved the lowest growth. This underlines once again the importance of temperature on tree growth. Analysis of the spatial variation of the series analyzed according to altitude caused the formation of two groups. The first group consists of series growing at high altitudes(1000 m and 1100 m) and 500 m altitude series. The second group consists of intermediate altitude, starting with 600 m and ending with 900 m. The explanation for the spatial distribution of the series is due to the environmental conditions in which the series formed. At extreme altitudes, the fir is subject to limiting environmental factors, mainly temperature and humidity. The growth series from middle altitudes are formed in normal growth condition. The studied classes of altitude (600 m, 700 m, 800 m, 1000 m), in terms of exposition, led to the same result: the growth curves from the northern exposition have a lower variability than the growth curves from the southern exposition. On northern exposition, the fir is supplied with a more suitable light and water regime, in contrast with the southern exposition where the variation of these factors have a great influence on growth. Principal components analysis was done for the two groups previously set from altitude. In the second group, we can see a clear separation between northern and southern exposition. The southern exposition has the negative values of the second axis, and the northern exposition has the positive values on the second axis. The cluster analysis grouped the analyzed series by the geographical position of each series.

Notes:

INTRA-ANNUAL DYNAMICS OF GROWTH PROCESS IN RARĂU MASSIF

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The dynamics of tree ring formation for Norway spruce, silver fir and beech from Rarău Mts. was monitored during 2009, 2010 and 2011. The intra-annual growth of stem xylem was based on microcores (5 trees per species) using xylological methods. Xylem formation and different phases of cells development was measured at weekly interval. Four stage of tree ring development were quantified, in number of cells and phase duration: cambial stage, cells enlargement, cell wall thickening and mature cells. The onset of cambial activity for silver fir was observed at the beginning of May in 2009 and in the last week of April in 2010, respectively earlier in 2011 (middle of April). The duration of xylogenesis varies from 128 day in 2009 to 140 days in 2011, with particularities from tree to tree. Similar results were obtained also for Norway spruce. In case of beech a qualitative evaluation of cells development was done. Each stage of differentiation of the beech xylem showed significant differences in all the growing seasons. The beech tree ring development period varies between 140 days (2009) and 174 days (2011). The detailed research of microscopy holds an important role in highlighting the entire process of tree ring formation during a growing season.

Notes:

THE COROLOGY, ECOLOGY AND PHYTOSOCIOLOGY OF THE WOODY PLANT COMMUNITIES OF THE LAPUŞNIC VALLEY, PART OF THE NATIONAL PARK NEREI-BEUŞNIŢA GORGES

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The examined area, process which started in 2011, is situated along the course of Lapusnic, a tributary of the Nera river and is an integral part of the National Park Nerei-Beusnita Gorges. Calcareous substratum and climate influences sub-Mediterranean determine the type of flora and vegetation of Lapusnic Valley. In the Lapusnic basin there were identified numerous vulnerable (V), rare (R), and endangered (E) taxa, which are found in the red lists, published in our country. The general aspect of vegetation in the the Lapusnic basin represents an image of the very different stationary conditions, to which one can add the influence of the anthropo-zoogenous factors. The wooden vegetation is represented by forests, underwoods and riverside coppices, the forests occupy the largest area. For the study of the vegetal carpet in Lapusnic basin, we have used methods of phyto-sociologic research characteristic to the Central European phyto-sociologic School, which was based on the principles and methods elaborated by J. Braun-Blanquet (1926) and adapted by A. Borza (1934) to the particularities of our country's vegetation. The woody plant communities have been analyzed and characterized from the chorological, ecological point of views. They were also examined according to their floristic composition and physiognomy, syndynamics and economics. In the Lapusnic basin, important areas are occupied by the beech forests belonging to the Festuco drymeiae-Fagetum Morariu et al. 1968 plant community. At lower altitudes, one can find alder tree groves which belong to the association Stellario nemori-Alnetum glutinosae (Kärstner 1938) Lohm. 1957. The Quercetum petraeae-cerris Sóo (1957) 1969 plant community grow on the slopes of the lower limit of the basin Lăpuşnic. Subcontinental peri-Pannonic scrub are represented by the following plant communities: Syringo-Fraxinetum orni Borza 1958 em. Resmeriţă 1972 (Syn.: Syringeto-Fraxinetum orni coryletosum colurnae Borza 1958; Syrigo-Carpinetum orientalis humiletosum domogledicum Jakucs 1959; Syringetum-Cotinetetum-Acarineum tatarici Georgescu 1934), Cotino-Carpinetum orientalis Csürös et al. -1968, Syringo-Carpinetum orientalis Jakucs 1959. They form the so called ,,sibliacuri,, and are included in the Habitat 40A0* - Subcontinental peri-Pannonic scrub. They are installed on bedrock, hard to reach land, with slopes moderately to highly pitched, even on steep walls.

Notes:

IDENTIFICATION OF SOME ECOMONAL COMPOUNDS FOR ATTRACTION OF HYLOBIUS ABIETIS BARCK BEETLE BY GC-MS ANALYSIS

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The GC-MS research of spruce saplings root and stem components with potential attractant action was carried out to elaborate ecomone strategies to control insect pests of the Coleoptera family (Hylobius and Hylastes). The structures' identification was made through comparing the existent data in the WILEY library with the aid of the MSTOP soft. As shown, a significant number of the identified compounds Z-β-ocimene, α-copaene, 4,10-dimethyl-isopropylbicyclo(4.4.0)-1,4-decadiene, thunbergol or cembratrienol, 3-propyl-δ-9-tetrahydrocannabiol are found in both the root and stem extracts of spruce saplings. The major component in both extracts is the diterpene macrocyclic, cembratrienol (thunbergol) with possible ecomonal activity.

Notes:

ABOUT WOOD POLES MECHANICAL STRENGTH TESTING

Ilie MUSCĂ

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About wood poles mechanical strength testing Wood poles are frequently used due to their practical advantages. The mechanical strength of the wood poles is tested through destructive methods, expensive and difficult to accomplish due to poles dimensions. The paper presents a comparative analysis of the test conditions according to the standards and in conclusion some possibilities to reduce the number of tests and also the number of destroyed poles are revealed..

Notes:

VARIABILITY OF GROWTH SERIES STATISTICAL PARAMETERS IN NORTHEASTERN ROMANIA

Mihai LUPESCU

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Variability of growth series statistical parameters was analyzed for three species: fir, beech and spruce . The stands from which the species have been studied are located in northeastern Romania. The covered area was between 45 degrees northern latitude and 48 degrees northern latitude and 25 degrees eastern longitude and 28 degrees eastern longitude. For fir, 36 stands were analyzed from which 422 samples were taken. For beech, 52 stands were analyzed from which 580 samples have been taken. For spruce, 102 stands were analyzed from which 1253 samples have been taken. The stands are part of the National Forest Inventory. The samples were processed, measured and for each stand a growth series was calculated. Correlation study showed that, at the extremes of altitudinal range, approximately equal to the limits of the natural area of distribution of the studied species, the correlation between the growth of trees is higher. The fir has a high correlation between the trees in the stands in four points. They are located at low elevations, 600-700 m, in the center of Suceava and western half of Neamt county. Correlation study on beech showed that this is quite low in large areas of the study area. The highest values are found in the eastern half of Suceava county. The highest correlation values are found in stands with spruce located at high altitudes in mountain areas of Suceava and Neamt. The fir has the highest radial growth in the studied area. The average size of all stands annual ring is 2.68 mm. The average size of annual ring for all stands with spruce is 2.58 mm. Beech has the lowest average radial growth of all stands - 2.08 mm. The standard deviation is related to the size of the annual ring. The natural tendency is to achieve smaller variations at low altitudes, higher variations at average altitudes and lower variation of the annual ring at high altitudes . Higher variations are recorded at fir, smaller at beech and average at spruce. Autocorrelation has lower values of coniferous species studied, these species maintain the growth momentum of the previous year more than beech. The study of the autocorrelation related to the altitude varies from species to species. Average sensitivity to climatic factors has the lowest value for spruce: 0,181. Spruce is the least demanding studied species to environmental conditions. The highest average sensitivity is determined for beech with a value of 0.291. Fir falls in the middle with an average sensitivity of 0.215. Both fir and beech are demanding species to environmental conditions.

Notes:

THE DYNAMICS OF FOREST STANDS COMPOSITION IN RANGE FOREST SOLCA DURING THE PERIOD 1975 – 2005

Marius CURCĂ

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The analysis of succession trend of forest species and the mechanisms that underlie them, will allow us modeling existing structures, by applying the principles of sustainable forest management. The present work has as objective to analyze the dynamics of the forest composition from Range Forest Solca, during the period 1975-2005. To analyze the dynamics of forest species composition in Range Forest Solca, were extracted from the forest management planning from year 1975 and 2005 the following characteristics: developmental unit number, surface, age, altitude, exposition, slope and composition. We analyzed only developmental units that have in their composition fir tree in 1975. Participation rate of species in class of age, elevation, slope and exposition was calculated using a weighted arithmetic mean and the dividing these units in classes of altitude have been taken into account their maximum altitude. From the administrative point of view, Range Forest Solca is divided into three units production (U.P): U.P.I Solca, U.P. II Cacica and U.P.III Ilisesti. Within these three U.P. we analyzed a total of 385 developmental unit, totaling an area of 7028ha. After the percentage participation of the species in composition of forest stands studied, reveal the existence of three main species: fir, beech and spruce and as disseminated hornbeam, sycamore, alder and oak. In the year 1975, the composition of tree stands predominate the fir (44.9%), followed by beech (33.7%) and spruce (15.2%), the structure different from that of 2005 when there is a reduction in the percentage of participation fir tree with 10 % in favor of beech. The analysis of the percentage differences in species composition of stands between 1975 - 2005 depending on grade elevation, shows that action to influence factors on fir tree withdrawal, manifested alike in all three production units studied. For other species do not reveal a clear trend, excepting beech that showed the significant increase in the percentage composition (by 15 - 20%) in all altitudinal classes. Spruce show a more pronounced tendency to expansion at low altitudes (300 - 600 m) in UP I Solca, UPIII Ilisesti and in all classes of altitude in UP II Cacica, with percentages ranging from 5 - 12%, at the expense of the fir. This can be explained by the improper application of cutting regeneration and promoting of this species in the meshes produced by storm damage or drying mass.

Notes:

THE ANALYSIS OF AUXOLOGICAL PARAMETERS FOR THE EUROPEAN SPRUCE PROVENANCE OUTSIDE THEIR NATURAL RANGE IN HANTESTI PLOT

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The aim of the research realized in experimental surface Hantesti is the behavior of national and European spruce provenance outside their natural range, at 35 years after installation under the action of disturbances. Experimental plot Hantesti is located in Range Forest Adancata, unit production VI Hantesti, u.a 75A and consists of 49 spruce provenance from 13 countries (each provenance consists of a total of 36 trees of three repetition). For the analysis of auxological parameters were inventoried all existent trees and stumps in the area, recording the main features in the text field. After analyzing the statistical parameters calculated were synthesized following conclusions:

- Of the initial number of 36 seedlings planted in each repetition, after 35 years were found, on average, about 43% and 60% of the trees were missing in the last decade
- The provenance from Finland has the lowest mortality rate in the last decade, an average of 3 times smaller than the other provenances.
- Provenances from lower elevation have a higher extinction rate than at high altitude.
- The most sensitive provenance of Romania to the damage caused by snow is 74th provenance Galu and the most adapted is Stulpicani 73 th
- Provenances most susceptible to insect attacks are those in Austria at lower elevations with a frequency of more than 10% of trees affected and the lower damage caused by insects is recorded at Nordic countries.
- This experiment shows that the average frequency of unhealthy trees caused by the snow is 5,6% and between provenance variability is very high.
- On average 8,7%± 7,3% of all trees inventoried were dry.
- The frequency of disappeared trees in the last decade (of the trees missing total) correlates negatively with latitude (R2 = 0,397), that means that the frequency of missing trees is maximum at provenances with south-European origins and minimum for the provenances from Scandinavia and Finland.
- The frequency of dry trees (insects attack) decreases with latitude ($R^2 = 0.102$) while the frequency of unhealthy trees caused by the snow increases with latitude ($R^2 = 0.344$).
- It was also observed that the frequency of trees attacked by insects and dried of last year grows slower with altitude ($R^2 = 0.101$) and the frequency of unhealthy trees caused by the snow decreases with altitude ($R^2 = 0.222$)."

Notes:

MONITORING SEASONAL FLIGHT ACTIVITY OF MAIN BARK BEETLES INSECTS IN POSTĂVARUL MOUNTAIN

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Many species of the genus Ips both in North America and Europe, have evolved as primary pests (Rudinski, 1962). Bark beetle Ips typographus L. is the most common in coniferous forests (mainly spruce) in Paleartic Region (Weslien, 1992). This, together with Pityogenes chalcographus L. are responsible for significant damage. Pityokteines curvidens Germ., is considered a secondary species (prefers silver fir), yet it can have primary character when numerical growth of the population meets the appropriate environment and physiologically weakened trees (Nageleisen, 2004). Trypodendron lineatum is a polyphagous species that attacks coniferous and deciduous trees sometimes (Bright 1976; Sancez, 1985) whose attack, unlike the species mentioned above, locate the wood in the trunks of trees felled by wind or snow (Marcu & Simon, 1995) never separated from living trees so it is considered a secondary pest. Research and field studies were carried out in the Postăvarul Mountain in stands of mixed forest (spruce, silver fir and beech), aged between 100 and 120 years located at elevations of 810 – 820 m, in the Local Public Administration of Forests Kronstadt RA. In the experimental area were placed 14 wings – trap, which have been installed in the field on 17.04.2009, with each other at a distance of at least 30 m so that pheromones do not interfere (Isaia, 2009). Thus, seven wing - traps have been positioned on East - Souteast orientation and 7 on West - Northwest. Traps were baited with aggregative pheromones, from the Chemistry Institute ""Raluca Râpan"" - Cluj, Austrian and German.

Notes:

A DENDROECOLOGY ANALYSIS IN SLĂTIOARA ANCIENT FOREST OF DISTURBANCE DYNAMICS

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Dendroecological data collected from experimental surface installed in the Secular Forest Slatioara were used to reconstruct and analyze a dendroecological model, following disturbance and ecosystem dynamics over time. The purpose of this model is to serve as a tool to explore the relationship between climate variability and tree growth on dendroecological data. The Slătioara Forest was declared a nature reserve in 1941. It covers an area of over 1,000 hectares and is located on the eastern slope of the mountain Rarău, between 790 m and 1.353 m for elevation. The reserve is particularly important as it is believed that the reserve contains the oldest, tallest and thickest spruce and fir trees in Romania. In 2006 we extracted around 500 cores from 1130 trees with diameters greater than 4 cm, from a permanent plot of 100 x 100 m and applied the boundary-line release criteria method after Abrams (1997), which relies on running means that compare the percentage change in growth rates. The detection of release events in the annual growth increments of trees is a currently widely used method for reconstructing the disturbance history of forests. Our results show an overview regarding natural disturbance processes for this ancient forest, the magnitude of disruptive events, identifying disruptive factors. As well, the results provide information about disturbance dynamics in relation to development phases.

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