

## 41. međunarodno savjetovanje o mehaniziranju šumskih radova »FORMEC '08« u okviru 15. dana KWF-a

FORMEC je međunarodna udruga koja promiče primjenu mehanizacije u šumskim radovima. U njezinu djelovanju do sada su sudjelovali u prvom redu istraživači iz Europe, no u posljednjih nekoliko godina na godišnjim savjetovanjima prisutni su i znanstvenici iz SAD-a, Južne Amerike, Afrike i arapskih zemalja. Zbog toga se značajno povećava opseg razmatranih znanstvenih tema iz šumarskoga inženjstva.

Od 2. do 5. lipnja 2008. godine u Schmallenbergu (Njemačka) održano je 41. međunarodno savjetovanje udruge FORMEC s temom »Novosti u razvoju šumarske tehnologije i logistike« (*New developments in forest technology and timber logistics*). Organizacija je povjerena Kuratoriju za šumski rad i šumsku tehniku (*Kuratorium für Waldarbeit und Forsttechnik – KWF*), a savjetovanje se poklopilo s održavanjem 15-ih dana KWF-a.

Na savjetovanju FORMEC '08 sudjelovala su 83 sudionika iz 22 različite zemlje, a među njima i znanstvenici dviju naših vodećih šumarskih istraživačkih institucija: Zavoda za šumarske tehnike i tehnologije

Šumarskoga fakulteta Sveučilišta u Zagrebu i Šumarskoga instituta Jastrebarsko.

Savjetovanje je otvorila predsjednica KFW-a Ute Selling, a zaključna razmatranja na zatvaranju savjetovanja izložio je koordinator udruge FORMEC izvanredni profesor Karl Stampfer (*Universität für Bodenkultur Wien*).

U dva dana savjetovanja (MARITIM Hotel Graf-schaft) izložena su 33 referata i prezentirana 34 postera, od kojih tri iz Hrvatske. Tijekom savjetovanja predstavljen je presjek ovodobnih istraživanja u šumarskom inženjerstvu u svijetu. U nastavku se nalazi popis tema izloženih referata i postera. Svi se u tiskanom obliku mogu pronaći u zborniku savjetovanja (ISBN: 978-3-9811335-2-3).

### Uvodna izlaganja

Seeling, U.: Kuratorium für Waldarbeit und Forsttechnik (KWF)

Vorher, W.: The Forest-Based sector technology platform – network building for forest research in Europe



<http://formec.kwf-online.org>

Heinimann, H. R.: Vision and challenges for utilisation of forest

Rossmann, J., Schluse, M., Bücken, A.: The virtual Forest – space and robotics technology for the efficient and environmentally compatible growth planning and mobilization of wood resource

### Referati (osam sesija):

Tampekis, S. Th., Giannoulas, V. J., Drosos, V. C.: The Compatibility between the forest opening up works and natural environment in the mountainous region of Metsovo

Ghaffarian, M. R., Stampfer, K., Sessions, J.: Using network analysis to optimize forest road network for cable logging

Erler, J., Knobloch, J.: Conceiving and mechanical designing of a walking harvester for temporary trails

Engler, B., Becker, G., Cremer, T.: Pulpwood versus energy wood: Sorting strategies for different stands and market conditions

Grosse, W.: Wood energy from Plantations – Harvesting and Supply of wood chips

Karpachev, S.: The quantitative estimation of the forest residuals as biomass for bioenergy for local industry and villages in forest regions of Russia

Sladek, P., Suk, P., Ulrich, R., Neruda, J.: GPS Accuracy in harvester technologies and possibilities of its use in the context of the CR

Pausch, R.: Productivity of a 6 wheel long boom grapple skidder in vertically structured hardwood stands – a case study in the communal forest of Aalen

Kirth, R., Schiemer, S., Nemestothy, N., Sperrer, S.: Further developments of synthetic ropes for logging applications in forestry

Sowa, J. M., Kulak, D., Szewczyk, G.: The Influence of the Skidding Distance on the Value of Damage done to the Surface Soil Layer in the Course of Timber Harvesting in Pine Thinnings

Dvořák, J., Štícha, V.: Risk of soil damages while the handling of claims by logging and hauling technologies

Acar, H., Üniver, S.: New reduced impact harvesting techniques in Turkish forestry

Sowa, J. M., Kulak, D., Leszczyński, K., Stanczykiewicz, A., Szewczyk, G.: The level of environmental damage from timber harvesting depending on skidding methods

Fyedorenchik, A., Lednizkiy, A.: Equipment and technologies of combined procurement of merchantable wood with cutting wastes utilization for energy production in Belarus

Cavalli, R., Zimbalatti, G., Grigolato, S., Proto, A. S.: Forest wood chips supply chain in Southern Italy

Gumus, S., Turk, Y., Çalışkan, E., Acar H.: Skid trails at wood harvesting

Çalışkan, E., Gümüş, S., Acar, H.: Environmental Impact of timber harvesting in Turkish forestry

Vötter, D., Becker, G.: Systems analysis and Sustainability Impact Assessment – an example from the European Forestry-Wood Chain

Spinelli, R., Visser, R.: Analyzing and estimating delays

Moskalik, T., Sadowski, J.: Performance and costs of the logging residues bundling in mature Scots Pine stands

Spinelli, R., Magagnotti, N.: Estimating the productivity of chipping operations

Sauter, U. H., Siemes, P.: Harvesting and processing systems for large dimensioned timber (LDT) as short logs

Findeisen, E., Markoff, I., Gluschkov, S.: Fully mechanized logging in Bulgaria – first steps and prospects

Neri, F., Piegai, F., Marchi, E., Nati, C.: Cableway logging operations and residuals harvesting: cases study in windthrow areas in the Eastern Alps – Italy

Klvac, R., Fischer, R., Skoupy, A.: Emissions from the »Larix« cableway system operation phase

Lewark, S., Mühlisiegel, R.: Competences of forestry graduates and European labour market – working for a European graduate analysis

Horcher, A., Visser, R., Messerlie, E.: Improving Helicopter Pilot Training with On-Board GPS

Iordache, E., Daniel, N. M., Popa, B.: Using GIS applications in road network development taking into consideration soil erosion

Sauter, H. U., Siemes, P.: Combined log and energy wood processing of large dimensioned timber (LDT) in steep terrain

Lewark, S.: Higher forestry education, the Bologna process and the role of Silva network

### Posteri (tri tematske sesije):

Inovacije u lancu dobave drva (Improvements within the Forestry-Wood-Chain)

Becker, G., Vötter, D.: Modelling of allocation effects on sustainability in the European Forest-Wood-Chain within the Field of Forestry to Industry Interactions

Baumann, T., Klädtke, J., Becker, G.: Analysis of logistic processes and whose potential for optimization in the supply chain from forests to plants supported by special methods of Process modelling

Becker, B., Klädtke, J., Becker, G.: MatchWood – From Trees to Products – Product-specific allocation of raw material to the wood industry

Drosos, V.: Implementation of modern technology on Greek forest conditions

Krpan, A., Prka, M.: Defining assortment structure of even-aged beech stands according to standard HRN EN 1316-1:1999

Lotfalian, M.: Logging Operation and Tree Falling Types in Forests of Iran

Honsa, J., Neruda, J.: Comparing the effect of factors affecting damage to the surface of logs by functional mechanisms of harvesters

Rumpf, J.: Time and efficiency analysis of harvesters CTL 40 HW

Šporčić, M., Martinić, I., Šušnjar, M., Horvat, D., Poršin-sky, T., Pandur, Z.: Efficiency analysis of mechanisation working units in Croatian Forestry DEA approach

Zečić, Ž., Pentek, T., Vusić, D., Nevečerel, H., Lepoglavec, K., Stankić, I., Bosner, A.: Exploitation and Productivity Characteristics of the New Croatian Skidders Ecotrac 55 V and Ecotrac 120V

### **Strategije rješavanja šumskih katastrofa (*Strategies for solving forest catastrophes*)**

Giefing, D. F., Bembenek, M.: Application of forest operations in stands affected by various calamities in Poland

Blija, T.: Evaluation of reforestation technologies in windblow areas in Latvia

Çadlar, S.: An Investigation on productivity of gantner yarder at windblown forest stand in Turkey

Karantzidis, N., Mpasianas, G., Doukas, K.: Forest constructions for protection and harvesting operations before and after forest fires in Greece

Drosos, V. C., Farmakis, D. E., Kalogeropoulos, C. P.: Digital terrain model – Geoinformatic model – Harvesting operations after fires

Drosos, V. C., Farmakis, D. E., Kalogeropoulos, C. P., Liampas, S.-A.: Diachronic recording of harvesting places compare to land use changes

Lotfalian, M., Mostafanezhad, S. R., Moafi, M.: Evaluation of Logging Damages in Mountainous Forests Located at Northern part of Iran

Pertlik, E., Steinmüller, T.: Permanent infrastructures as possibility to cope forest disasters

Riguelle, S., Hevert, J., Jourez, B.: Development of a decision-making tool to manage windthrow damages in the Walloon Region (Belgium)

### **Pridobivanje drva i logistika pod različitim ograničenjima (*Wood harvesting and timber logistics under various restrictions*)**

Giovannini, G., Cavalli, R., Grigolato, S.: Improving felling and thinning for coppice and young high forest stands in alpine condition – the case of trento province

Dinev, D., Tassev, G.: Methods and technologies in first thinnings and perspectives for development in Bulgaria

Dinev, D., Tassev, G., Assparuchov, K.: Agricultural tractors, adapted and modified, to be used in Bulgarian forestry

Drosos, V. C., Christos, S. K., Farmakis, D. E., Giannopoulos, R. A.: Environmentally compromise between cable and ground logging systems in Greek forests

Eroglu, H.: Timber harvesting by URUS M III forest skyline on snow in steep terrain: A case from Artvin, Turkey

Gumus, S., Çalişkan, E., Acar, H.: An assessment on the optimization techniques at harvesting operations on mountain forests

Sparchez, G., Oprea, I., Iordache, E., Derczeni, R.: Forest logging influences on steep slopes to the soil and to the remaining trees in the mountainous areas from Romania

Klun, J., Robek, R.: GPS-based Design of Skyline Corridors and Software Solutions for Analyzing of Cableway Systems

Horek, P., Novak, J., Neruda, J.: Forest cableways and their use in forest management

Stergiadou, A., Eskioglou, P.: Slope stabilization process of the forest roads

Zlota, M., Grzywinski, M.: Ergonomic aspects of artificial pruning operations

Zlota, M., Grzywinski, M., Szakiel, M.: Working Postures during tree felling using chainsaw

Hittenbeck, J.: Tractive Forces, Slip and Slopes

Klugmann, H.: QS-harvester measurement – a system of quality assurance creates transparency and acceptance for the measurement by harvester of timber length and diameter

### **Zaključna razmatranja:**

Heinimann, H. R.: Vision and Challenges for Utilisation of Forests

Bergmann, A.: Tomorrow's Logging Technologies – Trends and Drivers from a Manufacturer's Standpoint

Stampfer, K.: Closing remarks

Trećega je dana savjetovanja organiziran posjet izložbi šumarskih strojeva i opreme KWF Tagung. Preko četiri stotine izlagača prikazalo je najmoderniju opremu šumarskoga inženjerstva. Pokazni rad strojeva pri pridobivanju drva nakon vjetroloma i vjetrozvala uprizoren je na 25 stajališta u središtu šumske površine koju je u siječnju 2007. godine značajno oštetilo olujno nevrijeme »Cyrill«.

Iduće će savjetovanje udruga FORMEC održati u Pragu od 21. do 24. lipnja 2009. u organizaciji Fakulteta šumarstva i drvnih znanosti Mendelova Sveučilišta u Pragu.

Igor Stankić i Dinko Vusić