

SILVA FENNICA

Vol. 41, 2007 **contents**

No. 1

From the Editor

3

Research articles

Joanna Kosinska, Andrzej Lewandowski & Wladyslaw Chalupka: Genetic variability of Scots pine maternal populations and their progenies. 5–12

Anna-Maria Veijalainen, Marja-Liisa Juntunen, Arja Lilja, Helvi Heinonen-Tanski & Leo Tervo: Forest nursery waste composting in windrows with or without horse manure or urea – the composting process and nutrient leaching. 13–27

Ulla Mattila & Tuula Nuutinen: Assessing the incidence of butt rot in Norway spruce in southern Finland. 29–43

Niina Tanskanen & Hannu Ilvesniemi: Spatial distribution of fine roots at ploughed Norway spruce forest sites. 45–54

Jacqueline C. Bolli, Andreas Rigling & Harald Bugmann: The influence of changes in climate and land-use on regeneration dynamics of Norway spruce at the treeline in the Swiss Alps. 55–70

Ville Hallikainen, Mikko Hyppönen, Juha Hyvönen & Juhani Niemelä: Establishment and height development of harvested and naturally regenerated Scots pine near the timberline in North-East Finnish Lapland. 71–88

Tero Heinonen, Mikko Kurttila & Timo Pukkala: Possibilities to aggregate raster cells through spatial optimization in forest planning. 89–103

Sandhya Samarasinghe, Don Kulasiri & Tristan Jamieson: Neural networks for predicting fracture toughness of individual wood samples. 105–122

Research notes

Timo Tahvanainen, Kalle Kaartinen, Timo Pukkala & Matti Maltamo: Comparison of approaches to integrate energy wood estimation into the Finnish compartment inventory system. 123–135

Dan Bergström, Urban Bergsten, Tomas Nordfjell & Tomas Lundmark: Simulation of geometric thinning systems and their time requirements for young forests. 137–147

Review articles

Katja Lähtinen: Linking resource-based view with business economics of woodworking industry: earlier findings and future insights. 149–165

Heikki Hänninen & Koen Kramer: A framework for modelling the annual cycle of trees in boreal and temperate regions. 167–205

Reviewers of manuscripts 2006

207–208

No. 2

Research articles

Yıldırım Lise, Zeki Kaya, Fikret Isık, Rumi Sabuncu, Irfan Kandemir & Sertaç Önde: The impact of over-exploitation on the genetic structure of Turkish red pine (*Pinus brutia* Ten.) populations determined by RAPD markers. 211–220

Sanna Susiluoto & Frank Berninger: Interactions between morphological and physiological drought responses in *Eucalyptus microtheca*. 221–233

Conor O'Reilly & Norberto De Atrip: Seed moisture content during chilling and heat stress effects after chilling on the germination of common alder and downy birch seeds. 235–246

Ülle Püttsepp, Krista Lõhmus & Andres Koppel: Decomposition of fine roots and α -cellulose in a short rotation willow (*Salix* spp.) plantation on abandoned agricultural land. 247–258

Pekka Kaitaniemi, Janne Riihimäki, Julia Koricheva & Harri Vehviläinen: Experimental evidence for associational resistance against the European pine sawfly in mixed tree stands. 259–268

Samuel Roturier, Sofia Bäcklund, Maria Sundén & Urban Bergsten: Influence of ground substrate on establishment of reindeer lichen after artificial dispersal. 269–280

Antti Marjokorpi & Jukka Salo: Operational standards and guidelines for biodiversity management in tropical and subtropical forest plantations – How widely do they cover an ecological framework? 281–297

Ulfstand Wennström, Urban Bergsten & Jan-Erik Nilsson: Seedling establishment and growth after direct seeding with *Pinus sylvestris*: effects of seed type, seed origin, and seeding year. 299–314

Hongcheng Zeng, Timo Pukkala, Heli Peltola & Seppo Kellomäki: Application of ant colony optimization for the risk management of wind damage in forest planning. 315–332

Jouni Siipilehto, Sakari Sarkkola & Lauri Mehtätalo: Comparing regression estimation techniques when predicting diameter distributions of Scots pine on drained peatlands. 333–349

Sanni Raiskila, Minna Pulkkinen, Tapio Laakso, Kurt Fagerstedt, Mia Löija, Riitta Mahlberg, Leena Paajanen, Anne-Christine Ritschkoff & Pekka Saranpää: FTIR spectroscopic prediction of Klason and acid soluble lignin variation in Norway spruce cutting clones. 351–371

Gökay Nemli, Turgay Akbulut & Emir Zekoviç: Effects of some sanding factors on the surface roughness of particleboard. 373–378

Lars Lönnstedt: Industrial timberland ownership in the USA: arguments based on case studies. 379–391

No. 3

Research articles

Mika Nieminen, Mikko Moilanen & Sirpa Piirainen: Phosphorus allocation in surface soil of two drained peatland forests following wood and peat ash application – why effective adsorption on low sorptive soils? 395–407

Florence Renou-Wilson & Edward P. Farrell: The use of foliage and soil information for managing the nutrition of Sitka and Norway spruce on cutaway peatlands. 409–424

Annika Kangas, Lauri Mehtätalo & Matti Maltamo: Modelling percentile based basal area weighted diameter distribution. 425–440

Michael Vohland, Johannes Stoffels, Christina Hau & Gebhard Schüler: Remote sensing techniques for forest parameter assessment: multispectral classification and linear spectral mixture analysis. 441–456

Ilkka Korpela, Tuukka Tuomola & Esko Välimäki: Mapping forest plots: an efficient method combining photogrammetry and field triangulation. 457–469

Tuomo Nurminen & Jaakko Heinonen: Characteristics and time consumption of timber trucking in Finland. 471–487

Heli Peltola, Antti Kilpeläinen, Kari Sauvala, Tommi Räisänen & Veli-Pekka Ikonen: Effects of early thinning regime and tree status on the radial growth and wood density of Scots pine. 489–505

Riitta Hänninen & A. Maarit I. Kallio: Economic impacts on the forest sector of increasing forest biodiversity conservation in Finland. 507–523

Selected papers of the workshop on "Development of Models and Forest Soil Surveys for Monitoring of Soil Carbon"

Workshop on soil carbon 525–526

Research articles

Mikko Peltoniemi, Juha Heikkinen & Raisa Mäkipää: Stratification of regional sampling by model-predicted changes of carbon stocks in forested mineral soils. 527–539

Björn Berg, Per Gundersen, Cecilia Akselsson, Maj-Britt Johansson, Åke Nilsson & Lars Vesterdal: Carbon sequestration rates in Swedish forest soils – a comparison of three approaches. 541–558

Thomas Wutzler & Martina Mund: Modelling mean above and below ground litter production based on yield tables. 559–574

Review article

Mikko Peltoniemi, Esther Thürig, Stephen Ogle, Taru Palosuo, Marion Schrumpp, Thomas Wutzler, Klaus Butterbach-Bahl, Oleg Chertov, Alexander Komarov, Aleksey Mikhailov, Annemieke Gärdenäs, Charles Perry, Jari Liski, Pete Smith & Raisa Mäkipää: Models in country scale carbon accounting of forest soils. 575–602

No. 4

Research articles

Patrick Insinna, Risto Jalkanen & Bernhard Götz: Climate impact on 100-year foliage chronologies of Scots pine and Ponderosa pine in the northeast lowlands of Brandenburg, Germany. 605–620

Henri Vanhanen, Timo O. Veteli, Sonja Päivinen, Seppo Kellomäki & Pekka Niemelä: Climate change and range shifts in two insect defoliators: gypsy moth and nun moth – a model study. 621–638

Jonas Rönnerberg, Mattias Berglund & Ulf Johansson: Incidence of butt rot at final felling and at first thinning of the subsequent rotation of Norway spruce stands in south-western Sweden. 639–647

Stefan Mattson, Urban Bergsten & Tommy Mörling: *Pinus contorta* growth in boreal Sweden as affected by combined lupin treatment and soil scarification. 649–659

Timo Saksa & Jari Miina: Cleaning methods in planted Scots pine stands in southern Finland: 4-year results on survival, growth and whipping damage of pines. 661–670

Lauri Korhonen, Kari T. Korhonen, Pauline Stenberg, Matti Maltamo & Miina Rautiainen: Local models for forest canopy cover with beta regression. 671–685

Jianping Zhu, Pete Bettinger & Rongxia Li: Additional insight into the performance of a new heuristic for solving spatially constrained forest planning problems. 687–698

Laura Koskela, Bikas K. Sinha & Tapio Nummi: Some aspects of the sampling distribution of the Apportionment Index and related inference. 699–715

Katri Luostarinen: The effect of annual ring orientation and drying method on deformations, casehardening and colour of silver birch (*Betula pendula*) boards. 717–730

Gerben Janse: Characteristics and challenges of forest sector communication in the EU. 731–753

Research notes

Risto Jalkanen, Carmen Büttner & Susanne von Bargaen: *Cherry leaf roll virus* abundant on *Betula pubescens* in Finland. 755–762

Paula Jylhä & Juha Laitila: Energy wood and pulpwood harvesting from young stands using a prototype whole-tree bundler. 763–779