

Northern Primeval Forests – Ecology, Conservation and Management

In August 2010, a conference was organized at the Mid Sweden University in Sundsvall, Sweden, by the Nordic working group on the ecology of primeval boreal forests (PRIFOR) in collaboration with the Europe Section of the Society for Conservation Biology and the Disturbance Network of the International Association for Vegetation Science. The theme of the conference was "Northern Primeval Forests – Ecology, Conservation and Management". Over 100 presentations were given during the conference.

This special issue of *Silva Fennica* includes 22 peer-reviewed contributions from the participants of the conference, covering a wide array of different topics and approaches related to the ecology, conservation and management of primeval, natural or analogous forests across the circumboreal zone.

ISSN 0037-5330



Cover photo Nic Kruys
Cover design Tommi Salonen
Printed by Tammerprint Oy, Finland

Contents

Preface

- Bengt Gunnar Jonsson, Jari Kouki & Timo Kuuluvainen..... 783–784
Northern primeval forests – ecology, conservation and management

Review articles

- Ekaterina Shorohova, Daniel Kneeshaw, Timo Kuuluvainen &
Sylvie Gauthier..... 785–806
Variability and dynamics of old-growth forests in the circumboreal zone:
implications for conservation, restoration and management
- Gunfis Brūmelis, Bengt Gunnar Jonsson, Jari Kouki, Timo Kuuluvainen &
Ekaterina Shorohova 807–821
Forest naturalness in northern Europe: perspectives on processes, struc-
tures and species diversity
- Timo Kuuluvainen & Tuomas Aakala 823–841
Natural forest dynamics in boreal Fennoscandia: a review and classifica-
tion
- Philip J. Burton & S. Ellen Macdonald 843–863
The restorative imperative: challenges, objectives and approaches to re-
storing naturalness in forests

Research articles

- Silvia Lamedica, Emanuele Lingua, Ionel Popa, Renzo Motta &
Marco Carrer 865–873
Spatial structure in four Norway spruce stands with different manage-
ment history in the Alps and Carpathians
- Alessandra Bottero, Matteo Garbarino, Vojislav Dukić, Zoran Govđar,
Emanuele Lingua, Thomas A. Nagel & Renzo Motta 875–887
Gap-phase dynamics in the old-growth forest of Lom, Bosnia and Herze-
govina
- Annie Claude Bélisle, Sylvie Gauthier, Dominic Cyr, Yves Bergeron &
Hubert Morin 889–908
Fire regime and old-growth boreal forests in central Quebec, Canada:
an ecosystem management perspective
- Kris Vandekerckhove, Luc De Keersmaecker, Ruben Walleyn, Frank Köhler,
Luc Crevecoeur, Leen Govaere, Arno Thomaes & Kris Verheyen 909–935
Reappearance of old-growth elements in lowland woodlands in northern
Belgium: Do the associated species follow?

<i>Jean-Philippe Légaré, Christian Hébert & Jean-Claude Ruel</i>	937–956
Alternative silvicultural practices in irregular boreal forests: response of beetle assemblages	
<i>Mari T. Jönsson, Shawn Fraver & Bengt Gunnar Jonsson</i>	957–967
Spatio-temporal variation of coarse woody debris input in woodland key habitats in central Sweden	
<i>Tuomas Aakala</i>	969–981
Temporal variability of deadwood volume and quality in boreal old-growth forests	
<i>Nicole J. Fenton & Yves Bergeron</i>	983–994
Dynamic old-growth forests? A case study of boreal black spruce forest bryophytes	
<i>Inari Ylläsjärvi, Håkan Berglund & Timo Kuuluvainen</i>	995–1013
Relationships between wood-inhabiting fungal species richness and habitat variables in old-growth forest stands in the Pallas-Yllästunturi National Park, northern boreal Finland	
<i>Asko Löhmus & Piret Löhmus</i>	1015–1039
Old-forest species: the importance of specific substrata vs. stand continuity in the case of calicioid fungi	
<i>Ville A.O. Selonen, Maija Mussaari, Tero Toivanen & Janne S. Kotiaho</i> ...	1041–1052
The conservation potential of brook-side key habitats in managed boreal forests	
<i>Mats Jonsell & Jesper Hansson</i>	1053–1064
Logs and stumps in clearcuts support similar saproxylic beetle diversity: implications for bioenergy harvest	
<i>Radek Bace, Miroslav Svoboda & Pavel Janda</i>	1065–1078
Density and height structure of seedlings in subalpine spruce forests of Central Europe: logs vs. stumps as a favourable substrate	
<i>Sepo Rouvinen & Jari Kouki</i>	1079–1091
Tree regeneration in artificial canopy gaps established for restoring natural structural variability in a Scots pine stand	
<i>Russell Grenfell, Tuomas Aakala & Timo Kuuluvainen</i>	1093–1110
Microsite occupancy and the spatial structure of understorey regeneration in three late-successional Norway spruce forests in northern Europe	
<i>Per Angelstam, Kjell Andersson, Robert Axelsson, Marine Elbakidze, Bengt Gunnar Jonsson & Jean-Michel Roberge</i>	1111–1133
Protecting forest areas for biodiversity in Sweden 1991–2010: the policy implementation process and outcomes on the ground	
Research notes	
<i>Raisa Mäkipää & Tapio Linkosalo</i>	1135–1142
A non-destructive field method for measuring wood density of decaying logs	
<i>Adam Felton, Erik Andersson, David Ventorp & Matts Lindbladh</i>	1143–1150
A comparison of avian diversity in spruce monocultures and spruce-birch polycultures in southern Sweden	