

THE INTERNATIONAL RESEARCH GROUP ON WOOD PRESERVATION

The 34th Annual Meeting of IRG

Technical Programme and Abstracts of Papers

**IRG Secretariat
SE-100 44 Stockholm
Sweden**

THE INTERNATIONAL RESEARCH GROUP ON WOOD PRESERVATION

The 34th Annual Meeting of IRG

Part 1 Technical programme

IRG Secretariat
SE-100 44 Stockholm
Sweden

MONDAY 19 MAY

Kennedy Room

Roosevelt Room

Lincoln room

10.30-12.00

Keynote presentations

IRG/WP 03-30326
Issues Facing Wood Preservation in New Zealand Today
M Hedley

IRG/WP 03-30327
Issues Facing Wood Preservation in Australia Today
J Norton

IRG/WP 03-20282
Regulatory and Consumer Challenges Facing Timber Preservation and Durability Interests in New Zealand and Australia
Colin MacKenzie, TRADAC, Queensland

13.30-15.00

WP 3.2 Field trials
Convener: Dr David Dickinson

WP 1:1 Physiology of decay
Convener: Dr Frederick Green III

Electronic Communic. Committee
Convener: Prof John N R Ruddick

IRG/WP 03-30305
Efficacy of copper:propiconazole and copper:citrate systems in ground contact exposure at a site with copper tolerant fungi
D D Nicholas, T P Schultz

IRG/WP 03-30322
Field Testing of Copper Carboxylate Preservatives
H M Barnes, M G Sanders, T L Amburgey

IRG/WP 03-30309
Performance of Borate-Treated Wood Against *Reticulitermes flavipes* in Above-Ground Protected Conditions
P I Morris, J K Grace, K Tsunoda, A Byrne

IRG/WP 03-10456
Growth of selected wood decay fungi on various agar-supplemented media
S A Amartey, M Humar, F Pohleven

IRG/WP 03-10461
A possible role of unique TCA cycles in wood-rotting basidiomycetes
E Munir, T Hattori, M Shimada

IRG/WP 03-10496
Identification of phanerosporic acid in birch degraded by *Phanerochaete chrysosporium*
M D Mozuch, P J Kersten

IRG/WP 03-10475
Analysis of D-glucose metabolism of wood decay fungi using ¹³C-NMR and ¹³C-labeled substrates
T H de Koker, M D Mozuch, P J Kersten

IRG/WP 03-10477
Transformation of *Ophiostoma picea* and *Trichoderma harzianum* with green fluorescent protein (GFP)
Y Xiao, L M Ciuffetti, J J Morrell

Discussion on various topics related to electronic communication, e.g. the Group's website.

MONDAY 19 MAY

Kennedy Room	Roosevelt Room	Lincoln room
15.30-17.30		
WP 1:7 Natural durability Convener: Dr Paul A Cooper (acting)	WP 1:1 Physiology of decay, cont'd	WP 4:2 Substrate modification.... Convener: Prof Dr Holger Militz
<p>IRG/WP 03-10457 The natural durability of wood in different use classes U Augusta, A Rapp</p> <p>IRG/WP 03-10459 Differentiation of Scots pine heartwood and sapwood by near infrared spectroscopy P O Flæte, E Ystrøm Haartveit</p> <p>IRG/WP 03-10498 Assessment of the natural durability of four Ghanaian hardwoods against the white-rot fungus <i>Coriolus versicolor</i> and soft-rot using laboratory tests C Antwi-Boasiako, A J Pitman, J R Barnett</p> <p>IRG/WP 03-10499 Natural durability of European wood species for exterior use above ground B Lindegaard, N Morsing</p> <p>IRG/WP 03-10501 Soft rot resistance of Chengal (<i>Neobalanocarpus heimii</i>) Heartwood in relation to the microdistribution of extractives A H H Wong</p>	<p>IRG/WP 03-10469 Effects of biocides on the extracellular mucilaginous material (ECMM) produced by two wood rotting basidiomycetes D Vesentini, D J Dickinson, R J Murphy</p> <p>IRG/WP 03-10473 Effects of cyproconazole and copper sulphate on the length of the hyphal growth unit (HGU) of the white-rot fungus <i>Coriolus versicolor</i> D Vesentini, D J Dickinson, R J Murphy</p> <p>IRG/WP 03-10486 Wood and filter paper degradation, phenol oxidase and one-electron oxidation activities by the white rot fungus <i>Ceriporiopsis subvermispota</i> H Tanaka, S Itakura, A Enoki</p> <p>IRG/WP 03-10491 Fungal colonization of CCA-treated decking S M Choi, J N R Ruddick, P I Morris</p> <p>IRG/WP 03-10492 Susceptibility of CCB treated wood to fungal colonization F Pohleven, U Andoljsek, P Karabegovic, C Tavzes, S A Amartey, M Humar</p>	<p>IRG/WP 03-40268 Modified Wood – Methods, testing and applications: Outcomes of the EU-Thematic Network D Jones, W Homan, J Van Acker</p> <p>IRG/WP 03-40257 Modification of wood by graft treatment M Monzur Morshed, D D Nicholas, C U Pittman Jr, T P Schultz</p> <p>IRG/WP 03-40267 Effect of fungal degradation on the chemical composition of acetylated beech wood H Militz, D W Son, L Gómez-Hernández, R Sierra-Alvarez</p> <p>IRG/WP 03-40264 Formosan Subterranean Termite Resistance to Heat Treatment of Scots Pine and Norway Spruce W R Smith, A O Rapp, C Welzbacher, J E Winandy</p> <p>IRG/WP 03-40266 Investigation of some technical properties of heat-treated wood C Bengtsson, J Jermer, A Clang, B Ek-Olausson</p> <p>WP 1:4 Biocontrol (17.00-17.30) Convener: Prof Dr Kurt Messner (acting)</p> <p>IRG/WP 03-10460 Sawmill Evaluation of a Bioprotectant against Moulds, Stain and Decay on Green Lumber D-Q Yang, M Gignac, M-C Bisson</p> <p>IRG/WP 03-10476 Effects of Prior Establishment of <i>Trichoderma harzianum</i> on <i>Ophiostoma picea</i> Growth in Freshly Sawn Douglas-fir Sapwood Y Xiao, J J Morrell, L M Ciuffetti</p>

TUESDAY 20 MAY

Kennedy Room/Roosevelt Room

08.30-10.00

Section 3 Wood protection chemicals, Main session

Chairman: Dr Gareth R Williams

Vice-chairman: Dr Jeff Lloyd

IRG/WP 03-30303

Field Test Results after Nine Years for CCA and ACQ Preservative-treated Wood Fixed in Different Climates

F G Evans

IRG/WP 03-30313

Envelope treatment to protect softwood timbers from damage by subterranean termites

B C Peters, J W Creffield

IRG/WP 03-30311

Stability of bifenthrin in a commercial phenol-formaldehyde plywood glue

M J Kennedy, P A Collins, R D Vella

10.30-12.00

Section 5 Environmental aspects, Main session

Chairman: Prof Dr Pascal Kamdem (acting)

Vice-chairman: Dr Ed Baines (acting)

IRG/WP 03-50206

EPA's Current Views on Heavy-Duty Wood Preservative Regulation

F Sanders

IRG/WP 03-50198

The Disposal of CCA-Treated Wood in Simulated Landfills: Potential Impacts

J Jambeck, T Townsend, H Solo-Gabriele

IRG/WP 03-50199

Leaching of inorganic wood preservatives- Investigating the relationship between leachability, dissociation characteristics and long-term leaching behavior

L Waldron, Y T Ung, P A Cooper

IRG/WP 03-50205

Environmental Impacts of CCA-Treated Wood: A Summary from Seven Years of Study Focusing on the U.S. Florida Environment

H M Solo-Gabriele, T G Townsend, J Schert

TUESDAY 20 MAY

Kennedy Room

Roosevelt Room

13.30-15.00

WP 4:3 Wood composites/ EWP

Convener: Dr Mark Manning

WP 2:2 Microbiological test methodology

Convener: Dr Shuichi Doi

IRG/WP 03-30325

Permatek IM 30 as a termiticide treatment for veneer-based wood products
J Doyle, K Webb, W R Rae, A F Siraa, J Malcolm-Black

IRG/WP 03-40260

Decay and mold resistance of borate modified oriented strandboard
Q Wu, S Lee, J P Jones

WP 1:6 Marine (14.15-15.00)

Convener: Dr Laurie Cookson

IRG/WP 03-10494

Isolation of a putative endogenous endo- β -1,4-glucanase (cellulase) from the midgut diverticulae of the wood-boring crustacean, *Limnoria quadripunctata*
J Dymond, M J Guille, S M Cragg

IRG/WP 03-30314

Ten Year Marine Borer Exposure Trial of Chlorothalonil and Emulsified Preservatives in Australia
L J Cookson, D K Scown

IRG/WP 03-10500

Comparing the resistance of a number of lesser known species of tropical hardwoods to the marine borer *Limnoria* using a short term laboratory assay
L M S Borges, S M Cragg, J R Williams

IRG/WP 03-20262

Accelerated weathering test for the evaluation of wood preservative efficacy
A Temiz, M Eikenes, Ü Yildiz, F G Evans, B Jacobsen

IRG/WP 03-20263

Design of Field Trials for Evaluation of Antisapstain Products
F W Frazer, N R Edmonds, B J Nairn

IRG/WP 03-20270

Suitability of cotton strip testing as a screening method for the development of wood preservative formulations
H Leithoff, I Stephan, H Härtner

IRG/WP 03-20281

Chemical, physical and biological factors affecting wood decomposition in forest soils
M Jurgensen, P Laks, D Reed, A Collins, D Page-Dumroese, D Crawford

IRG/WP 03-20273

Blue Stain Testing of Alkyd and Acrylic Stains
M Petrič, M Pavlič, B Kričej, M Humar, F Pohleven

TUESDAY 20 MAY

Kennedy Room	Roosevelt Room	Lincoln room
15.30-17.30		
WP 3:3 New wood protecting chemicals Convener: Dr Marko Petric	WP 5:2 Environmental risk assessment Convener: Dr Ed Baines	WP 1:3 Bluestain and moulds Convener: Dr Adnan Uzunovic (acting)
<p>IRG/WP 03-30306 Tanalith T - a new preservative system for protecting house frames in Australia from termite attack P R Cobham, J Snow</p> <p>IRG/WP 03-30307 Leaching characteristics, decay and termite resistance of treated wood with boron compounds, N'-N-(1,8-Naphthyl) hydroxylamine (NHA-Na), and hydroxynaphthalimide (NHA-H) S N Kartal, Y Imamura</p> <p>IRG/WP 03-30312 Animal blood protein as a component of new, non-toxic wood preservatives fixing organic active compounds in wood B Mazela, I Polus</p> <p>IRG/WP 03-30308 Field testing of nootkatone and tetrahydronootkatone wood treatments against <i>Coptotermes formosanus</i> Shiraki K E Nix, G Henderson, R Laine</p> <p>IRG/WP 03-30320 Inhibition of the biodegradation of coniferous and broadleaved wood by new imidazolium salts J Zabielska-Matejuk, J Pernak, W Wiczorek</p>	<p>IRG/WP 03-50200 Effects of soil physical and chemical characteristics on adsorption of leached CCA and ACQ preservative components S Stefanovic, P A Cooper</p> <p>IRG/WP 03-50201 Creosote movement from treated wood immersed in fresh water: Initial PAH migration. S-M Kang, J J Morrell, J Simonsen, S T Lebow</p> <p>IRG/WP 03-50203 The influence of soil pH on leaching of CCA elements from pressure-treated <i>Eucalyptus saligna</i> sapwood: environmental implication R Venkatasamy, D N Okwara</p> <p>IRG/WP 03-30318 Moisture uptake and volumetric swelling as probable factors also affecting leaching in CCA-treated wood. A preliminary study of treated <i>Eucalyptus saligna</i> sapwood R Venkatasamy</p> <p>IRG/WP 03-20276 Leaching of active components from preservative-treated timber - Ongoing research: Status after approx. 4 months' out-door exposure N Morsing</p> <p>Cont'd</p>	<p>IRG/WP 03-10465 Mold inhibition on unseasoned southern pine C A Clausen V W Yang</p> <p>IRG/WP 03-10466 Growth of two selected sapstain fungi and one mould on chitosan amended nutrient medium C Chittenden, R Wakeling, B Kreber</p> <p>IRG/WP 03-10467 Factors affecting resistance to sapstain infection in freshly felled softwood logs E J Young, R A Eaton, J F Webber, M A W Hill</p> <p>IRG/WP 03-10471 Effect of methylene bithiocyanate on morphology and ultra-structure of a sapstain fungus, <i>Ophiostoma floccosum</i> T Singh, B Kreber, R Wakeling, A Stewart</p> <p>IRG/WP 03-10479 Morphological and Molecular Diagnosis of <i>Leptographium</i> spp. in Canadian Softwoods S Alamouti Massoumi, J-J Kim, A Uzunovic, C Breuil</p> <p>IRG/WP 03-10485 Effect of bioextracts on colonisation of radiata pine sapwood by three sapstain fungi J van der Waals, C Chittenden, B Kreber</p>

WP 5:2 cont'd

IRG/WP 03-50196

Biological Safety Evaluation of Animal Contact of
Preservative-Treated Wood

D-H Lee, D-W Son, M J Lee, C H Kang, C H Kim, E-B
Jeung

IRG/WP 03-50204

Do CCA treated support stakes cause increased arsenic
level in crops?

L Zhaobang, S Haitao, L Linqing

IRG/WP 03-50202

Removing Cu, Cr and As from CCA treated yellow pine
by oleic acid

E D Gezer, Ü Yildiz, S Yildiz, E Dizman, A Temiz

WEDNESDAY 21 MAY

Kennedy Room/Roosevelt Room

08.30-09.30

Section 2 Test methodology and assessment, Main session

Chairman: Dr Paul Morris (acting)

Vice chairman: Prof Dr Shuichi Doi (acting)

IRG/WP 03-20261

International comparison of three field methods for assessing the in-ground resistance of preservative-treated and untreated wood to termites and fungal decay – Summary of observations after five years
M Lenz, J W Creffield, T A Evans, B M Kard, C Vongkaluang, Y Sornnuwat, A F Preston

IRG/WP 03-20264

Influence of different fixation and ageing procedures on the leaching behaviour of copper from selected wood preservatives in laboratory trials
J Habicht, D Häntzschel, J Wittenzellner

09.45-11.00

Section 4 Processes and properties, Main session

Chairman: Dr Joris Van Acker

Vice chairman: Dr Koichi Yamamoto

IRG/WP 03-40251

Preservative treatment of wood-based composites with a mixture formulation of IPBC-silafluofen using supercritical carbon dioxide as a carrier gas
K Tsunoda, M Muin

IRG/WP 03-40255

Influence of different treatment parameters on penetration, retention and bleeding of creosote
Ö Bergman

IRG/WP 03-40258

Controlled envelope treatments of *Pinus* sapwood, achieved by modifications to impregnation process and carrier solvents
M J Kennedy, P R S Cobham

THURSDAY 22 MAY

Kennedy Room/Roosevelt Room

08.30-10.00

Section 1 Biology, Main session

Chairman: Dr Frederick Green III (acting)

Vice-chairman: Prof Dr Wibke Unger (acting)

IRG/WP 03-10458

Review of Mold Issues in North America and Mold Research at Forintek
A Uzunovic, T Byrne, D-Q Yang, P Morris

IRG/WP 03-10488

Moulds and indoor climate in Denmark
J Bech-Andersen, S A Elborne

IRG/WP 03-10468

A risk model for termite attack in Australia
R H Leicester, C-H Wang, L Cookson

IRG/WP 03-10478

Report and recommendations of the National Termite Workshop held in Melbourne on the 17 April 2002.
B Ahmed, J R J French

THURSDAY 22 MAY

Kennedy Room/Roosevelt Room

Lincoln room

10.30-12.00

WP 4:4 Treating processes and treatability of timber

Convener: Dr Andreas Rapp

WP 2:3 Chemical analysis

Convener: Dr Michael Kennedy (acting)

IRG/WP 03-40256

Step-wise pressure process for reducing surface roughness in Japanese cedar timber
K Yamamoto, M Nozoki

IRG/WP 03-40259

Supercritical fluid impregnation of Douglas-fir heartwood with cyproconazole using temperature induced deposition
S-M Kang, J J Morrell

IRG/WP 03-40263

Finite element analysis of boron diffusion in wooden poles
K Krabbenhøft, P Hoffmeyer, C G Bechgaard, L Damkilde

IRG/WP 03-40252

Amenability of radial permeability of Sitka spruce (*Picea sitchensis* (Bong.) Carr.) as affected by aspects of cell ends in uniseriate ray parenchyma tissue
I Usta, M D Hale

IRG/WP 03-40253

Incising to improve penetration and retention of creosote in small-diameter Kenyan-grown Cypress (*Cupressus lusitanica*)
R Venkatasamy

IRG/WP 03-20259

Gas chromatographic determination of 1,8-naphthalimide, N-Hydroxy-1,8-naphthalimide (N,N-naphthaloylhydroxylamine) and the sodium salt of N-Hydroxy-1,8-naphthalimide
E Melcher, F Green III

IRG/WP 03-20266

Determination of chlorine-containing wood preservatives in art objects using Micro-XRF
J Bartoll, A Unger, S Krug, K Püschner, H Bronk

IRG/WP 03-20278

A comparison of fatty acid and molecular profiles for identification of wood colonizing basidiomycota
T C McElroy, L Prewitt, S V Diehl

THURSDAY 22 MAY

Kennedy Room/Roosevelt Room

Lincoln room

13.30-15.00

**WP 1:5/WP 2:5 Special session on termites
(Dedicated in memory of Dr Dieter Rudolph)
Convener: Mr Jim Creffield**

**WP 2:1 Topical issue: Predicting performance
Convener: Ms Carol Clausen (acting)**

IRG/WP 03-10462
Accidental mold/termite testing of high density fiberboard (HDF) treated with borates and N'N-naphthaloylhydroxylamine (NHA)
S N Kartal, H H Burdsall Jr, F Green III

IRG/WP 03-10463
Results on field stake tests against termite – Maximum for 8 years examination at Kumamoto in Japan
K Suzuki

IRG/WP 03-10464
Practical applications of steamed larch wood to a termite bait system using Chlorfluazuron
S Doi, S Shibutani, K Hanada, T Miyahara

IRG/WP 03-10470
Model of termite distribution in Portugal - Follow-up
T Nobre, L Nunes

IRG/WP 03-10472
Subterranean termite attack potential in field test sites: assessment methods and field characterization
T Nobre, L Nunes, L Brinca, D E Bignell

IRG/WP 03-20260
An engineering model for the decay of timber in ground contact
R H Leicester, C-H Wang, M N Nguyen, J D Thornton, G Johnson, D Gardner, G C Foliente, C MacKenzie

IRG/WP 03-20269
Some fundamental thoughts on the prediction of field performance from lab-testing based on comparison of lab and field test results of some copper-free materials
A O Rapp, U Augusta

THURSDAY 22 MAY

Kennedy Room/Roosevelt Room

Lincoln room

15.30-17.00

**WP 1:5/WP 2:5 Special session on termites
Cont'd**

**WP 3:4 Preservative performance
Convener: Dr Eckhard Melcher**

IRG/WP 03-10481

Foraging patterns of termite species in the living complexes of Bangkanoon forest plantation, Phuket province, Southern Thailand
Y Sornnuwat, C Vongkaluang, S Chutibhapakorn

IRG/WP 03-10480

Comparative study of termite diversity in moist evergreen forest and dry evergreen forest, Chanthaburi province, Thailand
S Chutibhapakorn

IRG/WP 03-10487

Feeding response of field populations of *Coptotermes* species to softwood blocks treated with non-toxic water-proofing and anti-microbial products.
J R J French, T Pynsent, M Susic

IRG/WP 03-10489

Response of laboratory groups of *Reticulitermes speratus* (Kolbe) to different quantities of food
M Lenz, T Yoshimura, K Tsunoda

IRG/WP 03-10495

Estimation of oral toxicity of boron as a bait toxicant and the trophallactic effects between individual members of termite colonies.
B M Ahmed

IRG/WP 03-20265

Assessment of the Termatrac™ system - a new microwave based technology for non-destructive detection of termites
T A Evans

IRG/WP 03-30321

Biological test, AAS and EPR study of copper monoethanolamine complex with quaternary ammonium compounds as a wood preservative
B Mazela, I Polus, S K Hoffmann, J Goslar

IRG/WP 03-30324

Effect of Oil Content on The Performance of Wood Treated with Pentachlorophenol
H M Barnes, T L Amburgey, M G Sanders

IRG/WP 03-30315

Review of current wood preservation in Turkey
I Usta

IRG/WP 03-10493

Relationship of wood durability and extractives
S M Kazemi

FRIDAY 23 MAY

Kennedy Room/Roosevelt Room

08.30-10.00 and 10.30-11.00

**WP 1:5/WP 2:5 Special session on termites
Cont'd**

IRG/WP 03-20280

A Long-term Observation of Termite Activity in The Nest by Continuous Acoustic Emission (AE) Monitoring

Y Yanase, Y Fujii, S Okumura, T Yoshimura, Y Imamura

IRG/WP 03-20271

Detection of Termite Attack to Wood Stakes in a Monitoring Station Using Ceramic Gas Sensors and Acoustic Emission (AE) Sensor

Y Yanase, Y Fujii, S Okumura, T Yoshimura, Y Imamura, T Maekawa, K Suzuki

IRG/WP 03-20267

Evaluating the Exterra Termite Interception and Baiting System in Australia

B C Peters, S Broadbent

IRG/WP 03-20274

Facility for Conducting Field Tests on *Coptotermes formosanus* at LSU Agricultural Center

W R Smith, T L Amburgey, G Henderson, D R Ring

IRG/WP 03-20275

A case for adopting a standardised protocol of field and laboratory bioassays to evaluate a potential soil termiticide

J R J French, B Ahmed

IRG/WP 03-30319

An anti-termite formulation for soil treatment with natural products and its efficacy against *Coptotermes formosanus* Shiraki

S Yoshida, T Nakagaki, A Igarashi, A Enoki