## CONTENTS

**Joint Meeting of the Northeastern and Western Forest and Conservation Nursery Associations**

**Nursery Challenges for the New Millennium**
July 12—15, 1999
Holiday Inn Gateway Center
Ames, Iowa

The Cascade Forestry Service Nursery  
*Don Westefer* ................................................. 3

Installing a Practical Research Project and Interpreting Research Results  
*R. Kasten Dumroese and David L. Weny* ............... 5

Using Electrolyte Leakage Tests to Determine Lifting Windows and Detect Tissue Damage  
*Richard W. Tinus* ........................................... 12

The Science and Application of Forest Carbon Projects  
*Robert J. Moulton* ........................................... 15

Root Production Method System  
*Wayne Lovelace* ............................................. 20

Adapting Biotechnology to Forestry  
*Ron Overton and Charles Michler* ‡

Using Soil Test Results to Determine Fertilizer Applications  
*C.B. Davey* .................................................. 22

Fertilizer Application Equipment for Bareroot and Container Nurseries  
*John W. Bartok, Jr.* ......................................... 27

Douglas-fir Container Stock Grown with Fertilizer-amended Media: Some Preliminary Results  
*Diane L. Haase, John Trobaugh, and Robin Rose* ....... 31

Plant Materials for Riparian Revegetation  
*J. Chris Hoag and Thomas D. Landis* .................... 33

Introduction to the Bear Creek Buffer System  
*Richard Schultz, Joe Colletti, and Tom Isenhart* ‡

Panel Discussion of Riparian Buffer Plantings  
*Mike Brandrup, Shannon Ramsay, and Richard Schultz* ‡

Defoliating Hardwood Seedlings for Harvesting  
*R. W. Tinus (no paper received; deceased)*

The IR-4 Program—How It Can Benefit Nurseries  
*J. Ray Frank* ................................................ 44

Something New—The Native Plants Journal  
*R. Kasten Dumroese* ........................................ 48

Towner State Nursery Weed Control Program for Field-Grown Conifer Nursery Stock  
*Ray LaFramboise* .......................................... 50

Louisiana Department of Agriculture and Forestry Weed Control Program  
*Randy Rentz* ................................................ 52

Use of the Geographic Information System (GIS) in Nurseries  
*Brent Olson and Chad Loreth* ............................. 53

‡ No papers received; for more information contact authors at the addresses provided in the list of attendees
Global Positioning System (GPS): Current Status and Possible Nursery Uses
Dick Karkey.................................................................55

Rocky Mountain Juniper Study: Preliminary Results
Jill Barbour.................................................................59

SOUTHERN FOREST NURSERY ASSOCIATION
GROWING GREEN IN THE NEW MILLENNIUM
June 26—29, 2000
Adam's Mark Hotel
Mobile, Alabama

Food Quality Protection Act
Paul Guillebeau ‡

The IR-4 Program—How It Can Benefit Nurseries
J. Ray Frank (See page 44)

Condor Computing
Sheryn Beasley ‡

Chloropicrin, EPTC, and Plant Growth-Promoting Rhizobacteria for Managing Soilborne Pests in Pine Nurseries
Michelle M. Cram, Scott A. Enebak, Stephen W. Fraedrich, and L. David Dwinell..........................69

Seedling Production and Pest Problems at a South Georgia Nursery
Stephen W. Fraedrich, L. David Dwinell, and Michelle M. Cram.........................................................75

Fungi Associated with Longleaf Pine Containers Before and After Cleaning
Michelle M. Cram..........................................................84

A Comparison of Bareroot and Containerized Seedling Production
John McRae and Tom Starkey........................................89

Current Seed Research
Jill Barbour and Bob Karrfalt ‡

Natural Resource Technologies
Bob Barker ‡

www.nurserymanager.com
J.B. Jordin ‡

Nursery/Silviculture Interactions
David South ‡

Rhizopogon/Mycorrhizal Uses
Michael Amaranthus ‡

Operational Rooted Cuttings in Southern Pines
Joe Weber and Hank Stelzer ............................................91

Strategic Plans for the Hardwood Tree Improvement and Regeneration Center
Charles H. Michler and Keith E. Woeste..................93

Nursery Equipment
Ben Lowman ‡

Longleaf Alliance Trends
Mark Hainds ‡

Trends in Nursery Research and Production
James P. Barnett........................................................97
Comparison of Tillage Equipment for Improving Soil Conditions and Root Health in Bareroot Nurseries
Jennifer Jupik, Kathryn Kramroy, and Raymond Allmaras

Slow Release Fertilizers in Bareroot Nurseries
J.G. Iyer, J. Dobrathner, B. Lawry, and J. Vandette

Red Oak Propagation Methods -- Panel Discussion
Jim Wichman, Don Westerfer, and Jim Storandt

Red Oak Propagation at the Griffith State Nursery, Wisconsin Rapids, Wisconsin
Jim Storandt

Tree Planting Incentive Programs: How You Can Make These Programs Work for You
Linda Depaula

Herbicide Site Prep and Release
Jack Seifert

Menominee Tribal Enterprises Forest Regeneration Efforts
Suzanne M. Bafluss

Hardwood Seed Collection -- Panel Discussion
Bob Hawkins, John Solan, Darrell Kramme, Bob Arritzen, and Greg Hoss

The Minnesota Tree Improvement Cooperative
Andrew David

Poplars as an Alternative Agricultural Crop
Glen Stanisz

Strategic Plans for the Hardwood Tree Improvement and Regeneration Center
Charles H. Michler and Keith E. Woeste
(See page 93)

National Perspectives
Jill Barbour

Eucalyptus Tree Farming in Hawaii
Gay Cellier and Jeanine Lumm

Developing Microbial Inoculants for Native Hawaiian Trees
Kim H. Wilkinson

Nursery Practices in Western Canada
Eric van Steenit

Nursery Practices and Research in Ontario
Karen E. Watt

Forest Nursery History in Western Canada with Special Emphasis on the Province of British Columbia
Evert (Ev) Van Eerden

Nursery Practices in Mexico
Vicente Arritzen
The Reforestation Information System (SIRE) in Mexico
Ricardo Sanchez V.‡

Chemical Root Pruning of Conifer Seedlings in Mexico
Arnoldo Aldrete and John G. Mexal .......................... 160

Restoring Degraded Forest Lands in Mexico
Luis Pimentel-Briones ‡

Clonal Propagation of Eucalyptus in Brazilian Nurseries
Ken McNabb, Natal Gonfalves, and José Gonfalves .................. 165

Nursery Practices with Exotic Conifers in Patagonia, Argentina, and Some Reasons to Afforest the Region with these Species
Maria Gabriela Buamischa ............................................ 169

Slash X Honduras Caribbean Pine Hybrids: An Overview of Nursery Production Systems in Southeast Queensland, Australia
A. G. Baxter .................................................................. 172

Development of a Seed Center and Container Nursery in the Russian Far East
Yury Knyshev ‡

Nursery and Afforestation Practices in Inner Mongolia, China
Richard W. Timus .................................................................. 177

George O. White State Park Forest Nursery—Licking, Missouri
Greg Hass .................................................................. 183

Propagating Conifer Seedlings in North Carolina
Selby Hawk ‡

Seed Enhancement/Upgrading Techniques: Read the Seed
Kim R. Creasy .................................................................. 187

Using Moisture Point Equipment to Monitor Water in Nursery Soils and Growing Media
Tony Ramirez ‡

Fall versus Spring Transplanting of Container Seedlings: A Comparison of Seedling Morphology
David Steinfeld, David Davis, Steve Feigner, and Karen House ................................................ 196

Approach and Rationale to Developing an IPM Program: Examples of Insect Management in British Columbia Reforestation Nurseries
David Trotter .................................................................. 201

The IR-4 Program—How It Can Benefit Nurseries
J. Roy Frank (See page 44)

Mycorrhizal Fungi and Trees—A Successful Reforestation Alternative for Mineland Reclamation
C.E. Cordell, L.F. Mans, and D.H. Marx .......................... 206

Forest Nursery Pest Management in Cuba
René Alberto López Castilla, Angela Duarte Casanova, Celia Guerra Rivero, Haylett Cruz Esoto, and Natividad Triguero Issasi ........................................ 213

Forest Nursery Management in Chile
René Escobar R., Manuel Sánchez O., and Guillermo Pereira C. ........................................ 219

Around the World Nursery Inoculations and Conifer Establishment using Rhizophogon Mycorrhizal Fungi
Mike Amarantus .................................................................. 226

Forest Seedling Production in Israel
Nir Azizmon and David Brand ........................................ 227

Propagation of Dry Tropical Forest Trees in Mexico
Mantha A. Cervantes Sánchez ........................................ 228
Pesticides Used in Forest Nursery Management in the United States and the Impact of the Food Quality Protection Act and other Regulatory Actions

Jesus A. Cota

Determination of the Season-acclimation of Photosynthetic Apparatus by Heat-induced Changes in Chlorophyll Fluorescence

Nicolay Alexandrovich Gaevsky

Effect of Different Forms of Fungal Biopreparation for Increasing Quality of Picea obovata Seedlings


Propagation of Tidal Marsh Species Native to the San Francisco Bay

Erin Heimbinder and Betty Young

Native Plant Propagation and Habitat Restoration at Hakalau Forest National Wildlife Refuge, Hawai'i

Baron Horitchi and Jack Jeffrey

Propagating Hardwood Seedlings in Louisiana

Charles Matherne

Nursery Practices in Sweden

Anders Mattson

The Federal Forest Stewardship Program and its Implications for Sustainable Forestry on Private Forest Ownerships in the United States

Robert J. Moulton and J. Dixon Eisele

A Tour of Forest Nurseries in the Pacific Islands of Micronesia and American Samoa

Leonard A. Newell

Propagating Native Plants at the National Tropical Botanical Garden

Diane Ragone

Use of a Beneficial Strain of Trichoderma to Protect Pinus sylvestris seedlings

T.V. Ryaunova, V.S. Gromovskiy, S.V. Prudnicova, and V.A. Tulpanova

Forest Nurseries in Venezuela: Current Efforts and Future Perspectives

J. A. Wright

NORTHEASTERN FOREST AND CONSERVATION NURSERY ASSOCIATION

SUSTAINABLE NURSERIES—SUSTAINABLE FORESTSN

July 23—26, 2001
Toftrees Resort
State College, Pennsylvania

American Chestnut Restoration in Pennsylvania: A Work in Progress

Dave Armstrong

Uses of the Westrup Brush Machine

Jill Barbour

Soil Health: A Study in Remediation of Cylindrocladium scoparium

Barry Hunter

Sustainability through Diversity: Pennsylvania's Model

Jerry Hattenger

Seed Source Establishment and Control: Ontario’s System

Thom McDonough

Fumigation Trial Update

Chris Furman and Bob Hawkins

Diane Ragone
Methyl-Bromide Alternative Update
Jennifer Jezwik

Pennsylvania’s Conservation Seed Zones
Dan Devlin

Seed Source Environment Importance: A World View
Ed Palpant

Hardwood Tree Improvement and Regeneration Center Report
Ron Overton

WESTERN FOREST AND CONSERVATION NURSERY ASSOCIATION MEETING

July 30—August 3, 2001
Ft. Lewis College
Durango, Colorado

Riparian Restoration in the Southwest: Species Selection, Propagation, Planting Methods, and Case Studies
David Drensen, John Harrington, Tom Subirge, Pete Stewart, and Greg Fencbel

Outplanting Long Tubes with the Expandable Stinger: A New Treatment for Riparian Restoration
David E. Steinfeld, Thomas D. Landis, and Dan Culley

Propagation of Riparian and Wetland Plants at Aquatic and Wetland Company Nursery
Brian Grubb

The Legacy We Leave on the Land: An Overview of the Need for Plant Materials after the Fires of 2000 on the Bitterroot National Forest
Amber Kamps

Fire Effects and Restoration Efforts at Mesa Verde National Park
Tim Oliverius

Restoration of Riparian Areas Within the Megram Fire
Tom Leskiw

Nursery Practices in Tennessee
Paul Ensinger

Quantity-based versus Quality-based Pricing: Developing the Niche Pine Seedling
Kirk D. Howell

Forest and Conservation Nursery Information on the Web
Bryan Jordin

Forest Nursery Production in the United Kingdom: Case Study Maeror Nurseries Ltd.
Jacquelin L. Fisher

Slow-release Fertilizers 101
Robin Rose

Percussion as an Alternative Scratification for New Mexico Locust and Black Locust Seeds
Nabil Khadduri, John T. Harrington, Lee S. Rosner, and David R. Dreesen

Influence of Site Preparation and Stock Size on the Establishment of Arizona Cypress Plantings in the Middle Rio Grande Region
Mark Lovell, Richard P. Maiers, and John T. Harrington

Trees Are the Solution to Wastewater Treatment for Small Communities
John G. Mexel, Walter H. Zachritz, and T.W. Sammis

Native Americans and Their Plants: Linking the Past with the Future
Tara Luna

Naturally Occurring Plants Used on the Hopi Indian Reservation for Medicine and Food
Theodora Homawiktewa
The ‘Ahakhav Native Plant Nursery on the Colorado River Indian Reservation: Growing Trees and Shrubs for Southwest Restoration
Jennifer Kleffner.......................................................... 345

Clifton—Choctaw: Propagating Longleaf Pine for the Future in Honor of the Past
Charlie Matherne ‡

Red Lake Forestry Greenhouse Program
Gloria Whitefeather-Spears............................................. 350

Design and Layout of a Small Commercial Greenhouse Operation
John W. Bartok, Jr. ....................................................... 354

Mapuche Medicinal Plants: Proposition in Their Propagation
Paz Ovalle, Zoia Neira, and Patricio Nunez.................... 358

Effects of Phosphorus and Nitrogen Manipulations on Tallgrass Prairie Restoration
Patrick Kincaid, Val H. Smith, Bryan L. Foster, and Vanessa L. Madden........................................... 364

List of Participants

Joint Meeting of the Northeastern and Western Forest and Conservation Nursery Associations
Nursery Challenges for the New Millennium
Ames, Iowa........................................................................ 373

Southern Forest Nursery Association
Growing Green in the New Millennium
Mobile, Alabama................................................................ 378

Northeastern Forest and Conservation Nursery Association
Nurseries for the Future
Spring Green, Wisconsin............................................... 386

Western Forest and Conservation Nursery Association
Kailua-Kona, Hawaii......................................................... 390

Northeastern Forest and Conservation Nursery Association
Sustainable Nurseries - Sustainable Forests
State College, Pennsylvania.............................................. 396

Western Forest and Conservation Nursery Association Meeting
Durango, Colorado......................................................... 401