

## Mixed species forests: Risks resilience and management

### Wednesday 25 March 2020

7:00-08:45. Registration

08:45-09:00. Welcome speeches by Lund city council, scientific committee and REFORM

*Session 1: Resistance and resilience of mixed forests following disturbances (Moderator: Miren del Río, INIA, Spain)*

09:00-09:25. **Key-note talk:** *Having the right neighbors: how tree species diversity modulates drought impacts on forests.* **Charlotte Grossiord**, EPFL/WSL, Switzerland.

09:25-09:45. Oral communications (10 min each)

- *Interactive effects of drought and species mixture on European beech (*Fagus sylvatica*) in Southeastern France.* **Soline Martin-Blangy**, INRAE, France.
- *Growth reactions of single trees to time-lagged climate effects under pure- and mixed-stand scenarios.* **Arne Nothdurft**, BOKU University, Austria.

09:45-09:55. Discussion

09:55-10:20. Oral communications (5 min each)

- *Are tree species likely to benefit from the mixture in the same way? A study of drought stress response across forest types in Europe.* **Marta Pardos**, INIA, Spain.
- *Influence of tree neighbourhood on soil characteristics, tree growth and tree growth resistance to drought.* **Xavier Serra-Maluquer**, University of Zaragoza, Spain.
- *The effect of species mixing on the drought response of Scots pine and oak (pedunculate oak, sessile oak) across Europe.* **Mathias Steckel**, TUM, Germany.
- *Facilitation of beech in mixture with silver fir turns into competition upon drought.* **Ruth Magh**, SLU, Sweden.
- *Understanding the effects of species mixing on water use and drought stress in Mediterranean forests: a modelling approach.* **Miguel De Cáceres**, FSCC, Spain.
- *Are Mediterranean pine-oak mixed stands more resistant and resilient to drought than their monospecific counterparts?* **Enrique Andivia**, University of Madrid, Spain.

10:20-10:30 Discussion

10:30-11:00. Coffee break and poster session

*Session 1: (Continued) Resistance and resilience of mixed forests following disturbances (Moderator: Magnus Löf, SLU, Sweden)*

11:00-11:20. **Key-note talk.** *Mixing tree species to improve forest resistance to insect pests, in the context of global change.* **Hervé Jactel**, INRAE, France.

11:20-11:35. Oral communications (5 min each)

- *Resistance and resilience of Engelmann spruce-Aspen forests to a spruce bark beetle epidemic.* **Mike Battaglia**, USDA-FS, USA.
- *Effects of wild ungulates on forest regeneration in mixed forest of Scots pine (*Pinus sylvestris*) and sessile oak (*Quercus petraea*).* **Nathalie Korboulewsky**, INRAE, France.
- *Study of dieback of mixed stands (*Pinus halepensis* and *Pinus pinea*) in Northern Spain by field evaluation and remote sensing.* **Carmen Romeralo**, SLU, Sweden.

11:35-11:45. Discussion

11:45-11:55. Oral communication (10 min each)

- *Temporal stability of productivity in mixed vs monospecific forest stands across Europe* **Miren del Río**, INIA, Spain.

11:55-12:05. Oral communications (5 min each)

- *A trait based approach to elucidate the mechanisms behind diversity effects on productivity and stability in mixed-species forests.* **Florian Schnabel**, Leipzig University, Germany.

• *Managing for mixed forests: sustainable road to increased resilience?* **Floortje Vodde**, EMU, Estonia.

12:05-12:15. Discussion

12:15-13:30. Lunch

*Session 2: Ecosystem services from mixed forests (Moderator: Anna Barbati, University of Tuscia)*

13:30-13:55. **Key-note talk:** *Biodiversity and ecosystem multifunctionality: which measure of multifunctionality, which species, which scale?* **Lars Gamfeldt**, GU, Sweden.

13:55-14:25. Oral communications (10 min each)

• *Is multifunctionality greater in mixed than in pure forests? A meta-analysis of a latitudinal network of European forest triplets.* **Charlotte Poeydebat**, INRAE, France.

• *Tree species diversity and identity as drivers of soil carbon stocks in European mixed forests.* **Lars Vesterdal**, KU, Denmark.

• *Tree species identity and site conditions have stronger impact on soil organic carbon storage than species diversity in European forests.* **Richard Osei**, UCLouvain, Belgium.

14:25-14:35. Discussion

14:35-14:55. Oral communications (5 min each)

• *Identifying the tree species compositions that excel in the provision of multiple benefits.* **Jill Mayberry**, University of Aberdeen, UK.

• *Effects of spruce budworm outbreaks and suppression on carbon dynamics in forest soils.* **Michael Stastny**, Canadian Forest Service, Canada.

• *Effects of tree species mixing on ecosystem carbon and nitrogen stocks in a Swedish boreal forest.* **Róbert Blaško**, SLU, Sweden.

• *Species-specific deadwood density and its driven factors in a virgin European beech-silver fir mixed forest in the Southern Carpathians.* **Any Mary Petritan**, Brasov University, Romania.

14:55--15:05. Discussion

15:05-15:35. Coffee break and poster session

*Session 2: Continued) Ecosystem services from mixed forests (Moderator: Hervé Jactel, INRAE, France)*

15:35-15:55. **Key-note talk:** *Can mixed forests play the jack-of-all-trades in ecosystem services provision?* **Anna Barbati**, University of Tuscia, Italy.

15:55-16:15. Oral communications (10 min each)

• *Tree Species Composition and Diversity Influence Provision of Multiple Ecosystem Services in Pacific Northwest US Plantation Forests.* **Austin Himes**, Mississippi state university, USA.

• *How do sessile oak and Scots pine admixtures affect carabid beetles in the eastern part of the German lowlands?* **Alexandra Wehnert**, TU Dresden, Germany.

16:15--16:25. Discussion

16:25-16:50. Oral communications (5 min each)

• *Retaining border zones for the benefit of conservation: a case study from southern Sweden.* **Isak Lodin**, SLU, Sweden.

• *Disentangling the relationship between tree biomass yield and biodiversity in Mediterranean Mixed Forests.* **Felipe Bravo**, Universidad de Valladolid, Spain.

• *Mixture-effects on tree biomass production and soil organic C quality in a temperate plantation forest.* **Iftekhar Ahmed**, BOKU University, Austria.

• *A simulation-based study to explore the impact of climate change on pure and mixed forests across Europe.* **Xavier Morin**, CNRS, France.

• *Mixed longleaf, slash, and loblolly pine plantations in southern Georgia, USA.* **Thomas Harris**, University of Georgia, USA.

16:50-17:00 Discussion

## Thursday 26 March 2020

*Session 3: Dynamics and management of mixed forests (Moderator: Hans Pretzsch, TUM, Germany)*

08:30-08:55. **Key-note talk:** *Evidence from controlled experiments for interactions of spacing and species mix on productivity, stand dynamics and vertical structure.* **Douglas A. Maguire**, Oregon State University, USA.

08:55-09:15. Oral communications (10 min each)

- *Gisburn mixtures experiment: a new analysis of stand dynamics for the first 25 years of the second rotation.* **Gary Kerr**, Forest Research, UK.
- *Restoring American Chestnut in Mixed-Species Forests: What Can We Learn From New Stocking Approaches?* **Mark Ducey**, University of New Hampshire, USA.

9:15-9:25. Discussion

09:25-09:45. Oral communications (5 min each)

- *Spacing effects in spruce-pine plantations: trade-offs between yield, size and damage.* **Ignacio Barbeito**, SLU, Sweden.
- *Effects of mixture forms on the early growth performance and survival of sessile oak and Scots pine in central Poland.* **Kamil Bielak**, Warsaw University of Life Sciences, Poland.
- *Mixedwoods enhance northeast British Columbia's boreal forest resilience and carbon storage in a changing climate,* **Christoffer Hawkins**, Association of Peace River Woodlots, Canada.
- *The potential of mixed plantations with local species to reforest the Sudanese area in West Africa.* **Brahima Coulibaly**, CNRA, Ivory Coast.

9:45-9:55. Discussion

09:55-10:25. Coffee break and poster session

*Session 3: (Continued) Dynamics and management of mixed forests (Moderator: Andres Bravo-Oviedo, CSIC)*

10:25-10:45. Oral communications (10 min each)

- *Mixedwood silviculture: the science and art of managing for complex, multi-species forests of eastern North America.* **Patricia Raymond**, Quebec Min Forest Wildlife & Parks, Canada.
- *Model projections of mixed-species stands for two climate scenarios in the Netherlands.* **Maïke Bouwman**, Wageningen University, The Netherlands.

10:45-11:00. Oral communications (5 min each)

- *Long-term changes in tree species composition of mixed forests in Swiss natural forest reserves* **Amanda Mathys**, WSL, Switzerland.
- *Natural diversification processes in Mediterranean forests: an analysis using forest typologies and forest inventory data,* **Lluís Coll**, University of Lleida, Spain.
- *Forecasting the future of forests and the importance of mixed stand management in the Alps under climate change.* **Marion Jourdan**, Université Paris-Saclay, France.

11:00-11:10. Discussion

11:10-11:40. Oral communications (5 min each)

- *Thinning responses of individual trees in mixed stands of Norway spruce and Scots pine.* **Silke Houtmeyers**, NMBU, Norway.
- *Simulating the effects of thinning and species mixing on stands of oak (*Quercus petraea* (Matt.) Liebl. / *Quercus robur* L.) and pine (*Pinus sylvestris* L.) across Europe.* **Marcus Engel**, BOKU, Austria.
- *Growth and development of young mixed Scots pine and Norway spruce stands.* **Simone Bianchi**, LUKE, Finland.
- *Approaches to restoring and regenerating shortleaf pine-oak mixedwoods in the Ozark Highlands, USA.* **Daniel C Dey**, USDA-FS, USA.
- *Management alternatives of spontaneously regenerated mixed stands of Birch and Norway spruce in Sweden.* **Felicia Lindman**, SLU, Sweden.

- *The birch-spruce mixed forest of southern Sweden in contemporary forestry.* **Emma Holmström**, SLU, Sweden.

11:40-11:50. Discussion

11:50-13.00. Lunch

13:00-18:00 FIELD TRIP TO SNOGEHOLMS LANDSCAPE LABORATORY (Busses leaves from conference venue and return by 18:00).

20:00. Social dinner

## Friday 27 March 2020

*Session 3: (Continued) Dynamics and management of mixed forests (Moderator: Felipe Bravo, Universidad de Valladolid, Spain).*

08:30-08:50. **Keynote speaker: Mixed-species forest stands. From understanding to design.** **Hans Pretzsch**, TUM, Germany.

08:50-09:10. Oral communications (10 min each)

- *Proportion of mixture influencesoveryielding in a long-term nursing mixtures experiment in northern Scotland.* **Bill Mason**, Forest Research, UK.
- *Productivity-diversity relationships in mixed-hardwood plantations.* **Madeline Montague**, Purdue University, USA.

19:10-09:20 Discussion

09:20-09:40. Oral communications (5 min each)

- *Tree species mixture effects on growth vary with stand density – an analysis based on individual tree responses.* **Andreas Brunner**, NMBU, Norway.
- *Inter- and intra-specific mode of competition of Scots pine in pure and mixed stands along an environmental gradient in Europe.* **Andres Bravo-Oviedo**, CSIC, Spain.
- *Individual tree growth for coexisting Norway spruce and Scots pine as function of competition of neighboring tree species.* **Jorge Aldea**, SLU, Sweden.
- *Stand density and growth in mixed compared with monospecific stands.* **Eric A. Thurm**, LandesforstMV, Germany.

09:40--09:50 Discussion

09:50-10:20. Coffee break and poster session

*Session 3: (Continued) Dynamics and management of mixed forests (Moderator: Emma Holmström, SLU, Sweden).*

10.20-10:40. Oral communications (10 min each)

- *Mixture effects on Scots pine and Norway spruce productivity along a climatic gradient in Europe* **Ricardo Ruiz-Peinado**, INIA, Spain.
- *Effects of tree diversity, fine-root traits and (micro-) climate on the decomposition of absorptive fine roots of 13 European tree species.* **Janna Wambsganss**, University of Freiburg, Germany.

10:40-11:10. Oral communications (5 min each)

- *Tree mixture modify the nutrient cycling: evidence from foliar diagnosis and litterfall in oak-pine stands?* **Nathalie Korboulewsky**, INRAE, France.
- *Facilitation and competition in regeneration in mixed-conifer forests of the southern and central Rocky Mountains.* **Keith W. Moser**, USDA-FS, USA.

- *Effect of spatial distribution on forest growth as function of species composition in Fagus sylvatica (L.) mountain forests across Europe.* **Giustino Tonon**, Free University of Bolzano, Italy.
  - *Admixing other tree species to European beech forests: Effects on soil organic carbon and total nitrogen stocks. A review.* **Stephanie Rehschuh**, Karlsruhe Institute of Technology, Germany.
  - *Spatial nitrogen and water uptake strategies of mature Norway spruce and Scots pine in monocultures and in the two species mixed stands.* **Reimo Lutter**, SLU, Sweden.
  - *Mixing has limited impacts on the foliar nutrition of European beech and Scots pine trees across Europe.* **Géraud DeStreel**, UCLouvain, Belgium.
- 11:10-11:20. Discussion

*Session 4: Mixed forests and policy aspects (Moderator: Miren del Rio, INIA, Spain).*

11:20-11:45. **Keynote speaker.** *Mixed forests in the EU Forest Strategy and under the Common Agricultural Policy.* **Tamas Szedlak**, European Commission, Belgium.

11:45-11:55. Oral communications (10 min each)

- *Landscape restoration for mixed forests: key strategies for navigating the constraints and opportunities of multi-scale forest governance and management.* **Lucas Dawson**, SLU, Sweden.

11:55-12:05. Discussion

12:05-13.20. Lunch

*Session 4: (Continued) Mixed forests and policy aspects (Moderator: Miren del Rio, INIA, Spain)*

13:20-13:30. Oral communications (10 min each)

- *Foresight studies as a tool to estimate future impacts of forest pests and diseases.* **Johanna Witzell**, SLU, Sweden.

13:30-13:45. Oral communications (5 min each)

- *Are mixtures a good option to reduce drought-induced risk of forest decline? Carbon accounting and economic approach.* **Sandrine Brèteau-Amores**, INRAE, France.
- *Forest Development Types: defining a useful concept for the design and management of site adapted mixed species stands in Britain.* **Jens Haufe**, Forest Research, UK.
- *Long-term development of spruce-birch mixed stand on drained peat soil and its carbon pools.* **Janis Vuguls**, LSFRI SILAVA, Latvia.

13:45-13:55. Discussion

13:55-14:40. Concluding remarks and discussion

Departure