Summer School

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Summer School on "Species Interactions in Mixed Forest Ecosystems"

MIXFOR

Second Announcement

August 25-29th, 2014
Nancy, France

INRA SCIENCE & IMPACT · AgroParisTech · UNIVERSITÉ DE LORRAINE · arbre · La Région Lorraine · RP2E

Mixed forests and plantations have the potential, when compared to monocultures, (i) to show improved productivity, soil fertility, nutrient cycling, and carbon sequestration, (ii) to reduce hazards due to pests and diseases, and (iii) to exhibit greater biodiversity. However, the relationships between species diversity and ecosystem functioning is still largely debated. In mixed forests and plantations, tree species basically compete for resources, but facilitation or complementarity interactions also occur and influence ecosystem functioning. Furthermore, these relationships can be influenced by environmental conditions; global changes will thus influence species interactions and their effect on ecosystem functioning and services, including productivity.

The 2014 NFZ Summer School on "Species Interactions in Mixed Forest Ecosystems" ("MIXFOR") will be organized in Nancy in August 2014 (25-29th) and intends to offer to applicants a complete and thorough view of the positive (e.g. facilitation, niche differentiation) and negative (competition) interactions for resource acquisition occurring in mixed forest ecosystems and their consequences on ecosystem functioning and services, in the context of environmental changes.

Scientists from the NFZ network working in this field as well as internationally recognized ones will share their research experience and illustrate concepts in community ecology and functional ecology with the objective to disentangle the relationships between biodiversity and ecosystem functioning. Illustrations might cover natural forests, plantations, as well as agro-forestry cultural systems, for temperate or tropical ecosystems.
The Summer School is opened to Ph.D. students or young scientists from any country in the world, but we expect a significant percentage of applications coming from Germany, Switzerland and France, in the framework of the NFZ network. Typically, we expect around 20 highly-motivated "students".

The language of all sessions will be English.

The agenda will include conferences and workshops corresponding to the topics listed below, including technical, methodological, or conceptual aspects accompanied by case-studies. Classroom sessions will take place at INRA Nancy (Champenoux). The Summer School will include two half-day visits of mixed forest and agroforestry plantations and a natural mixed forest in Lorraine. These visits will be conducted in collaboration with the local forest partners (Office National des Forêts, ONF) and will contribute to illustrate the experimental or observational studies conducted in Nancy.

The MIXFOR Summer School will cover the following topics (tentative program):

1- General context and issues on mixed forest ecosystems

This session will introduce the Summer School by presenting the general context of mixed forest ecosystems and will bring background on mixed forest ecosystems in the field of Forestry, Forest Management, Ecology, Geography, and Economy.

2- Basic knowledge

2.1 Response of trees to environmental factors
This session will give an overview of basic knowledge in ecophysiology on the response of tree species to environmental factors (radiation, soil water content, temperature, CO2 …) in absence of interspecific competition in order to understand the potential consequences of species interactions in mixed conditions

2.2 Impact of climatic changes on forest dynamics
This session will synthesize basic knowledge on the impact of climatic changes on forest dynamics in order to prepare the students to understand the concepts developed in following sessions.

3- Mechanisms involved in tree species interactions

3.1 Basic knowledge on Competition, Facilitation, Niche differentiation…

3.2 Variability among species in their strategy to acquire and use environmental resources

3.3 Influence of environmental conditions on species interactions

3.4 Influence of biotic factors on species interactions

3.5 Functional traits and community assemblage

4- Impact of species diversity on ecosystem functioning

4.1 Relationship between diversity and productivity

4.2 Relationship between diversity and other ecosystem functions

4.3 Are diverse ecosystems more resilient to biotic or abiotic factors?

4.4 Influence of species diversity on soil functioning

5- Modelling approaches for mixed forest ecosystems

5.1 Tree-level models

5.2 Ecosystem-level models

To date, confirmed speakers coming from **Freiburg University** (David Forrester, Arno Mattes, Somidh Saha), **ETH Zurich** (Rebecca Snell), WSL (Arthur Gessler), **CNRS Montpellier** (Xavier Morin), **ONF Nancy** (Myriam Legay), **Lorraine University** (Daniel Epron, Bernard Amiaud), **INRA Nancy** (Laurent Saint-André, Ignacio Barbeito, Marie-Béatrice Bogeat-Triboulot, Charlotte Grossiord, Damien Bonal, Nicolas Marron), and **Agro-ParisTech ENGREF** (Max Bruciamacchie) will contribute.

Registration for the Summer School is opened until May 2014 (http://www.nfz-forestnet.eu/NFZ-Summer-Schools/MIXFOR). No registration fees are requested. Travelling and accommodations will be borne by participants. For more information, please contact Nicolas Marron (marron@nancy.inra.fr) or Damien Bonal (bonal@nancy.inra.fr).