IMPRESSIONS

http://www.fe.ethz.ch/

Forest Ecology, ETH Zürich

WHO WE ARE

- The aim of the Forest Ecology group is to further our understanding of the structure and function of forest ecosystems. We develop a process-based understanding of long-term forest dynamics with the ultimate goal of improving forest management in an era of multiple and sometimes conflicting forest uses, including production of timber, conservation of biodiversity, and the protection of people and infrastructure from natural hazards. We study structural and functional aspects of forest systems, focusing on tree population dynamics (i.e., regeneration, growth, and mortality) and the ecology of large-scale disturbances.
- We investigate ecological processes over the short as well as the long term and at spatial scales ranging from individual trees to landscapes. We address our research questions using a combination of modelling activities and field-based analyses to test hypotheses about processes in near-natural and managed forest ecosystems.
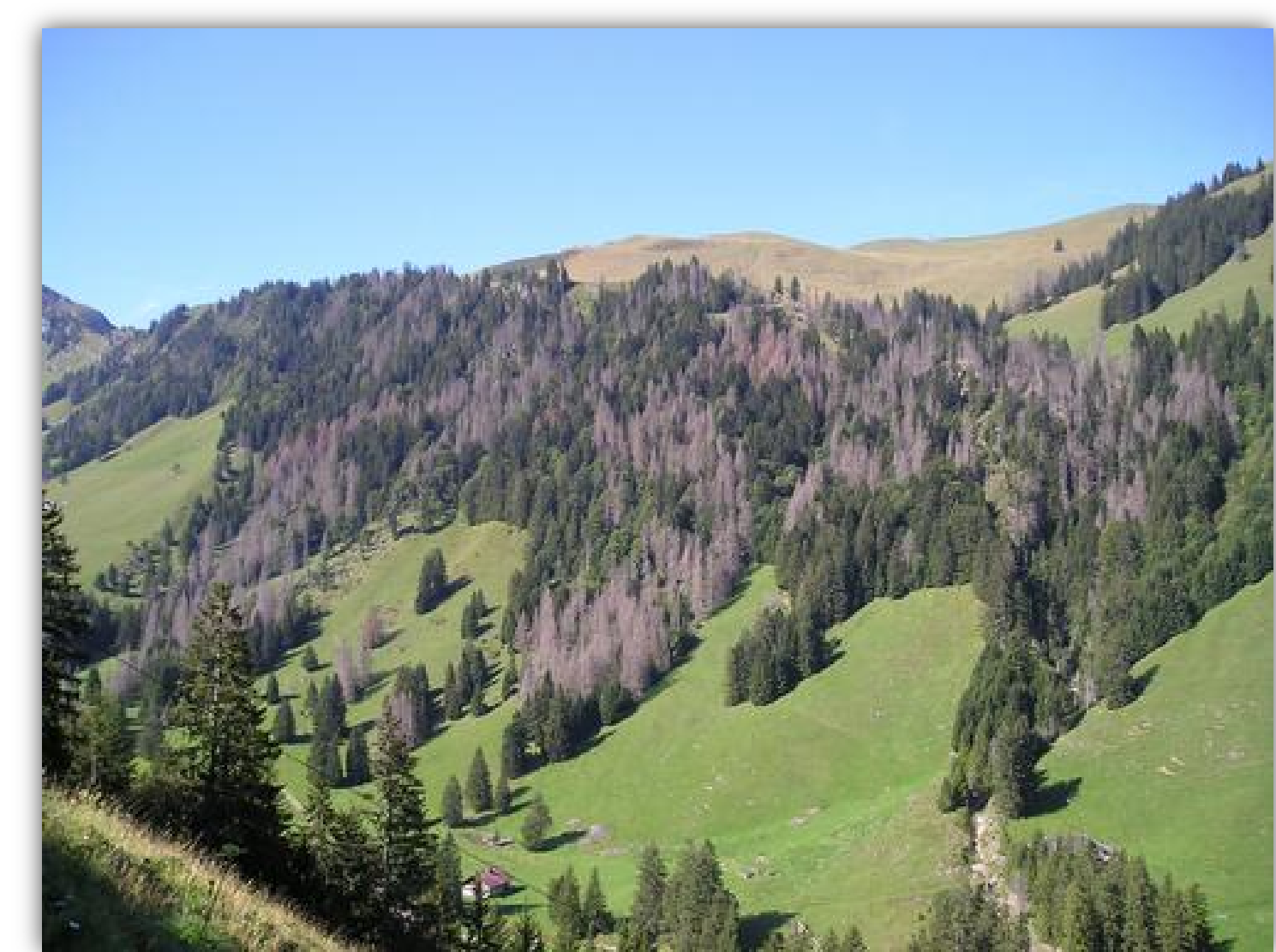
WHAT OUR EXPERIENCE IS

- Dynamic vegetation modelling at the stand, landscape and regional scale.
- Applying and evaluating climate change scenarios to forest ecosystems.
- Simulating adaptive forest management in response to climate change.
- Evaluating the provisioning of ecosystem services.
- Simulating the occurrence and impact of large scale disturbances on forests, such as fire, wind, and bark beetles.
- Using dendrochronology to better understand the processes which influence tree growth and mortality.
- Incorporating forest inventory data, field- and lab-based studies into our modelling work to more accurately simulate the processes that influence forest ecosystems.
- Participation in inter- and trans-disciplinary research, considering ecological, social and economic factors to simulate how adaptive land use practices could maintain various ecosystem services under anthropogenic climate change.

Forest stand dynamics

Landscape level patterns and disturbances

WHAT WE DO IN IMPRESSIONS

- The majority of our contributions are in WP3.
- Provide a dynamic forest model that can be integrated into the European case study to simulate forest productivity using different management strategies under high-end climate scenarios .
- Use a dynamic forest landscape model to simulate the cultural forested landscape in the Iberian case study.
- Contribute to the Scottish case study to assess reforestation efforts.

WE ARE ALSO INVOLVED IN

- ARANGE (http://www.arange-project.eu)
- EuMIXFOR (http://www.mixedforests.eu/)
- MOUNTLAND (http://www.cces.ethz.ch/projects/sulu/MOUNTLAND)
- Various projects funded by the Swiss National Science Foundation and national agencies.

Prof. Dr. Harald Bugmann

- Full professor of Forest Ecology at ETH Zürich
- Multiple research projects at national and international level
- Involvement in many EU FP projects since FP5 as participant and WP leader

Research interests:
- Forest succession
- Ecological modelling
- Decision support for forest management under global change

Dr. Rebecca Snell

- Postdoctoral researcher at ETH Zürich
- Dynamic vegetation modelling expertise

Research interests:
- Understanding and simulating vegetative landscape level patterns
- Human management impacts on landscapes
- Effect of climate and land use change on the provisioning of ecosystem goods and services