

Summer School 2022



# FORBIODIV

Biodiversity, a key element for  
temperate forest ecosystems

21–27 August 2022

Davos, Switzerland

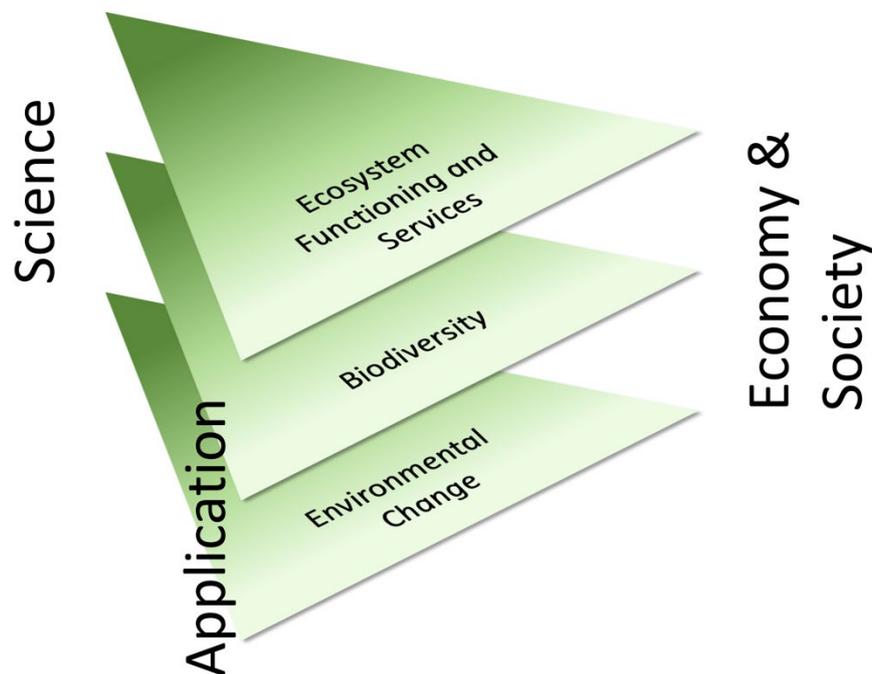


## Goal of the Summer School 2022

The goal of the WSL Biodiversity Center/SwissForestLab/NFZ Summer School 2022 is to provide an in-depth understanding of how and why biodiversity is a key element in the forest ecosystem. While focusing on temperate forests, we will highlight how biodiversity links to ecosystem functioning and to the benefits to people (ecosystem services). State-of-the-art knowledge and approaches will be presented and discussed considering the expectations of current and future forests from a scientific, forest management, and socio-economic perspective.

Latest debates on biodiversity decline, climate crisis and increasing expectations of forests and future forest management demonstrate the demand for scientifically sound information and the need to address the impact of global change on forest ecosystems and the changing societal conditions from these three complementary angles (Figure 1):

- a) On the scientific level; the state of biodiversity in forests, how biodiversity links to ecosystem functioning and their dynamics including the many processes and interactions within forest systems and their (changing) environment, towards a better understanding of cause-response relationships to develop reliable future scenarios.
- b) On the applied level; sustainable forest management practices that support biodiversity under current and future climate conditions and societal needs to improve the forests' resilience in order to safeguard the multitude of ecosystem services they provide.
- c) On the economic, societal and political level; the economic, societal and political framework is central to warrant the sustainable and efficient management of forests.



**Figure 1:** Biodiversity as a key element of temperate forest ecosystems and its links to environmental change and ecosystem functioning and services from scientific, applied and economic/societal angles.

The participants will reflect on their own work with respect to other disciplines and discuss possible benefits of interdisciplinary approaches in their field.

Ultimately, the participants will get to know the interfaces of their own research with other methods and approaches. This will increase the impact and the relevance of their work.

## Organization

We will cover a diverse set of topics viewed from the mentioned three angles (Figure 1). One focal topic will be centered around *Pinus cembra*, which builds on the ecological interactions between the foundation tree species Swiss stone pine (*Pinus cembra*), its below-ground mycorrhizal symbionts, and the European nutcracker (*Nucifraga caryocatactes*) as its wide-ranging seed disperser. These species are key players in the high-elevation larch–stone pine forests that are also found in the surroundings of Davos. Given the competitive pressure of tree species moving upwards under ever warmer climate, this rather slow-reacting ecosystem is under threat of being disrupted in the long term. The thematic framework will be disentangled and put back into a broader perspective, representing the three angles of Science, Application, and Economy/Society.

We will have a suite of additional topics that include biotic interactions within forest ecosystem, how changing (micro-)climate affects today's and future forests, or how people perceive and value biodiversity in forests. Students will also learn about how the political/regulatory sector influences forest management practices both by setting constraints and by empowering good practice. Last but not least, we will give some insight on what forest owners or managers can do to foster forest biodiversity and associated ecosystem functioning.

The preliminary list of speakers (see also Table 1): Dr. Peter Bebi (WSL), Dr. Kurt Bollmann (WSL), Dr. Benjamin Dauphin (WSL), Dr. Claudio de Sassi (Swiss Federal Office of Environment FOEN), Dr. Claude Garcia (BFH), Dr. Felix Gugerli (WSL), Dr. Tessa Hegetschweiler (WSL), Dr. Frank Krumm (Forest Biodiversity Working Group of Swiss Forestry Society, WSL), Dr. Eike Lena Neuschulz (Senckenberg Biodiversity and Climate Research Centre SBIK-F, Germany), Dr. Martina Peter (WSL), Dr. Christian Rellstab (WSL), Sabine Brodbeck (WSL), Prof. Dr. Andreas Rigling (WSL), Dr. Georg von Arx (WSL), Dr. Florian Zellweger (WSL).

In addition to the active participation in the Summer School, PhD students are expected to contribute with a poster addressing disciplinary and interdisciplinary interfaces of their own work to the major topics of the Summer School: natural science basics, cross-scale effects, economic, political or management perspectives. A poster session will be held on Monday, 22 August (see Table 1). In addition, participants are expected to read the most important articles relevant to the major topics of the Summer School. These articles will be appointed in advance by the lecturers.

The organizing committee consists of Dr. Rafael Wüest Karpati (WSL Biodiversity Center), Prof. Catherine Graham (WSL Biodiversity Center), Prof. Arthur Gessler (SwissForestLab, NFZ), Dr. Stefan Hunziker (SwissForestLab) and Dr. Julia Born (SwissForestLab).

## Preliminary program

The Summer School will start with an introductory lecture on Sunday evening. The following five days will comprise input lectures and discussions with various experts, assigned group work and two excursions to:

- the [Flüela Valley, Pisch](#) (around the focal topic on *Pinus cembra*), and
- the [Dischma Valley](#) (Forest Management and Biodiversity; Marteloscope; Stillberg alpine tree line afforestation experiment)

As enrichment of the scientific scope of the Summer School and to foster interdisciplinarity, a workshop on stakeholder dialogue will be facilitated by Dr. Claude Garcia (BFH). On the last day, the final product of the group work will be discussed, followed by a synthesis workshop and feedback round.

|           | Sunday<br>21.8.       | Monday<br>22.8.   | Tuesday<br>23.8.                                   | Wednesday<br>24.8.   | Thursday<br>25.8.  | Friday<br>26.8.  | Saturday<br>27.8.                          |
|-----------|-----------------------|---|--|--|--|--|--|
| MORNING   |                       | Participants Poster Session   | Gugerli et al.: Intro                              | Rigling et al.: Forestry and economic aspects of stone pine Forests  | Garcia: Stakeholder dialogue                                   | Krumm: Biodiversity and management in a mountain forest landscape                          | DEPARTURE<br>Hotel Shima                   |
|           |                       | Bollmann: Biodiversity and ecosystem functioning in managed forests | Vacant: Historical aspects                         |  |  |  |  |
|           |                       | Participants Poster Session   | Neuschulz: Biotic interactions                     | Peter et al.: Mycorrhiza   | de Sassi: Political and regulatory view on forest biodiversity | Excursion Biodiversity and management in a mountain forest landscape<br>Dischma<br>(Krumm) |  |
|           |                       | Dauphin et al.: Genetic aspects                                     |  |  |  |  |  |
| AFTERNOON |                       | Zellweger: Forest microclimate and biodiversity                     | Stone pine excursion<br>Pischa<br>(Gugerli et al.) | Group Work on scenarios about the fate of stone pine forests by 2200 | Vacant: Biotic interactions and invasives                      |  |  |
|           |                       | Participants Poster Session   |  |  |  | Hegetschweiler: Perception of the ecological function of Swiss forests                     | Group Work:<br>Presentation and discussion |
|           |                       | Sanginés de Cárcer: Forest biodiversity and business                |  |  | Garcia: Stakeholder dialogue                                   |  |  |
|           |                       | ARRIVAL<br>Hotel Shima  |  |  |  |  |  |
| EVENING   | Wüest: Introduction   | Participants Poster Session   | von Arx et al.: Dendro and silviculture            | Group work   | Group work   | Wüest: Synthesis   |  |
|           | Hunziker: Ice-breaker | Group work  |  |  |  | Born: Feedback   |  |

**Table 1.** Preliminary program of the Summer School FORBIODIV. The topic-block on Stone Pine (*Pinus cembra*) is framed with a solid black line.

## COVID-19

Due to the uncertain situation because of COVID-19, the program may slightly change and some presentations may occur virtually. We are closely monitoring the development for Switzerland and apply the [rules issued by the Swiss Federal Office of Public Health](#). In case of cancellation, participation fees will be fully refunded.

## Application

The 2022 Summer School is organized under the umbrella of the WSL Biodiversity Center, the SwissForestLab and the nfz.forestnet. We can accommodate 20 highly motivated students. It is open to PhD students, MSc students in their last year and PostDocs from any country in the world. Applications will be evaluated according to their fitting and interest in the research topic, their evidence of academic quality, and their expected benefits from this Summer School. The language of the Summer School will be English.

## Costs

Fees: 700 Swiss Francs (exclusive of VAT). This includes accommodation (shared rooms) at the Hotel Shima (<https://www.shima-davos.ch/>) and meals (vegetarian – for the sake of our climate) from dinner on 21 August to breakfast on 27 August, course materials and excursions. Accepted participants are expected to bear travel costs to Davos.

## Application for the 2022 Summer School FORBIODIV

Summer School web page:

<https://www.wsl.ch/en/about-wsl/events/details/forbiodiv-summer-school-2022.html>

Registration (deadline is 15 May 2022): please provide your CV, a motivation letter (one A4 page) and your PhD thesis abstract via [https://conf.wsl.ch/summer\\_school\\_sfl\\_2022](https://conf.wsl.ch/summer_school_sfl_2022)

For questions, please contact the organizing committee: [swissforestlab\\_summerschool@wsl.ch](mailto:swissforestlab_summerschool@wsl.ch)