

RU Biodiversity and Conservation Biology

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WSL Swiss Federal Research Institute
An institute of the ETH-Domain

Interest in AIM

- **Biodiversity of forests is a key topic of RU Biodiversity and Conservation Biology**

- **Habitats, species, genes, interactions, traits**

- **Vertebrates, insects, trees and vascular plants, bryophytes, fungi including mycorrhiza, lichens**

- **Goal: development and preservation of forest biodiversity → testing theories, understanding drivers, management implications, instructions for practitioners/stakeholders**

Interest in AIM

- **Our ideas do not necessarily fit the current set-up of AIM based on regular NFI plots**

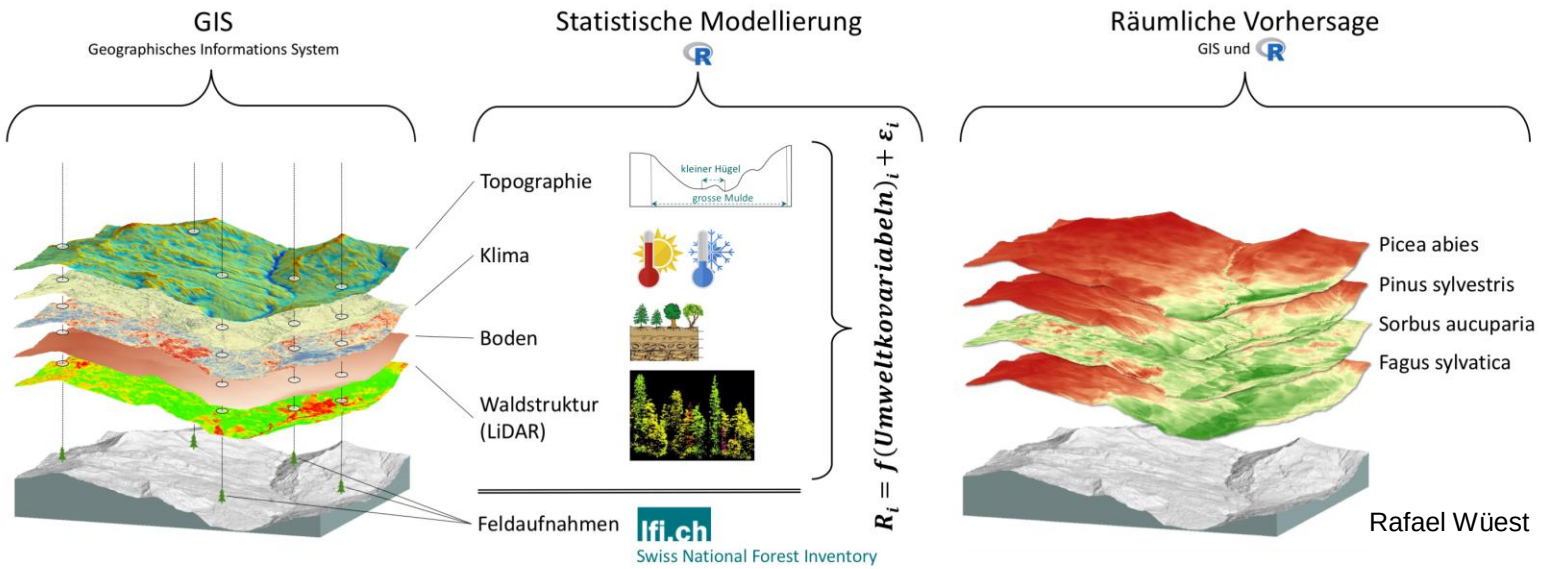
- **Some additional thoughts from the point of view of forest biodiversity**

Key questions

Scientific: How do biotic and abiotic variables affect forest biodiversity and functional traits (modelling)?

- **Make more use of existing data (NFI, WSL and beyond)**

→ Presentation by the biodiversity centre



Rafael Wüest

Key questions

Scientific: Genomic adaptation of forest trees and reaction of mycorrhiza to environmental change

- **Climate change**
- **Drought**

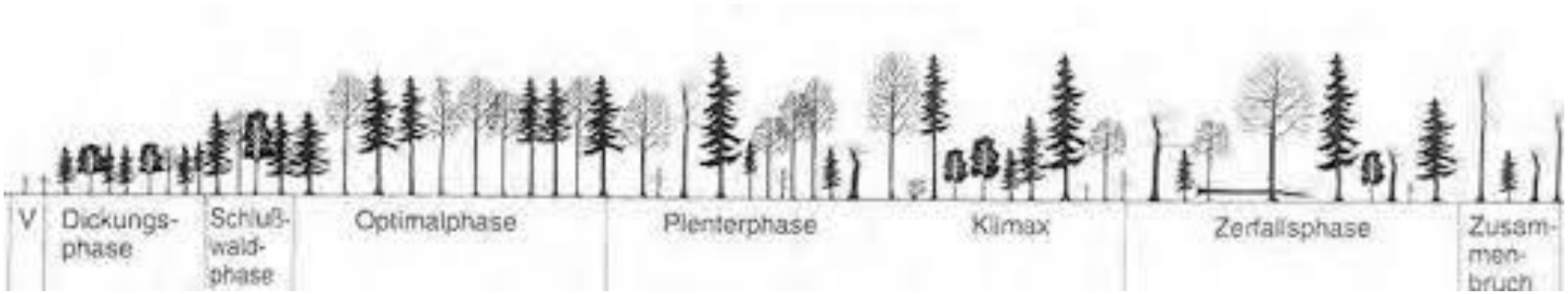

Martina Peter

Christian Rellstab

Key questions

Applied: How do different types of forest management (or non-management) affect:

- **Forest biodiversity**
- **Forest structure**
- **Inferred at levels of habitats, communities, organismal groups and single species**



Wolfgang Scherzinger

Key questions

Applied: How does biodiversity develop and is represented in common and special forests:

- **Total forest reserves ("Naturwaldreservate"), dead wood and habitat trees → some monitoring**
- **Special forest reserves ("Sonderwaldreservate") → no monitoring**
- **Special and rare forest types → underrepresented in monitorings (e.g. not covered by NFI)**

Scales

- **National**
- **Biogeographical regions**
- **Different elevations**

BAFU

Precision

- **To assess biodiversity s.l. several samplings per year are necessary**

- **Longer-term changes → annual measurements not necessary**

- **However, after extreme events annual measurements on organisms (not just trees) are important**

Data needs

- **More biodiversity measurements on other organismal groups than trees**

- **Proxies for biodiversity: The strong correlation of proxies with biodiversity has to be proven with real biodiversity data under a range of conditions**

- **Better representation of environmental space (e.g. rare habitat types)**

- **Annual monitoring asks for in-situ measurements of environmental data**

What we can offer? Data + expertice + experience

- **Data centres Swiss Fungi and Swiss Lichens provide distribution data in Switzerland**

- **A significant number of plots for Red List assessments of Data Centres are close to NFI plots**

- **"Monitoring of Nationally Important Habitats WBS" contains ~ 800 plots from riparian forests ("Auenwald"; monitored every sixth year)**

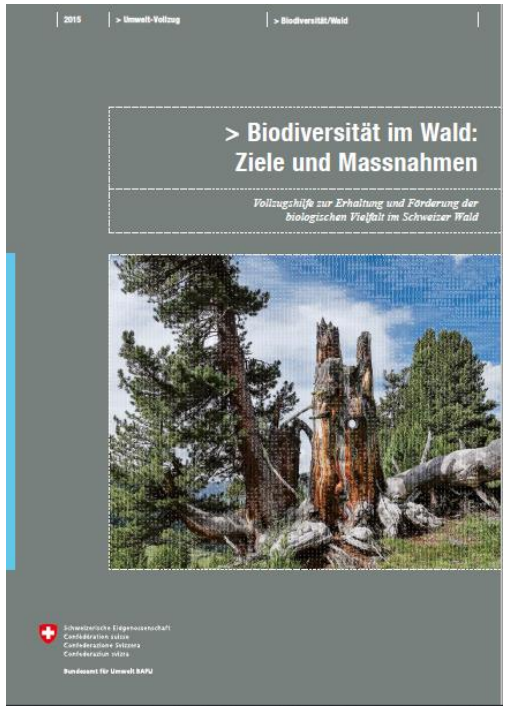
- **Insect data base (784’000 data sets, 8900 taxa, > 30 years)**

What we can offer? Data + expertice + experience

- **Species specialists for mammals, birds, insects, vascular plants, bryophytes, fungi, lichens**
- **Much experience with forest biodiversity monitoring (→ vegetation analysis, dead wood, environmental DNA)**
- **Relationship between forest structure and biodiversity (e.g. on-ground assessment and LiDAR)**
- **Adaptive genomics of trees**
- **Diversity and function of mycorrhiza**
- **Biodiversity modelling**

What we can offer / experience

- **Conservation biology and implementation in forests**



Summary

- **More biodiversity data or validated proxies across the environmental space of forests in Switzerland**