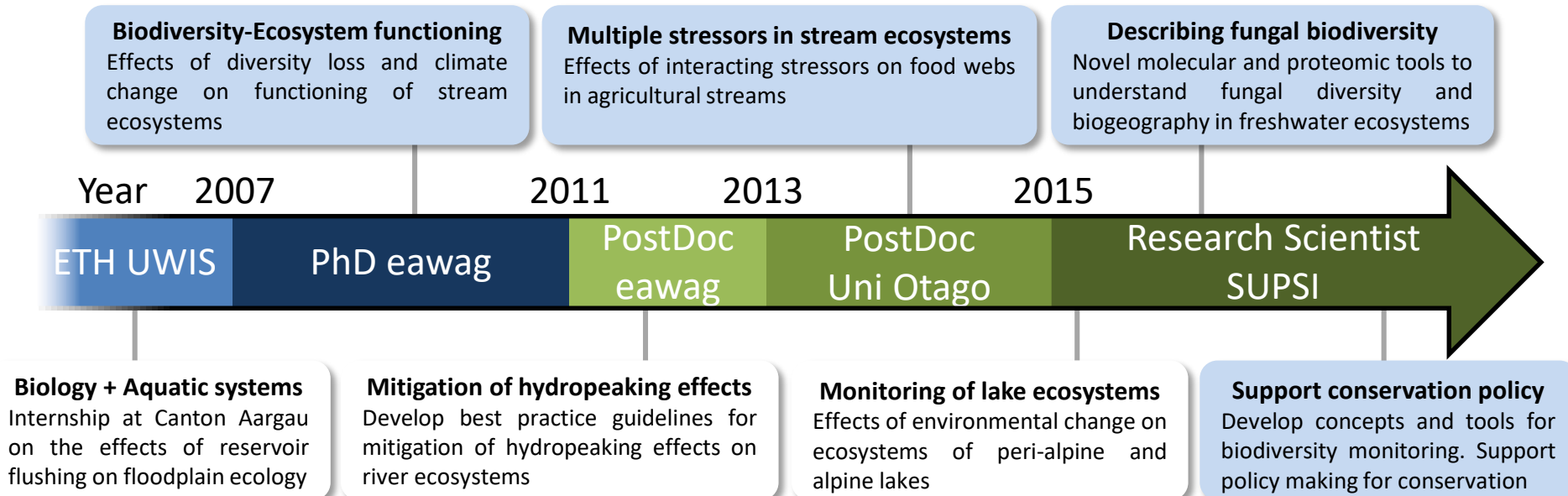


# My background

## applied freshwater ecology



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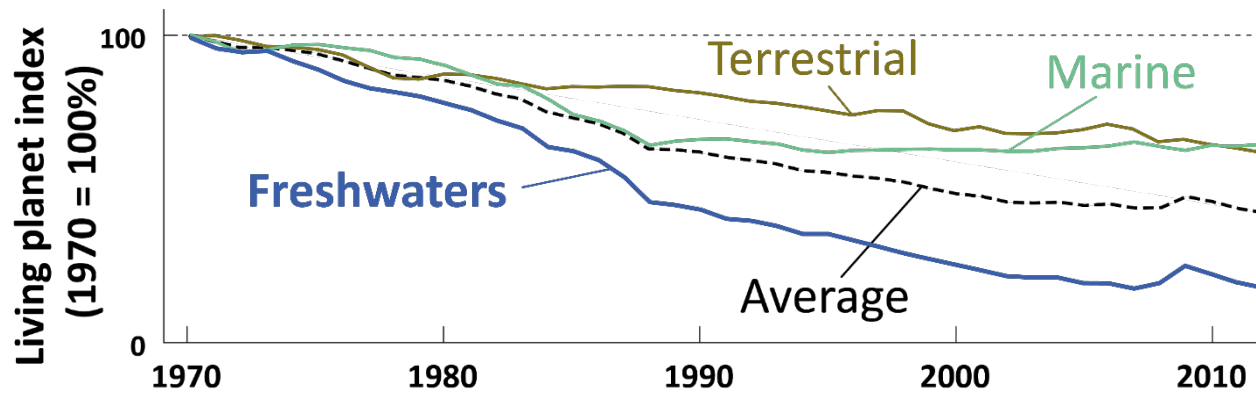
University of Applied Sciences and Arts  
of Southern Switzerland

**SUPSI**

Laboratory of Applied Microbiology

# My motivation

## The biodiversity crisis



The Living Planet Index is based on the **size of vertebrate populations** in different ecosystems compared to the year 1970

The decline is similarly severe for freshwater insects

(Sánchez-Bayo 2019, *Biol Cons*)

(modified from WWF Living Planet Report 2016)

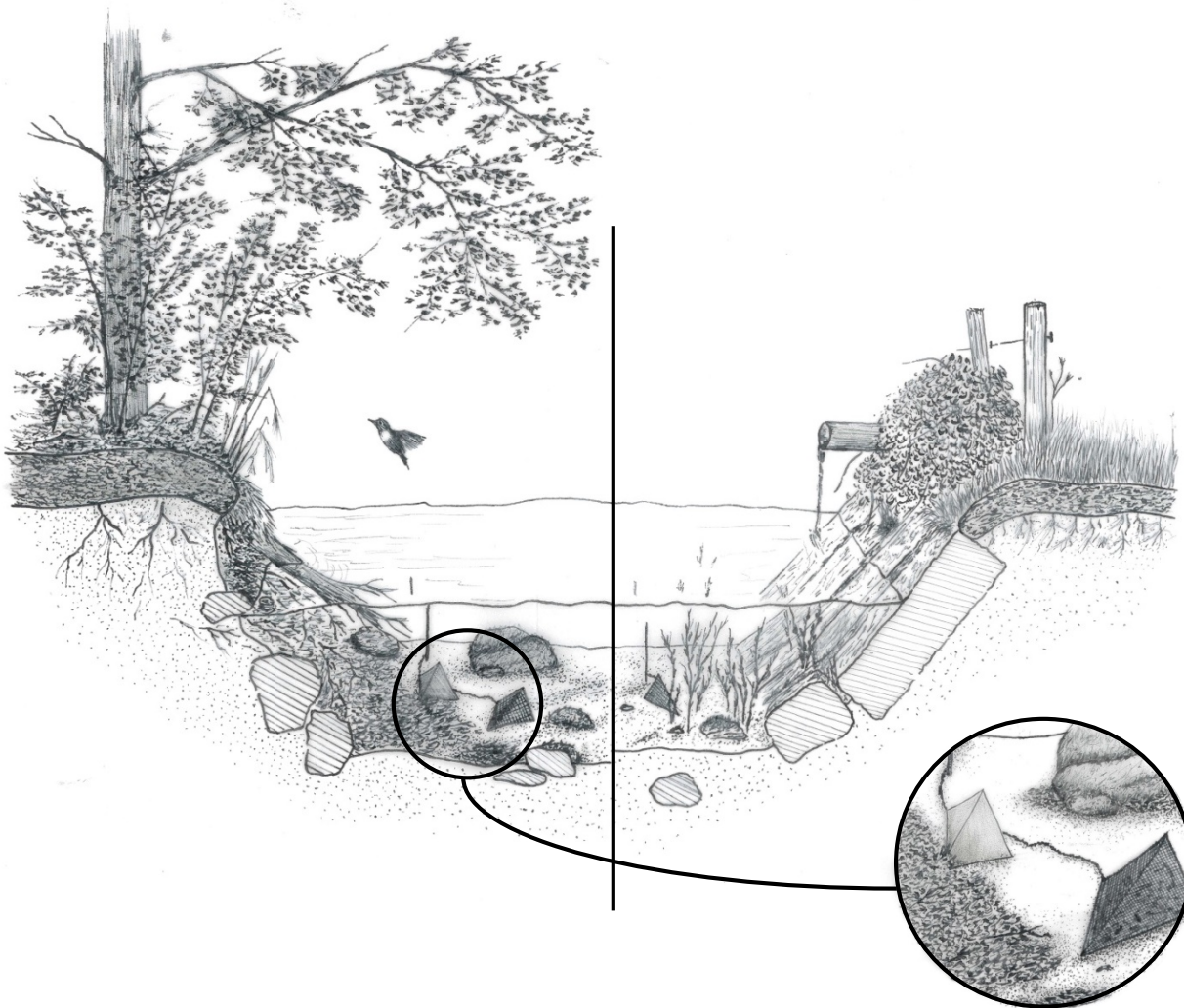


**Biodiversity has intrinsic value and unknown potential (especially for fungi) ...**

**..but it is also fundamental to the functioning of ecosystems and cycling of elements (carbon, macronutrients, micronutrients...)**

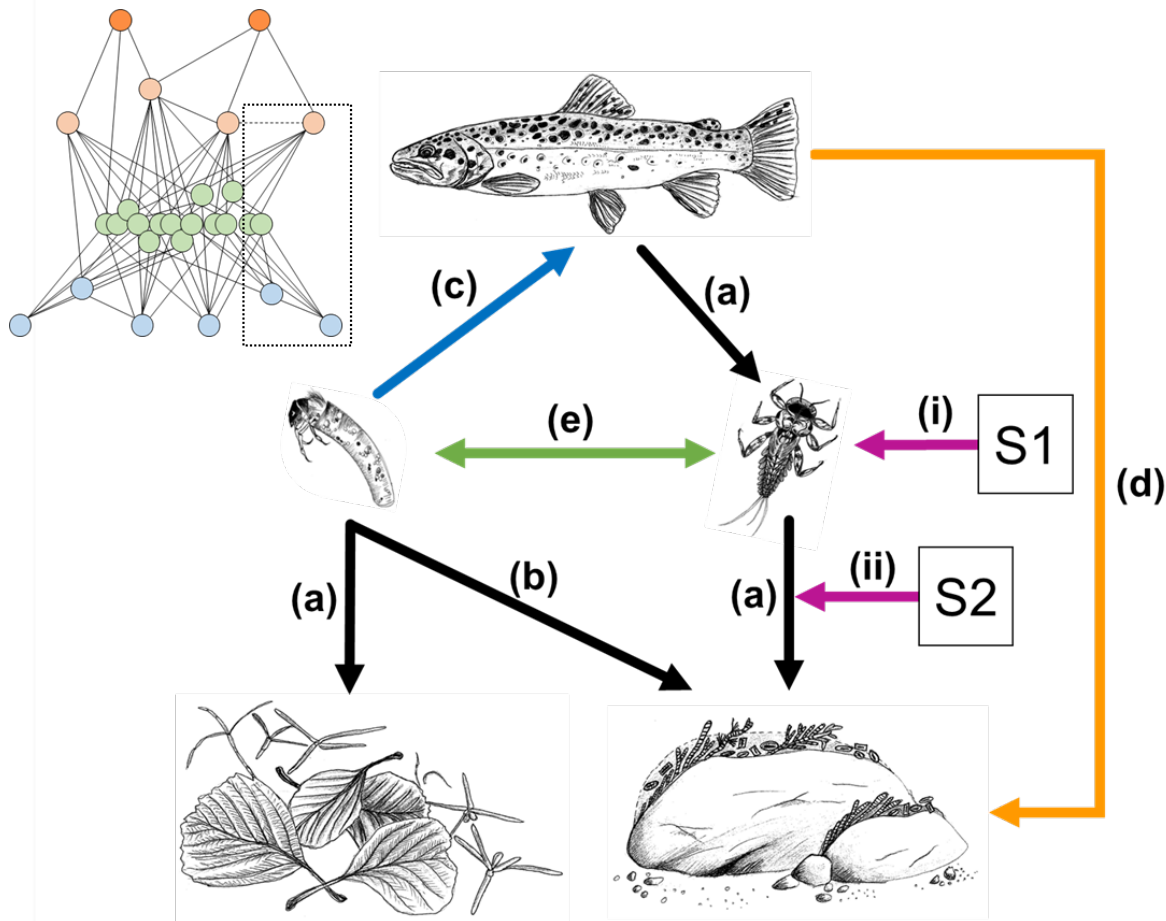
# Biodiversity-Ecosystem functioning *and* multiple stressors

**Field-experiments in Switzerland and Brazil to understand the effects of degradation of riparian vegetation on ecosystem processes in streams**



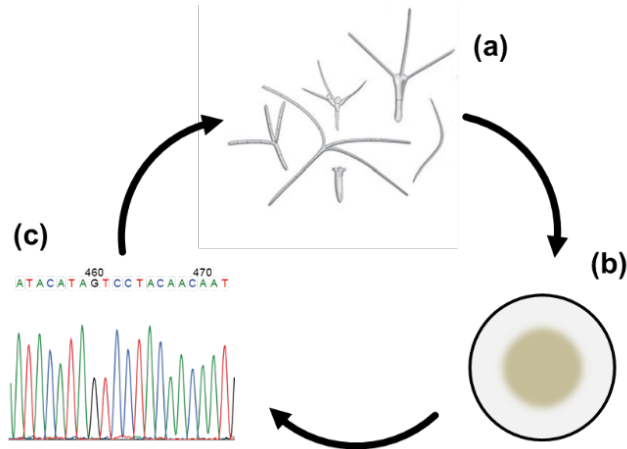
# Biodiversity-Ecosystem functioning *and* multiple stressors

## Multiple-stressor effects on stream food webs

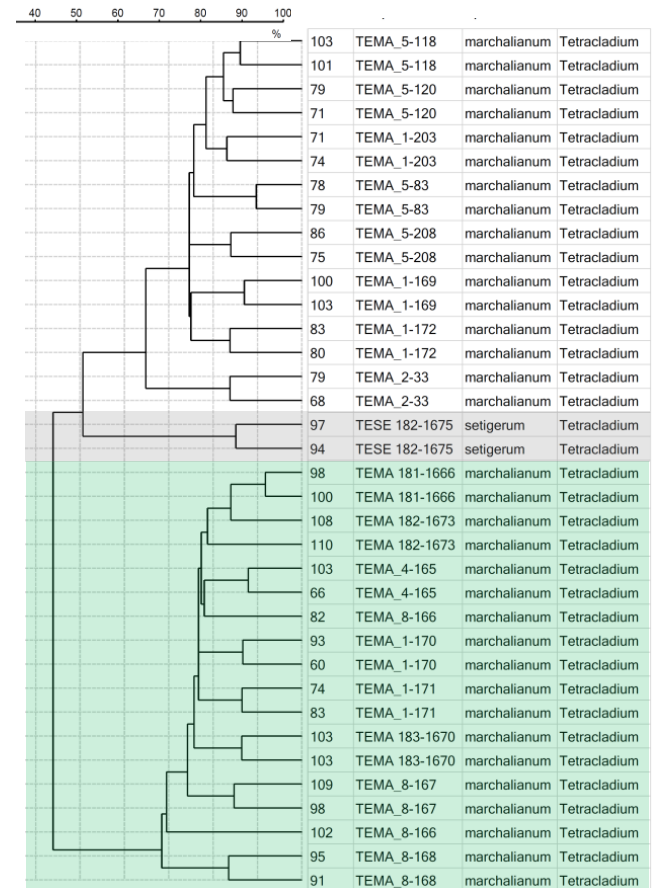


# Describing fungal biodiversity

We can isolate pure cultures from streams



## Intra-specific diversity of *Tetracladium marchalianum*



We are developing an open-access culture collection based on well described strains



# Support conservation policy



**FWBON is part of GEOBON. It supports the development of approaches and tools for monitoring of freshwater biodiversity across time and space.**

# Applied freshwater ecology

## Transdisciplinary interactions and collaborations

Integration of different backgrounds, priorities and expertise  
Definition and planning of realistic goals per project



**Practitioners & Stakeholders**  
(Farming, Fishing, Forestry,  
NGOs, etc.)

**Different disciplines**  
(e.g. aquatic ecology,  
Terrestrial ecology,  
Hydrology, Geomorphology)

**Biodiversity**  
**Ecosystem services**  
...

**Policy makers**  
(e.g. Cantonal and Federal  
Environmental offices)

**Different approaches**  
(e.g. In-situ measurements,  
remote sensing, modelling)