

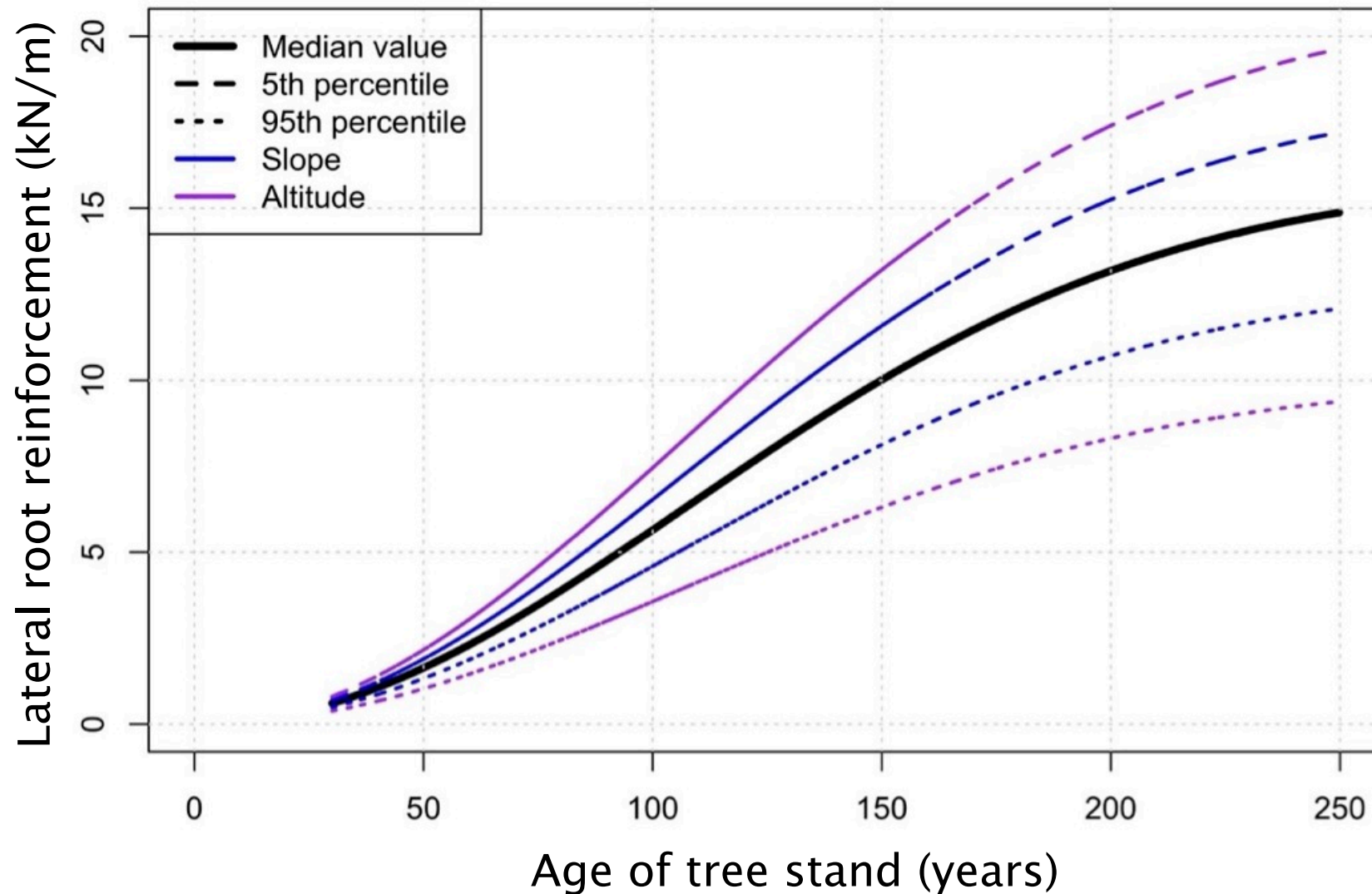


Influence of the temporal dynamic of root reinforcement on the disposition of shallow landslides

Research objectives

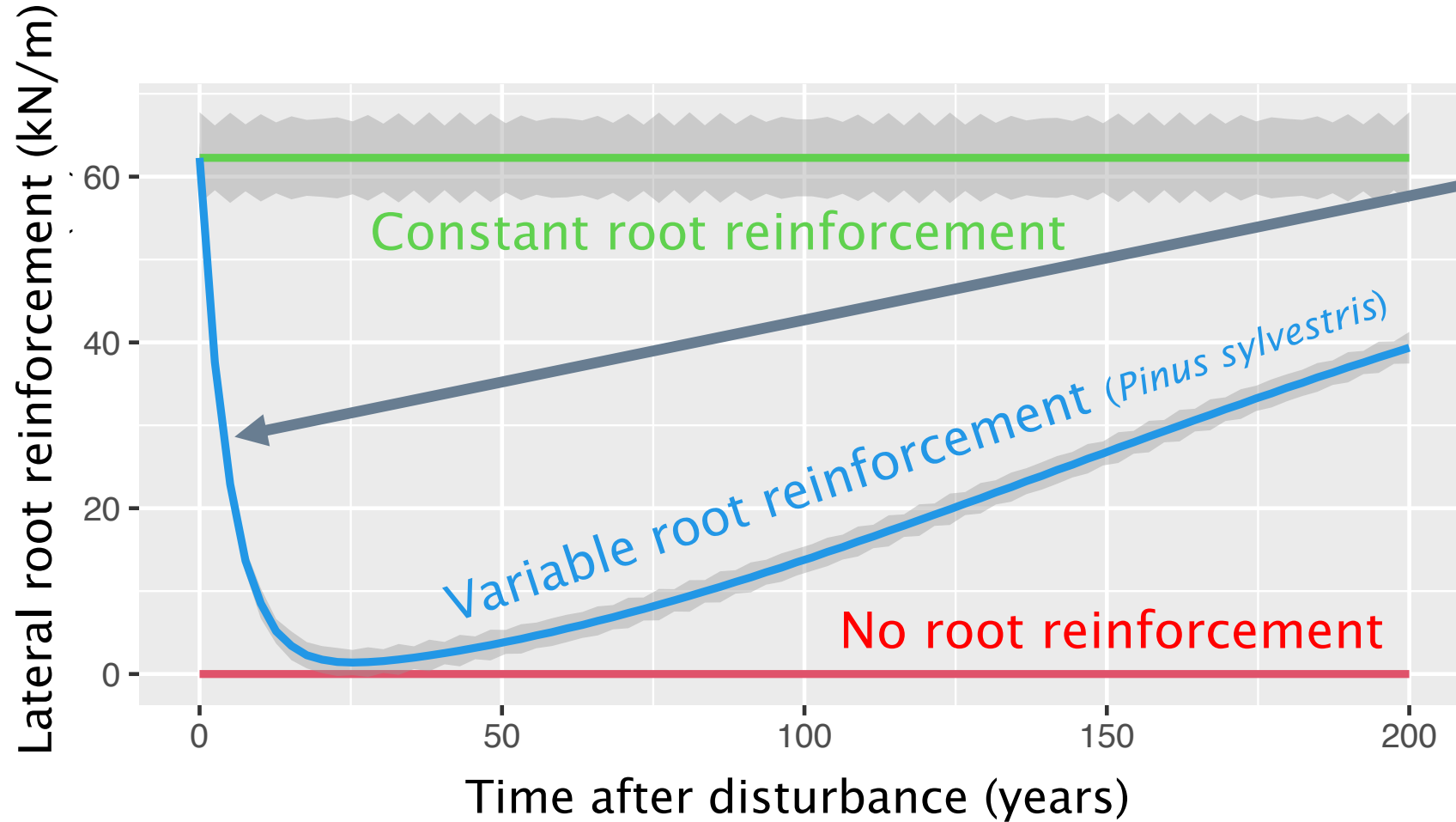
- ▶ How does root reinforcement change after stand replacing disturbances?
- ▶ How does the root reinforcement dynamic influence the disposition of shallow landslides?
- ▶ When is the recovery of root reinforcement sufficient to protect against the risks due to shallow landslides?

Dynamic of root reinforcement: recovery



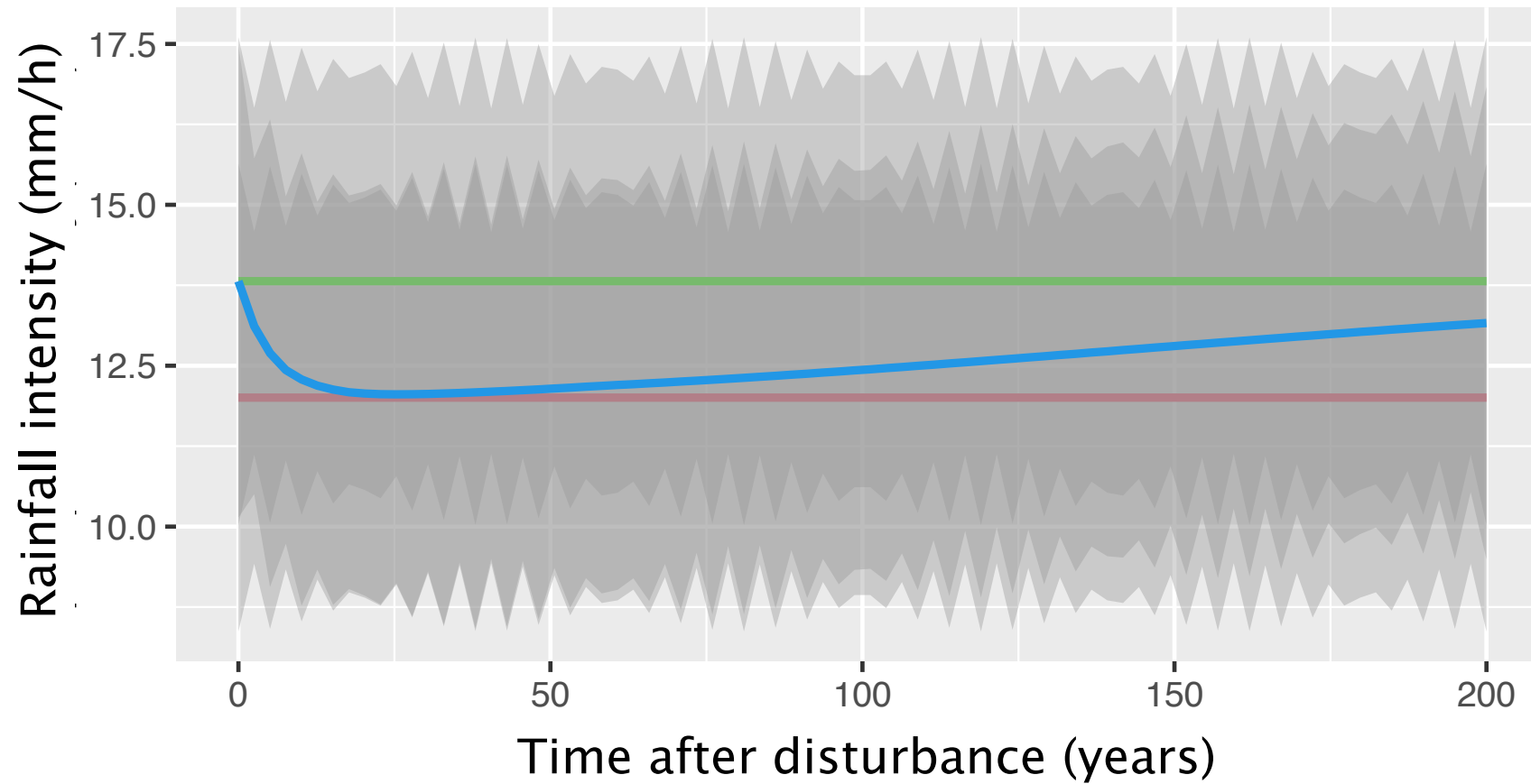
Flepp et al., 2021.
Temporal dynamics
of root reinforcement
in european spruce
forests.
Forests

Dynamic of root reinforcement: decay



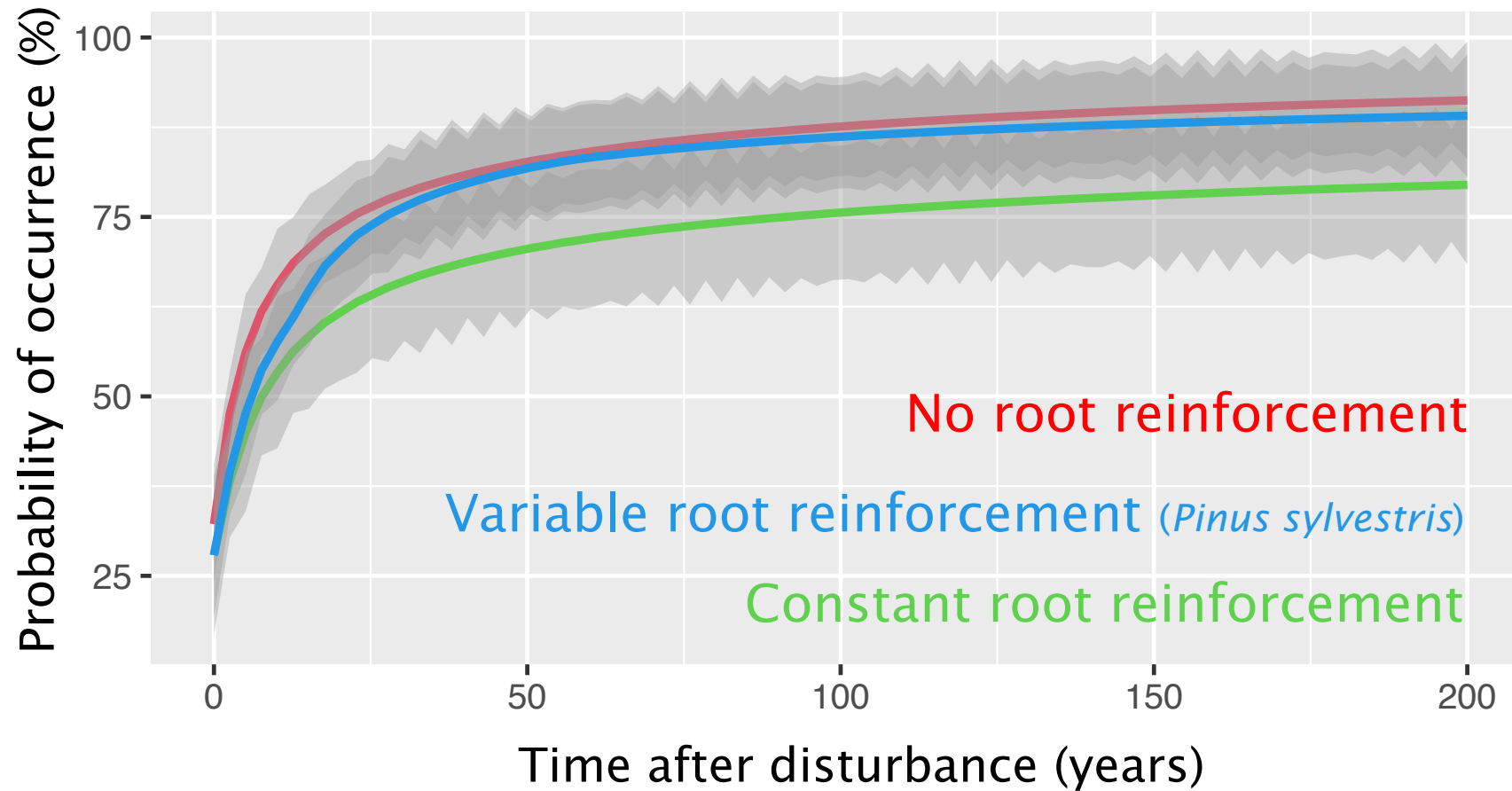
Vergani et al., 2016. Root reinforcement dynamics in subalpine spruce forests following timber harvest: A case study in Canton Schwyz, Switzerland.
Catena

Dynamic of shallow landslide disposition



The dynamic of root reinforcement influences the magnitude of rainfall needed to trigger shallow landslides

Cumulative probability of occurrence of shallow landslides

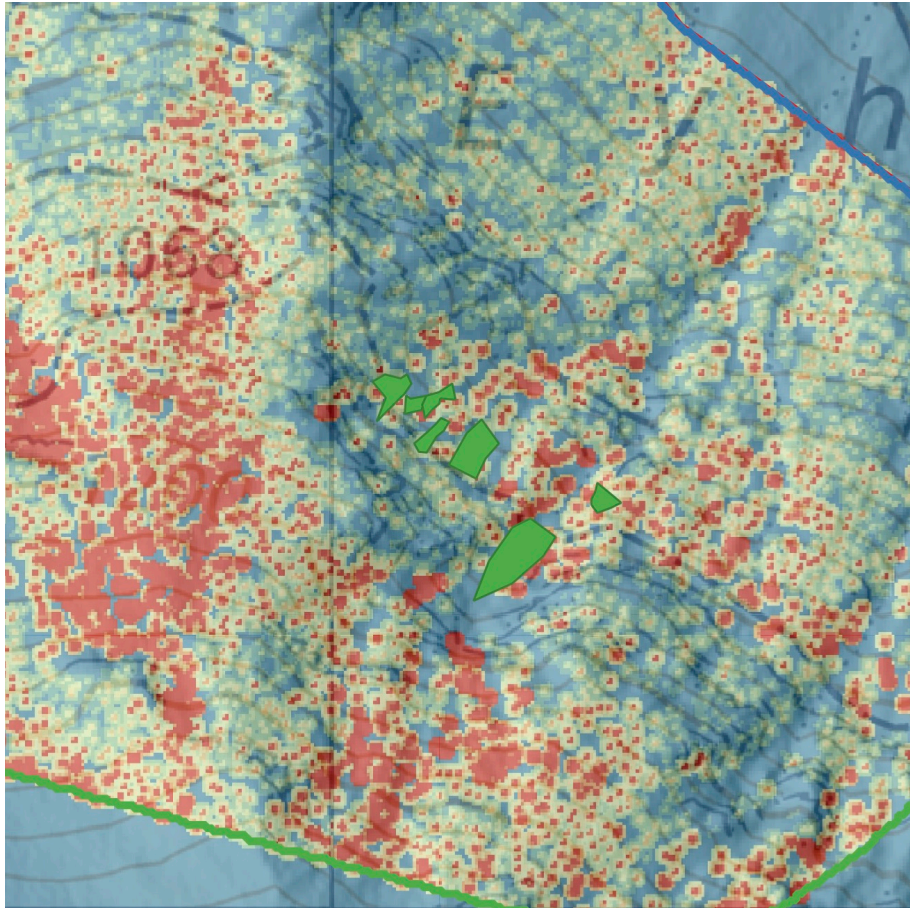


Depending on the set of disposition factors (e.g. slope inclination, soil thickness, etc..), the dynamic of root reinforcement has a **different impact on the probability of occurrence of shallow landslides**

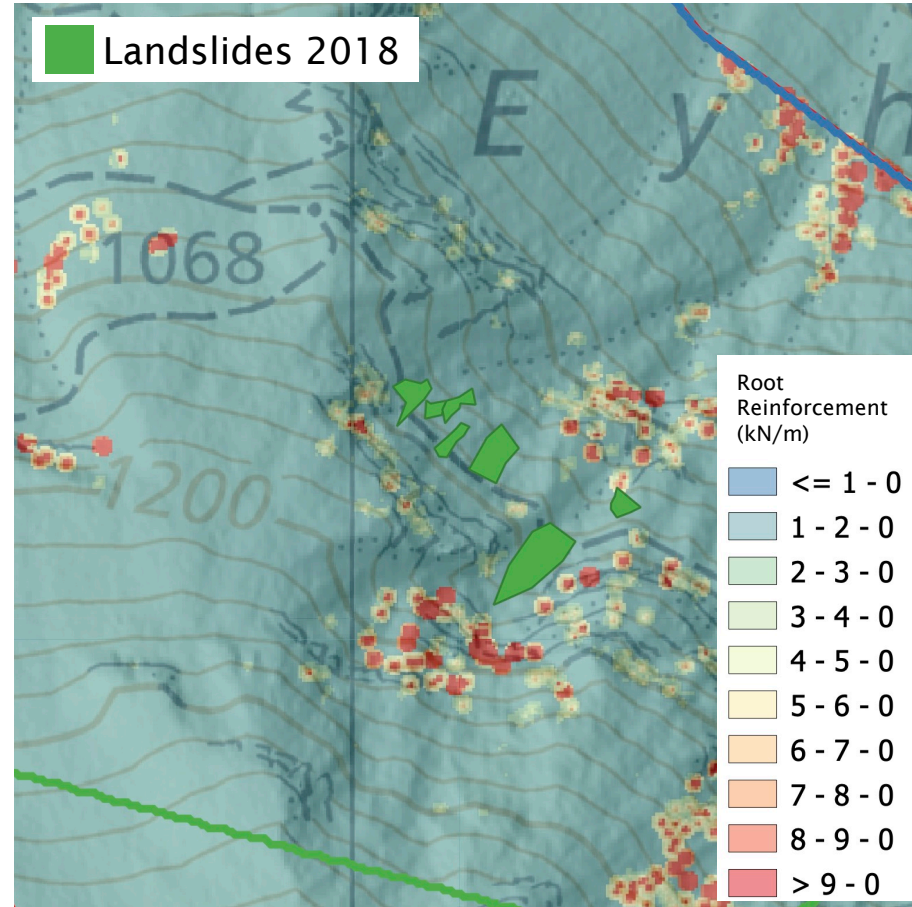
Example of application:

Planning of biological measures after forest fires (2011) in Visp (CH)

2005



2018



Reforestation are useful only in areas where the increase of root reinforcement guarantees a consistent reduction of the probability of occurrence of shallow landslides.



Fachhochschule
Haute école spécialisée bernoise
Bern University of Applied Sciences



Thanks for your attention!