Mountain spruce forests as hotspots for EXtremes: Optimal allocation of the limited resources of a forest enterprise

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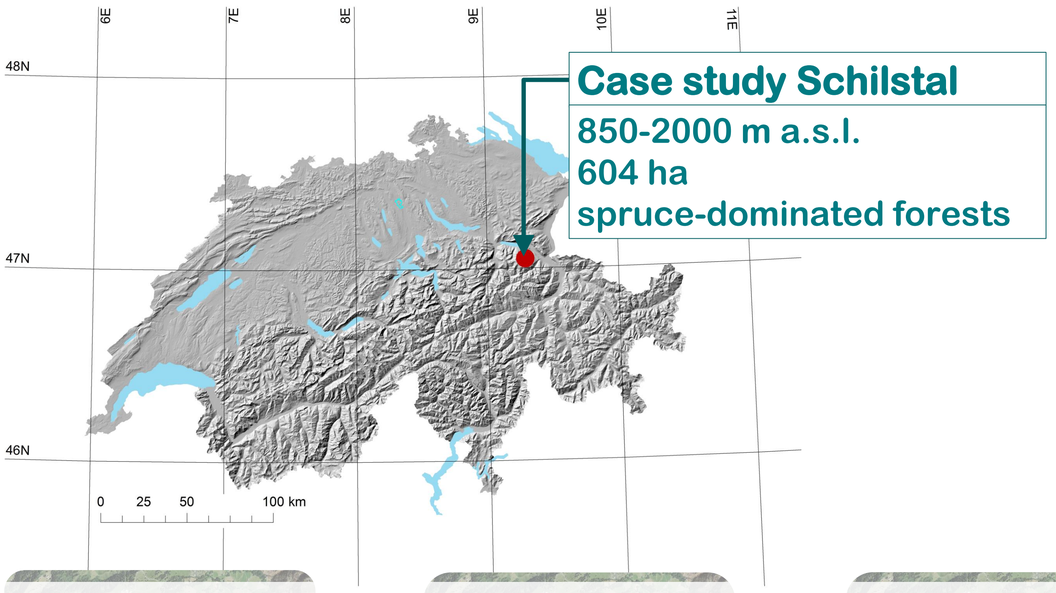
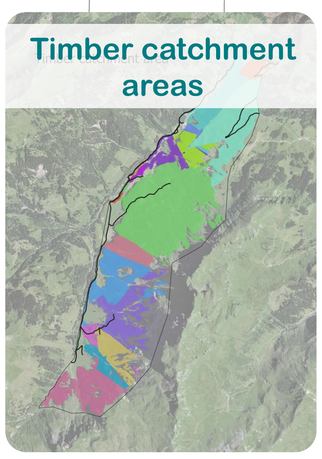
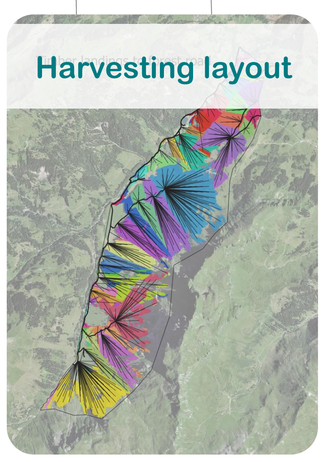
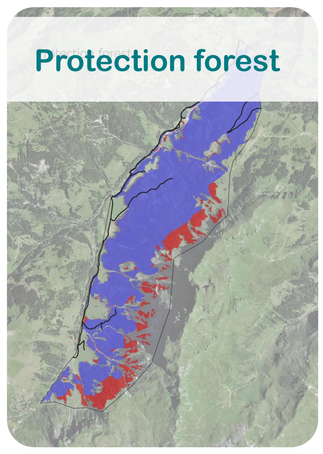


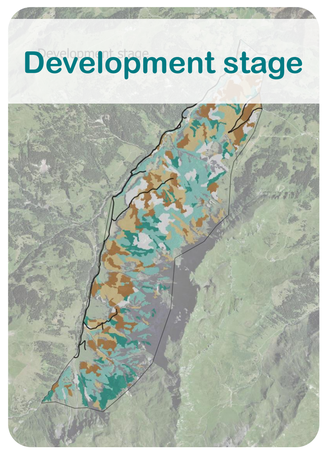
BACKGROUND

Spruce-dominated mountain forests are under risk of climate change-enhanced disturbances. Forest managers are challenged with the question how to allocate best their limited resources (operational capacity) for an efficient management. A spatial prioritization of management activities is urgently required.

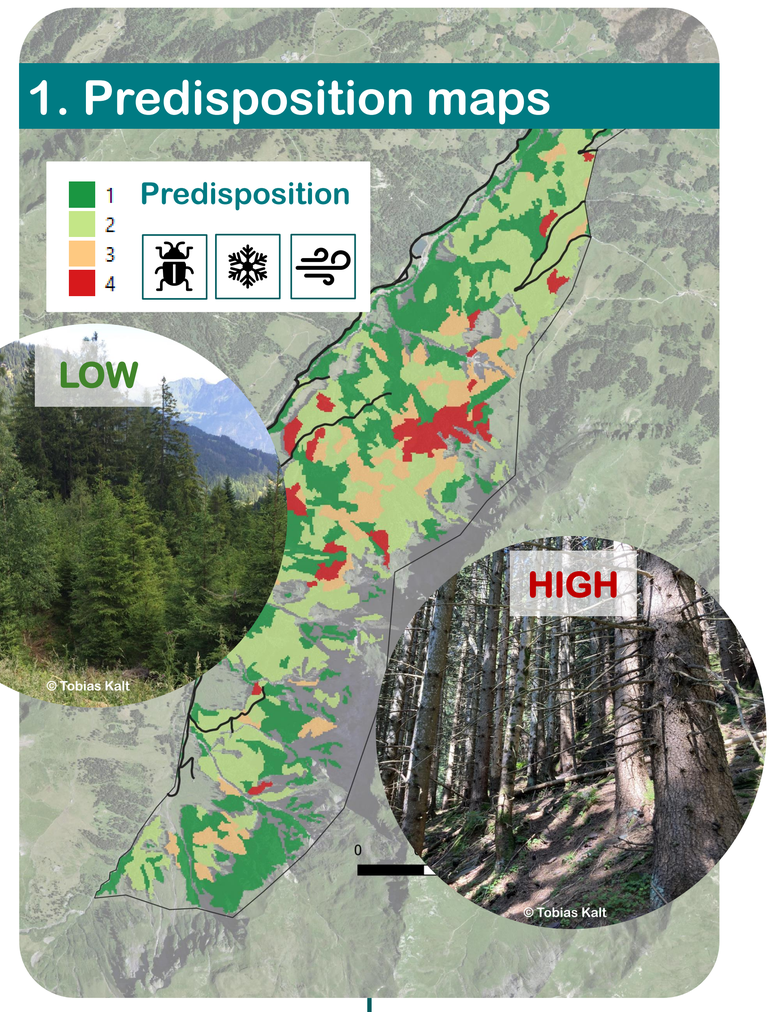






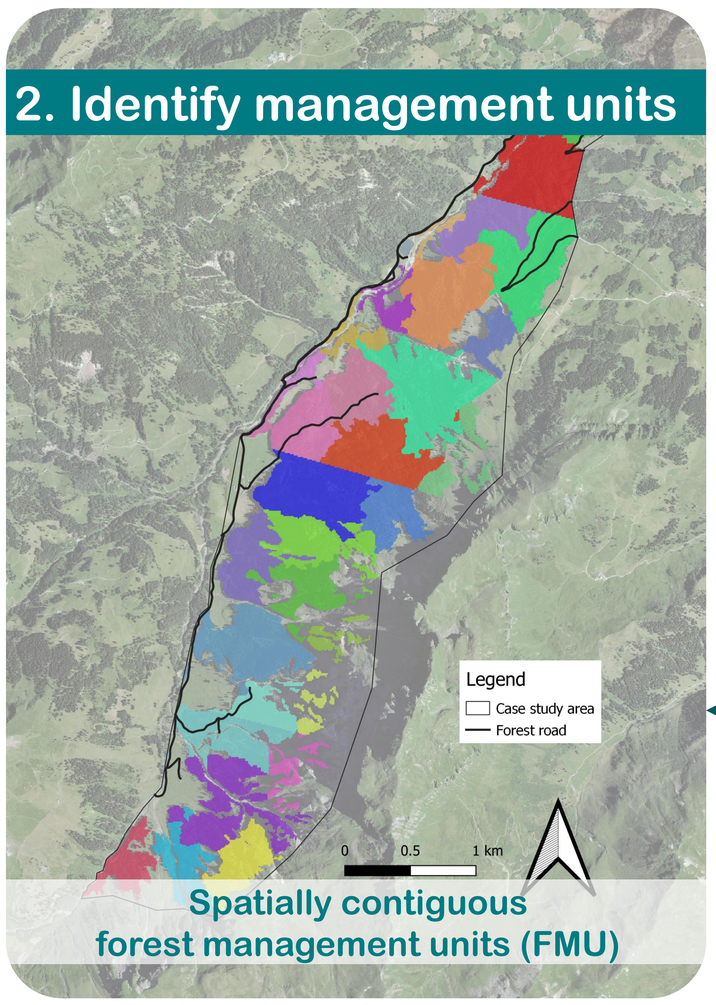


Various spatial information is combined



HIGHLIGHTS

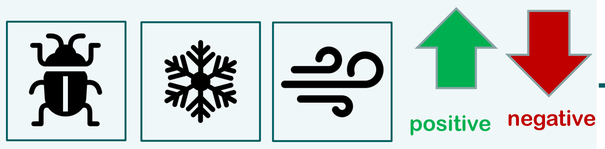
- A novel optimization approach is developed for subdividing the forest into contiguous **forest management units (FMU)**.
- **FMU** represent independent and self-contained planning and operational units.
- Management effects are assessed on forest **resistance and economic** viability
- This enables a **spatial prioritization** of management activities.



3. Management options

Effects of silvicultural strategies:

… on predisposition:



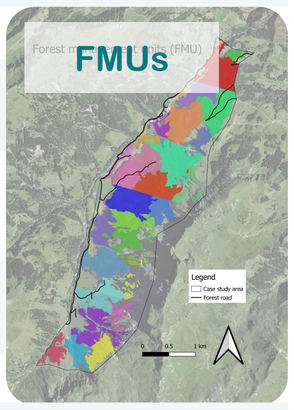
… on harvest properties:

- Volume
- Dimension
- Species

Assessment of …

Benefits

Harvesting costs



… for each FMU

4. Spatial prioritization

Support decision making. Should we target FMUs …

… with HIGH …

… or LOW predisposition …

… for the best cost-benefit ratio?

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WSL Forschungsprogramm 2021-2024 EXtremes

Reference:
Rath L., Schweier J., Griess V., Bont L. (2023)
Bewirtschaftungseinheiten für mehr Effizienz. SZF.