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TAILORED APPROACHES TO ANALYSE CUMULATIVE DROUGHT-RELATED CLIMATE RISKS AND ASSOCIATED IMPACT CASCADES IN SWITZERLAND

Raphael Neukom, Veruska Muccione, Nadine Salzmann, Christian Huggel
University of Fribourg / University of Zürich / SLF/WSL, Switzerland

Sabine Kleppek, Vincent Roth, Roland Hohmann
Swiss Federal Office for the Environment FOEN, Switzerland

raphael.neukom@unifr.ch

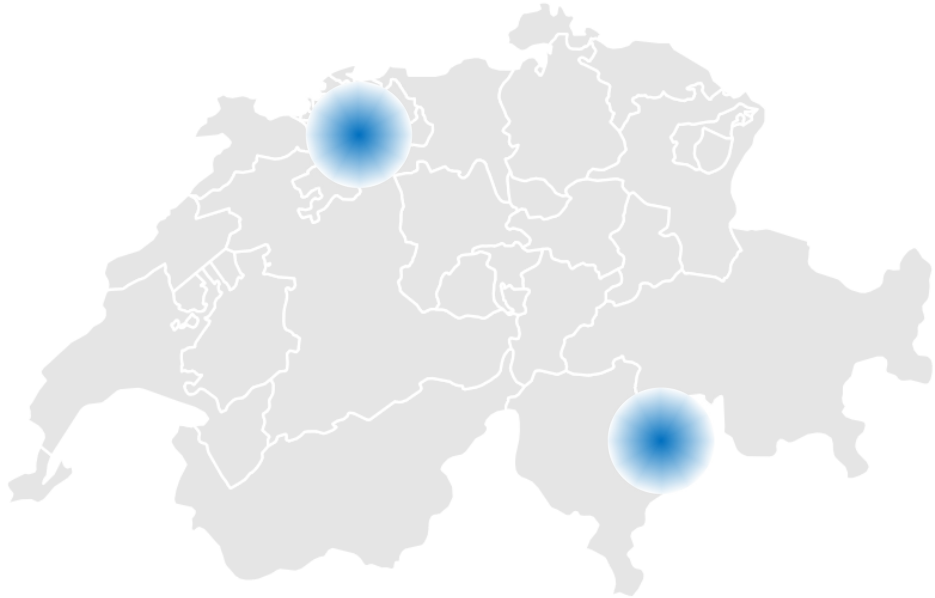
Develop methods and concepts to deal with compound and unexpected extreme events

Swiss national adaptation Strategy

PROJECT AIMS

Regional case studies:

- Force people to think the unthinkable
- Identify blind spots



1. Alpine area

- Protective forest in the Val Mesolcina
- Extended drought over two consecutive Seasons (winter, summer), storm in the year before

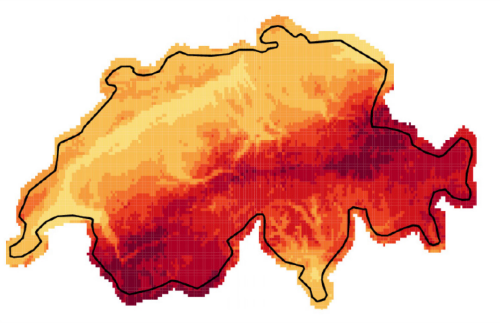
→ Can drought + bark beetle + fire risk lead to a loss of protective function?

2. Swiss Plateau

- Urban area (Basel)
- Multi-year heat and drought event(s)

→ Can consecutive extreme droughts lead to a collapse of interlinked urban systems (water, energy, transport)?

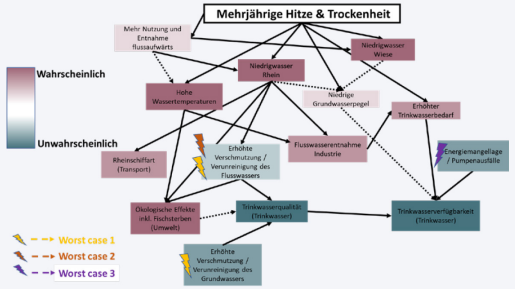
METHODOLOGICAL CONCEPT



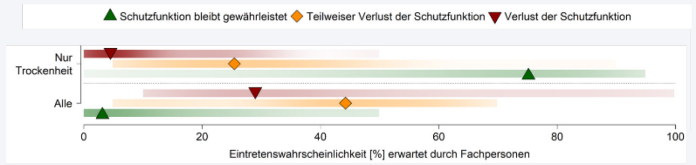
Climate scenarios (CH2018)

Define trigger event

Stakeholders
- Survey
- Interviews



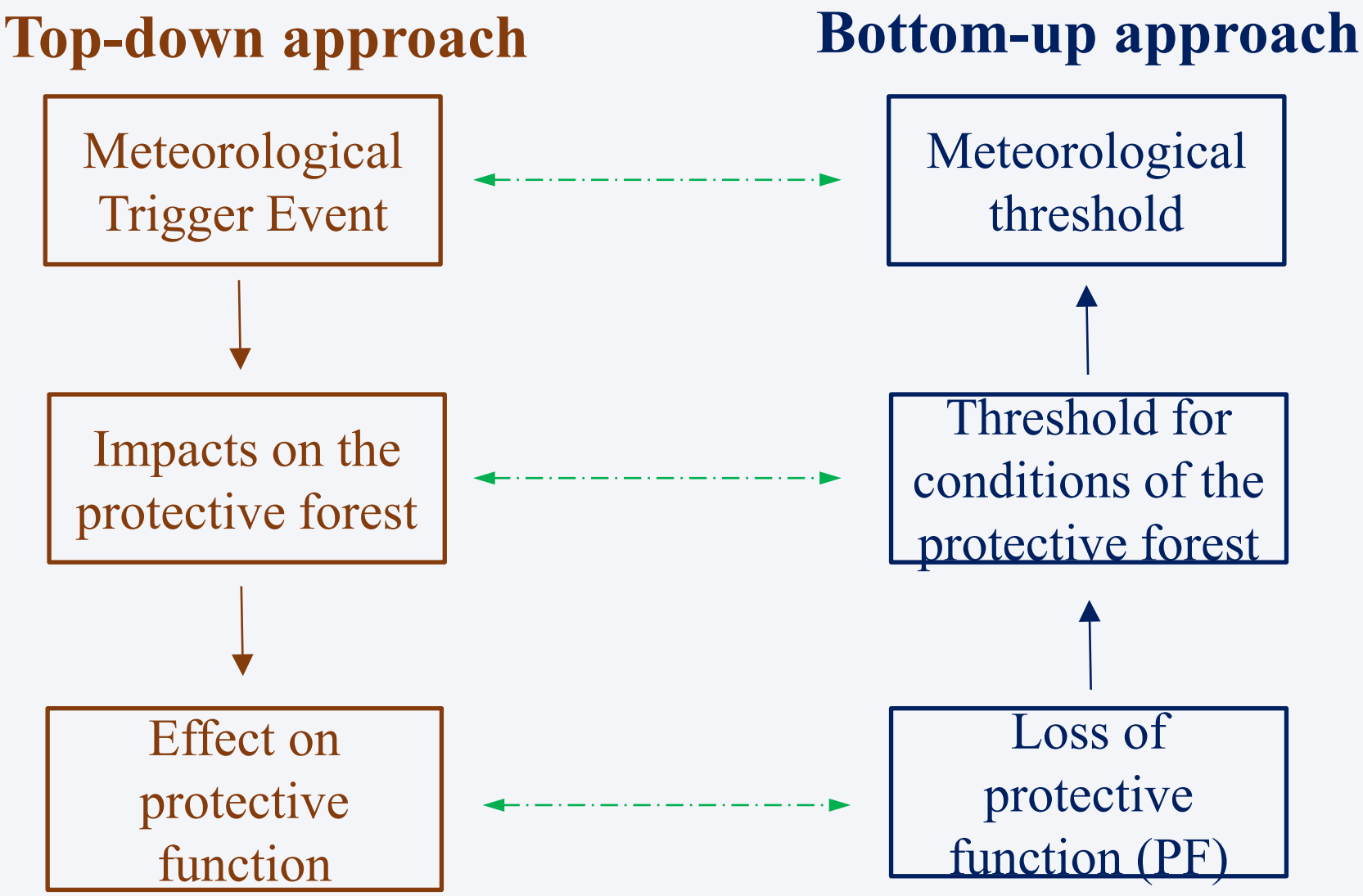
Analysis
- Probabilities
- Process flowcharts



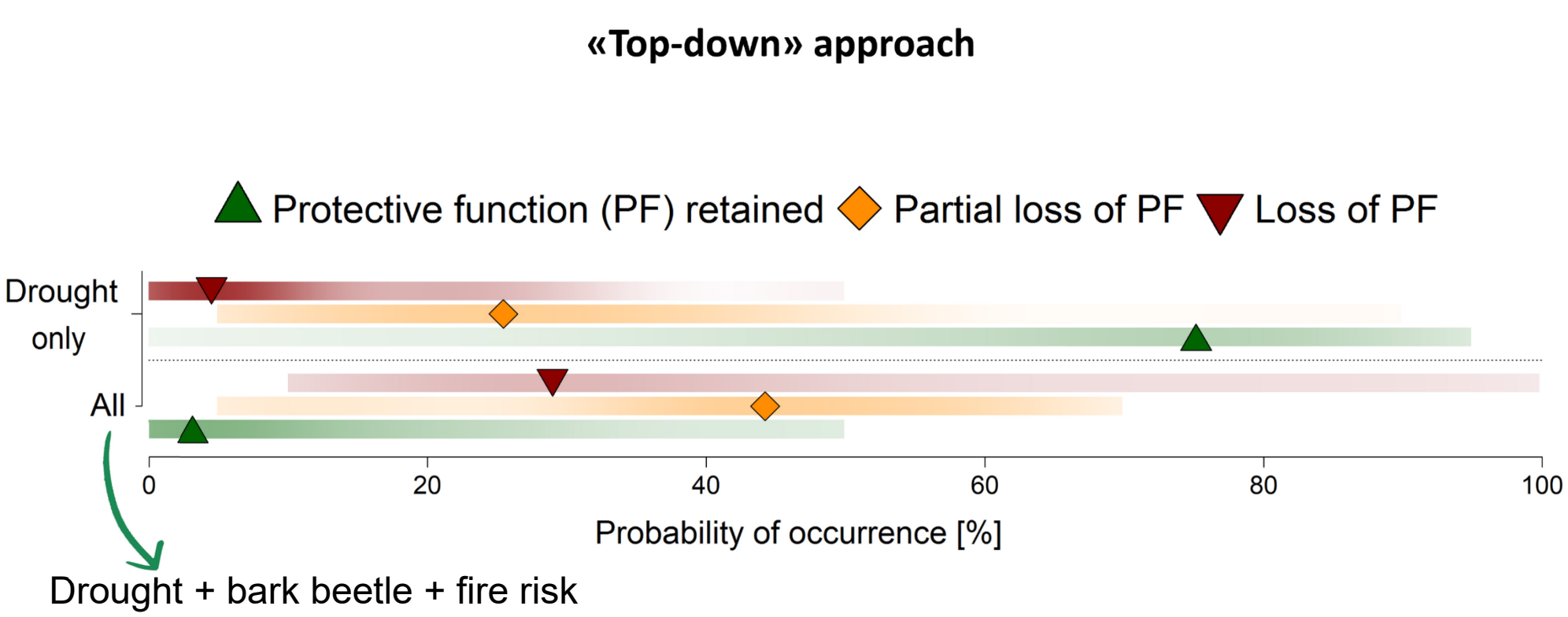
Upscale results

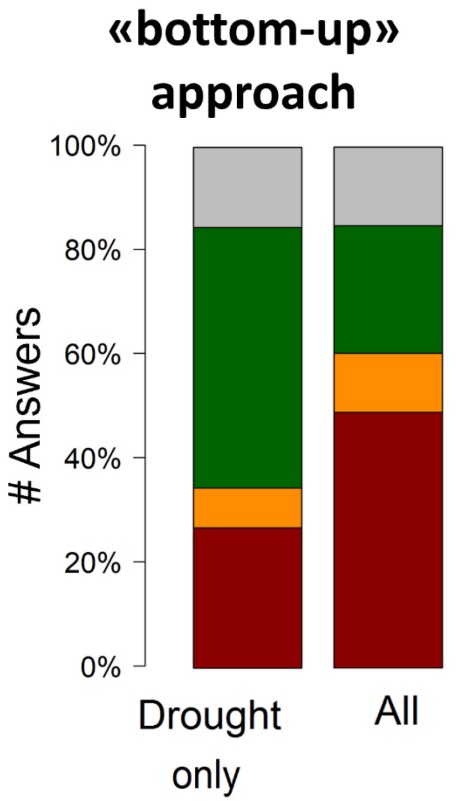
Recommendations for adaptation

SURVEY: TOP-DOWN AND BOTTOM-UP APPROACHES



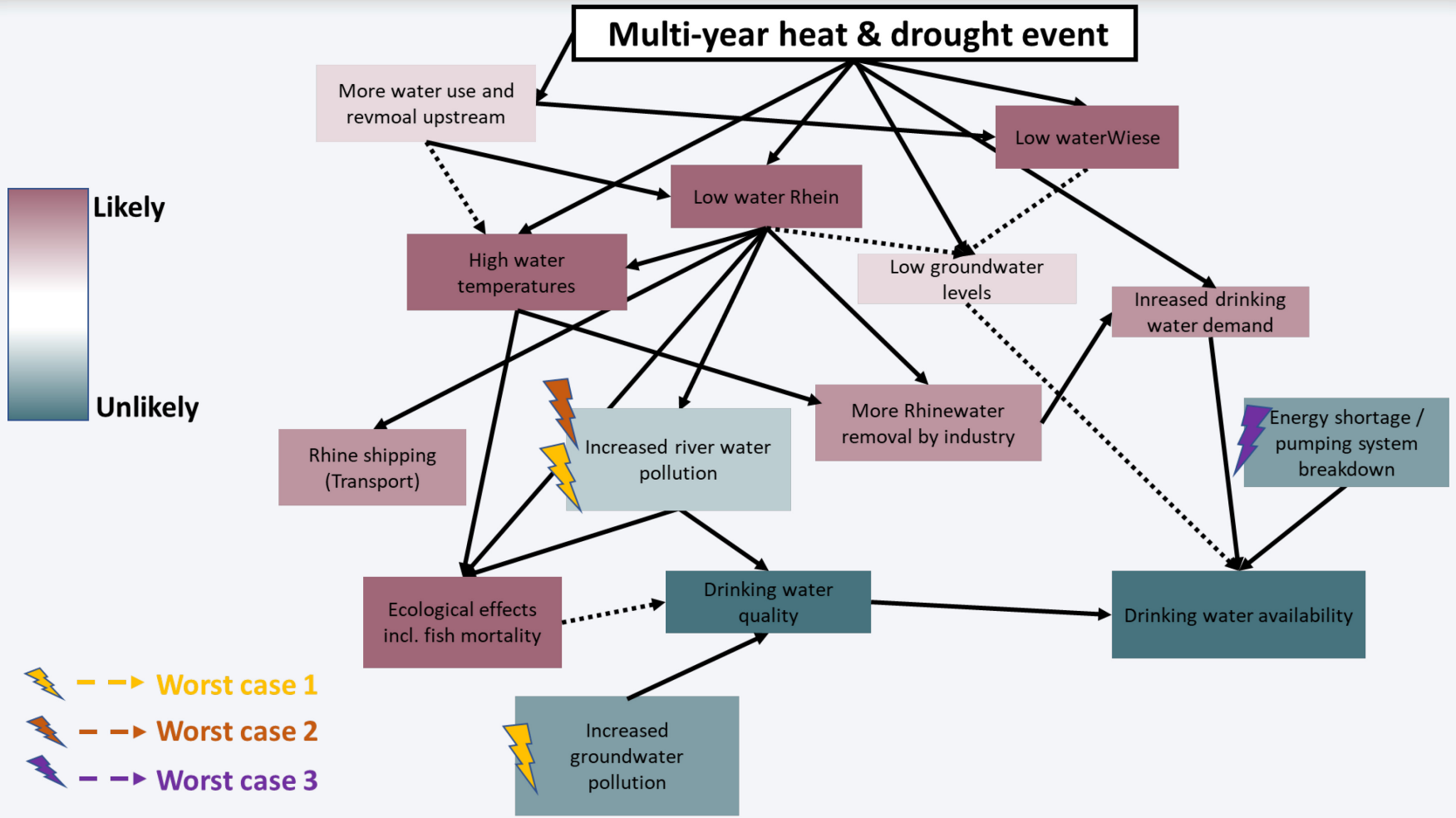
ALPINE CASE STUDY: KEY RESULTS





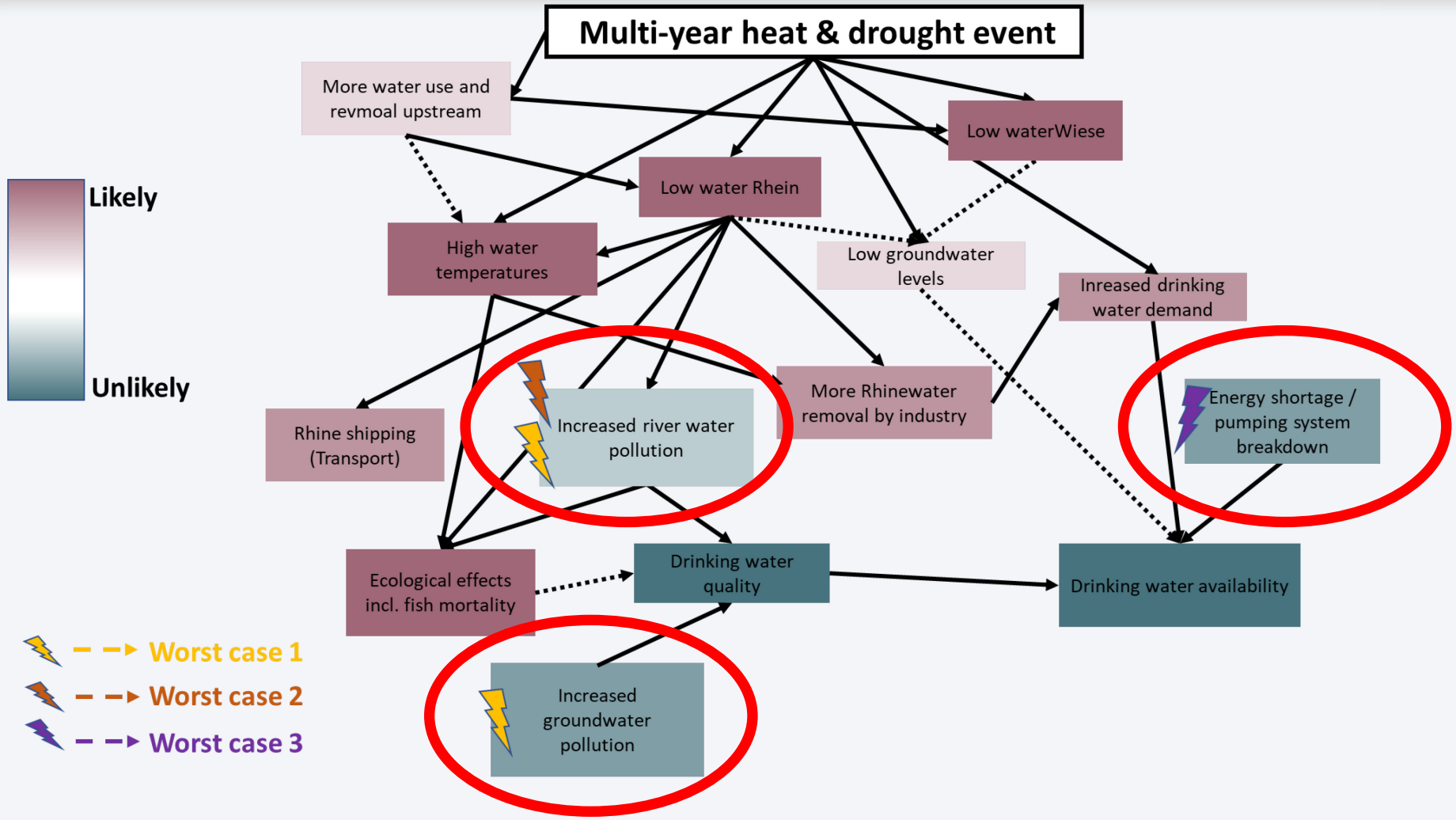
Compound-cascade reduces chance of «no harm» case to 5-20%

URBAN CASE STUDY: KEY RESULTS (DRINKING WATER SYSTEM)



Drinking water shortage only expected if drought compounds with problems in other systems (energy, environment)

URBAN CASE STUDY: RECOMMENDATIONS FOR ADAPTATION



Prepare for problems during peak demand (pollution, energy shortage)

SUMMARY & CONCLUSIONS

Two-way elicitation helps to do «blind spot thinking» in a structured way

1. **Characterize process chains**
2. **Survey to elicit numbers and probabilities**

and / or

Interviews to characterize system interconnections and blind spots

Depends on system complexity

Combined approach (top-down plus bottom-up) helps to identify robust results

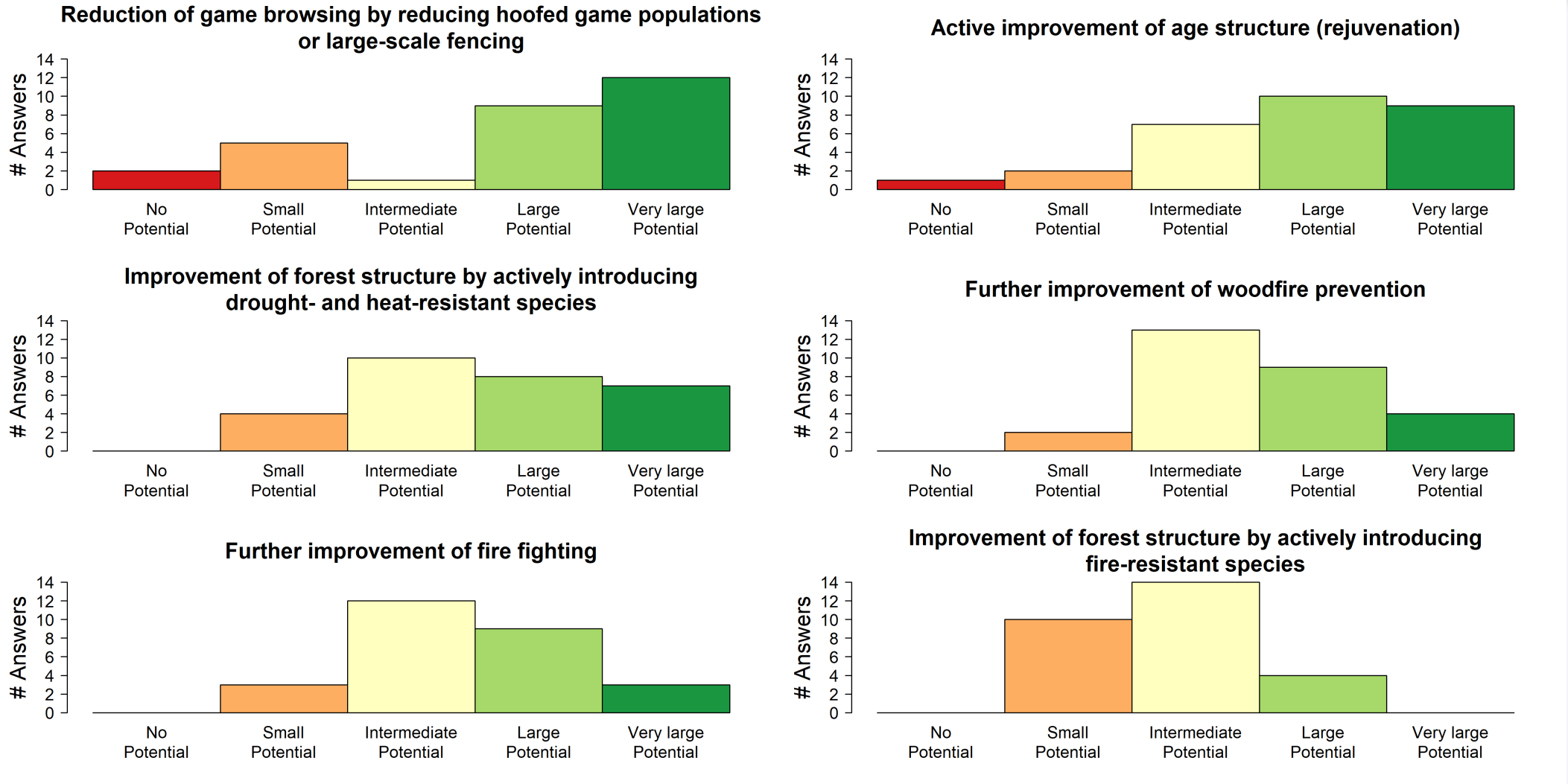
Helpful for spotting extreme opinions and tail of distributions

THANK YOU

Luca Plozza

Myswitzerland.com

ALPINE CASE STUDY: RECOMMENDATIONS FOR ADAPTATION



General “forest health” is more important than specific drought / fire actions