11 Research Unit Community Ecology

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Position of the RU / Programme / Centre / Initiative at WSL with respect to Swiss AIM and its starting vision.

We consider NFI a very good monitoring programme providing fundamental information and data on Swiss forest conditions and evolutionary trends.

We think there is a need to work on two different levels:

- Enhancing the traditional NFI survey by adding / improving the precision of selected single parameters, and providing georeferenced information of annual stress factors at the plot level.
- Defining ad-hoc subnets (on a project basis) to deepen our understanding of the effects of particular events on the forest (e.g. drought 2018).

Key scientific questions: current and foreseen for the medium (5–10 yrs) and long term (>10–50 yrs).

- Evolution of key forest parameters related to a forest service (e.g. protection forest).
- Evolution of specific iconic tree species that face problems under the present climatic and environmental conditions (e.g. the chestnut tree in the southern Alps).
- Impact of specific abiotic stressors (drought, heat and VPD).
- Forest regeneration and future forest dynamics.

Scales of interest (spatial, temporal, ecological, environmental) and/or statistical inference.

- Single Swiss regions, including the mountain regions as a whole.
- Specific (at least locally) dominant tree species.
- Specific forest types (e.g. protection forests).

Statistical requirements (if any) in terms of precision of status and change estimates.

No particular needs.

Related data needs: attributes to be measured, plots, instruments, trees, destructive sampling.

At the plot or interpretation area level:

- Parameters related to protection against natural hazards (mostly at the stand level, i.e., 50 × 50 m):
    - Additional information on terrain roughness and deadwood (relevant for rockfall and snow movements (e.g. spatial arrangement, dimension, decomposition stage of logs and root plates).
    - Further development of remote sensing methods and related field verifications generally have a high potential to improve the assessment and quantification of protection effects against natural hazards.
    - Nice to have: additional soil data related to soil stability and shallow landslides (geotechnical soil classification).

- Re-assessing red wood ant species ID in NFI6 (in NFI4 species ID & nest counts; in NFI5 only nest counts)

At the tree level:

- We strongly suggest to (re)include the following parameters:
    - Origin of the tree (gamic or agamic).
    - Social position (dominant, codominant, dominated, suppressed), which cannot be completely substituted by the position in the stand layer.
    - Next neighbouring tree for sample tree at the plot margin (distance from focal tree, height, DBH, species).

Support and resource availability.

We think additional resources should be targeted.
We are willing to cooperate in the acquisition of additional funds on common projects, as well as in exchanging with ongoing work, for instance the remote sensing based assessment of forest structure and protection functions, which may be helpful for the further development of Swiss AIM.