



FOREST FIRES IN THE ALPS

State of knowledge, future challenges and options for an integrated fire management

Why are forest fires relevant?

Forest fires in the Alpine region are responsible for damages and costs of many millions of euros each year. Recent examples have shown a high vulnerability of protection forests (Figure 1). The expected increasing intensity of drought periods, foehn periods and heat waves together with the increasing hazard resulting from rural abandonment and more recreational activities will probably lead to more forest fires (Figure 2).



Figure 1: Large forest fire in the protection forest above Absam, Tyrol, Austria, in March 2014 | © FF Absam

The protection function of mountain forests will be at higher risk and the problematic nature of the Wildland-Urban-Interface (WUI) will become more important. Current efforts to manage forest fires are unable to prevent the occurrence of extreme forest fire events and differ among the countries in the Alpine region (Table 1). The implementation of an integrated forest fire management policy is highly needed.

Table 1: Current situation of fire prevention activities.

	Austria	France	Germany	Switzerland	Slovenia	Italy
Prevention activities						
Danger assessment index	FWI	FWI	WBI	FWI (adapted), Fire Niche, Fireless	FWI (adapted)	FWI and adapted FWI (RISICO)
Differentiation between ignition and propagation danger assessment	No	Yes	No	No	Yes	No
Legal fire bans used	Yes	Yes	Yes	Yes	Yes	Yes
Fire prevention measures included in forest management plans	No	Yes	Partly	Partly	Yes	Yes
Prescribed burning executed	No	Yes	No	No	No	Yes / partly

Definition of a forest fire in the Alpine context:
Uncontrolled fire in a forested area (including clearcuttings, young forest, coppice and vegetation at the alpine forest border), independent of fire type (smoldering fire, surface fire, crown fire), size and cause (e.g. also burning tree from lightning).

Key options for an integrated forest fire management

1. Enhance or establish knowledge transfer and a multi-stakeholder approach on a transnational and collaborative basis, including widespread exchange activities.
2. Improve the training of fire brigades and specialized action forces, including scenarios with several large fires at the same time in difficult terrain and with the participation of helicopters.
3. Minimize the risks of natural hazards after forest fires and improve post-fire restoration activities.
4. Address and minimize negative effects of rural abandonment and recreational activities.
5. Adapt forest management, including prescribed burning, and establish protection measures at the WUI.
6. Improve education and awareness-raising activities for stakeholders and the population.

Dense network of volunteer fire brigades

Country: Austria
Scale: Nationwide

Problem description

A long response time for the forest fire fighters to start with the initial attack on the a forest fire is crucial especially in remote Alpine areas. Bad accessibility of these areas and a low number of fire fighters can lead to larger and uncontrolled fires, which are hard to be suppressed during the operations.



Solution

- Establishing a dense network of volunteer fire brigades under the control of each municipality.
- First efforts were undertaken before the year 1900. Today around 340.000 members in 4500 volunteer fire brigades cover an area of 84.000 km².

Best practices

- Mean time to start with the initial attack on forest fires is reported to be 20 minutes.
- Voluntary and well trained action forces are available 24/7
- Every 25th person in Austria is member of a volunteer fire brigade, which allows to rise awareness on forest fire issues.
- Costs for equipment and training are covered by joint funds from municipalities, federal provinces and the federal government.



Figure 4: Participants at the forest fire workshop in Vienna, June 2019.

The study

In the context of the EUSALP - EU Strategy for the Alpine Region, the Action Group 8 is aiming to improve risk management and adapting governance mechanisms by enhancing and valorizing existing cooperation structures. The identification of good practice solutions in tackling climate change is one of the major activities.

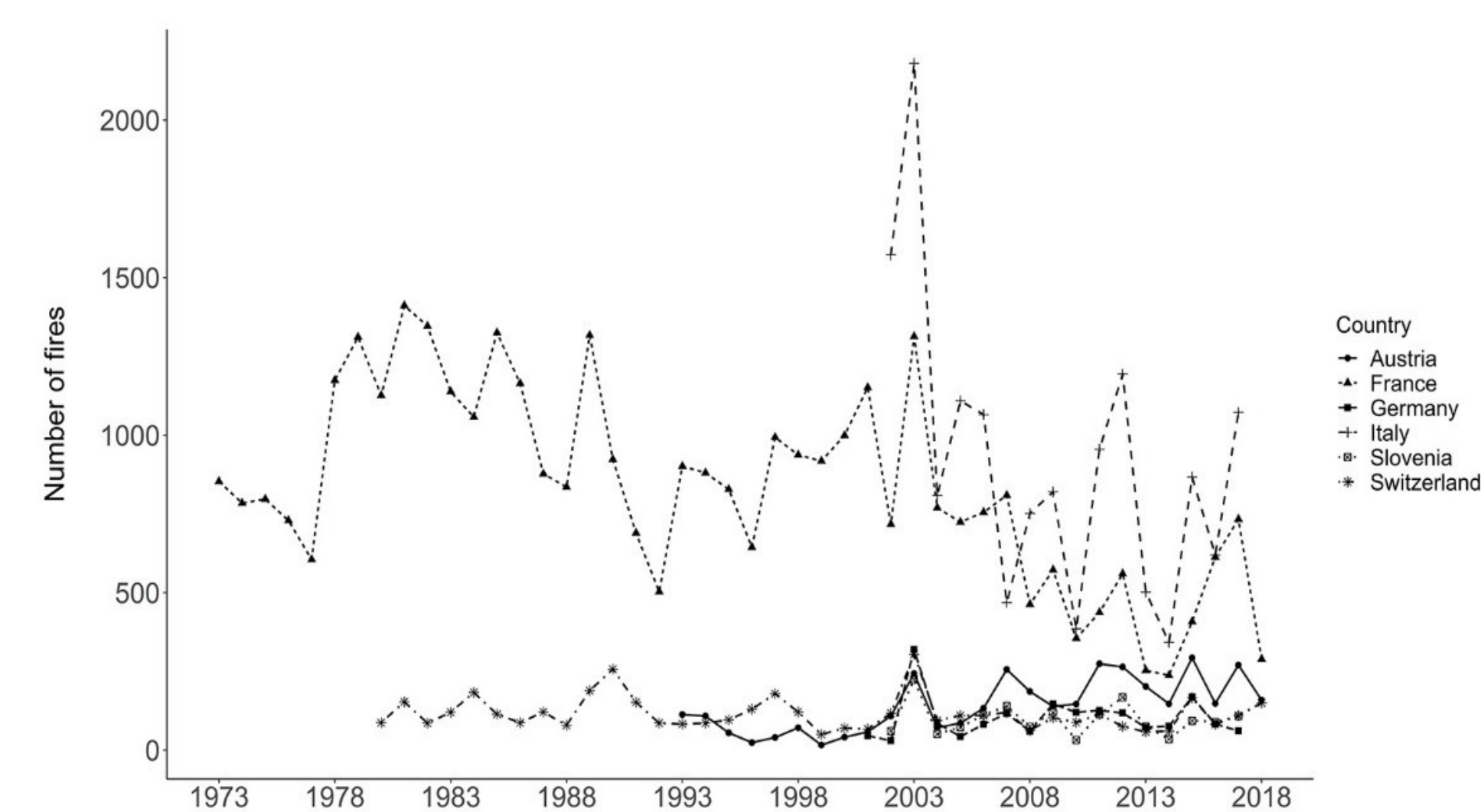


Figure 2: Number of forest fires per year and country.

The current study on forest fires in the Alps is a collaboration between the University of Natural Resources and Life Sciences (BOKU) Vienna and several leading fire experts in the European Alps. After establishing an expert panel, a multi-lingual online survey was designed and implemented. Scientists, authorities and members of action forces of all EUSALP member states (Austria, Germany, Slovenia, Italy, France, Liechtenstein) contributed to the questionnaire. The processes, legal bases and major challenges in forest fire prevention, suppression and post-fire management in the Alpine region were identified.

In June 2019 a forest fire workshop was held in Vienna in order to identify success stories on fire management (Figure 3). The discussions helped to draft a White paper for policy makers. The final version of the paper will be promoted at the end of 2019 focusing on the key elements of integrated fire management (Figure 5).

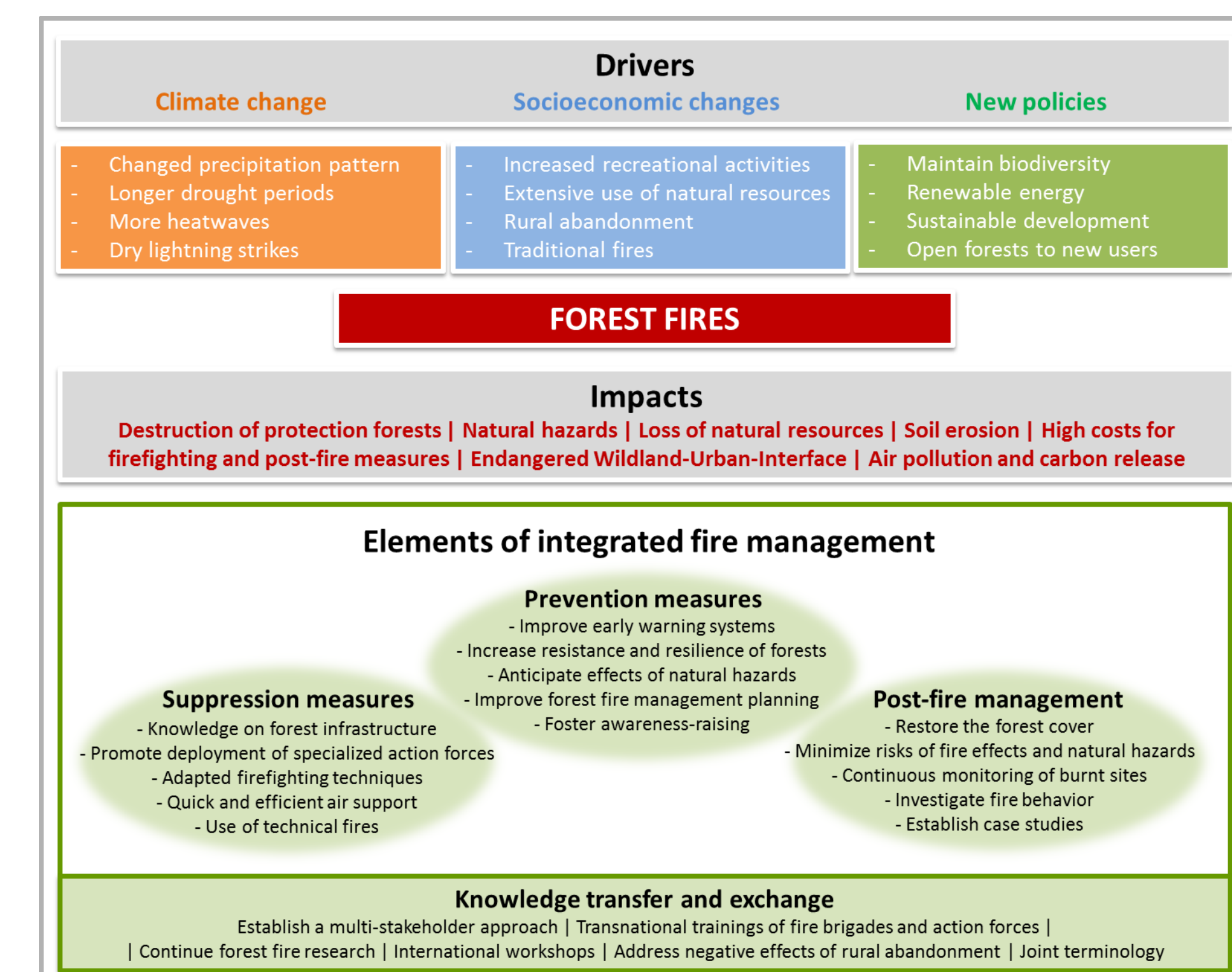


Figure 5: Drivers and impacts of forest fires and elements of an integrated fire management for the Alpine region.

