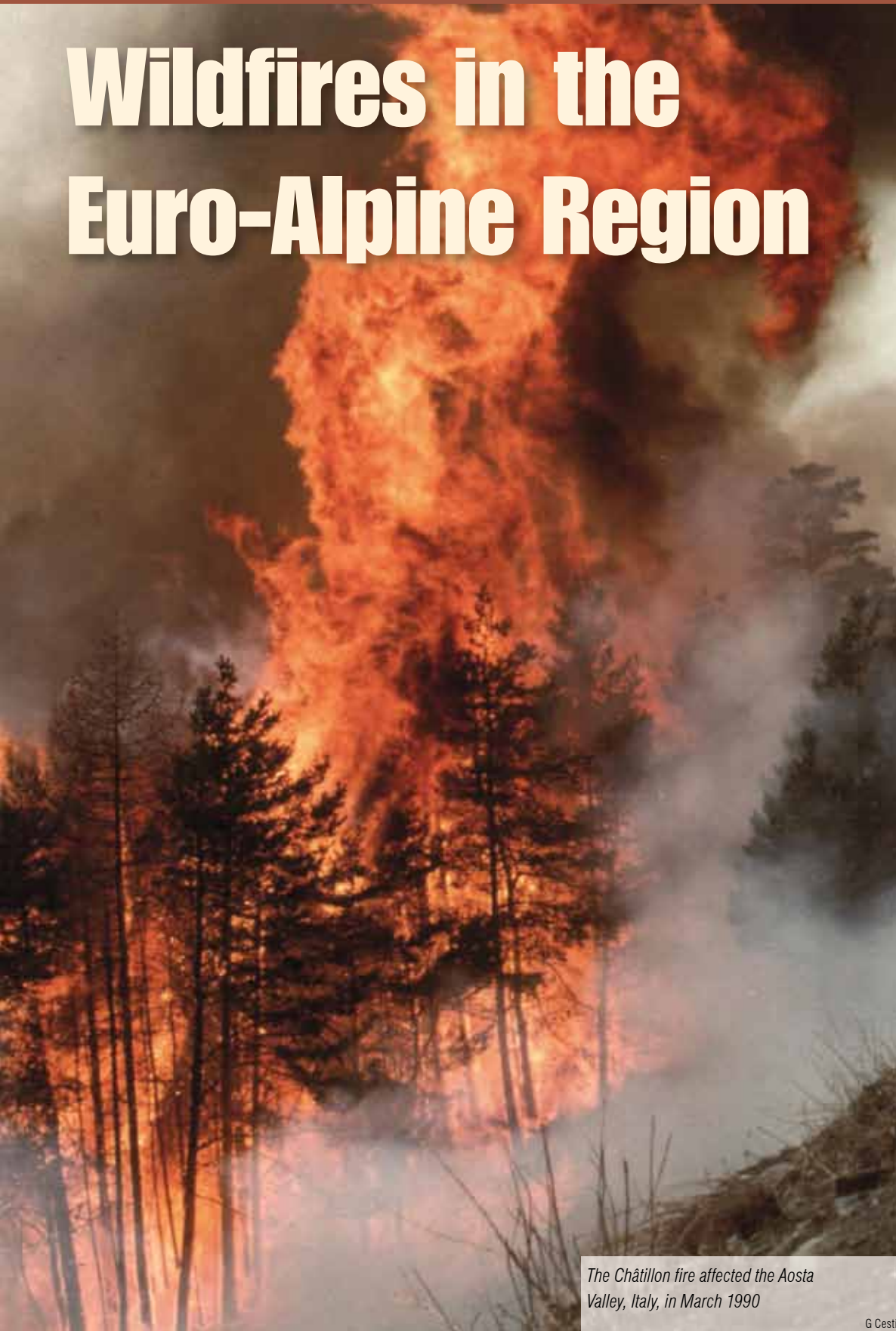


Wildfires in the Euro-Alpine Region



The Châtillon fire affected the Aosta Valley, Italy, in March 1990

G Cesti

Eva Valesse reports on the consequences of climate change on wildfires in the high-altitude ecosystems of the Alpine space, and discusses what actions are needed to preserve the rich heritage, resources and environment of this region

THE EURO-ALPINE REGION IS A realm of snow rather than fire, with avalanches, landslides and floods considered leading threats. In spite of this, the negative effects of storm damage on mountainous forests (as happened in Austria, in 2007, or in 1999 during hurricane Lothar in Switzerland), along with a greater incidence of bark beetle infestations, mean that the fuel load of these forests is increasing rapidly, leading to greater vulnerability to forest fires.

High intensity wildfires are a serious threat to alpine forest heritage. In steep terrain, wildfires can affect the protective role of forests; if they are damaged, there is a greater chance of more natural hazards. Serious consequences of wildfires can include soil erosion, a greater likelihood of rock-falls and avalanches (p24) and loss of biodiversity.

The richness of natural and cultural assets is both a heritage and a resource (for example in terms of water and renewable energies), which must be protected and used sustainably. Intensifying tourism and frequency of extreme summer conditions (droughts and extreme temperatures) are also expected to increase.

A recent study found that the estimated increase in temperature from 1890 to 2000 in the Alpine region seems to be twice that of the global average and is affecting the vertical shift of the tree-line.

UNIQUE ENVIRONMENT

Key factors, such as winter fires and complex terrain, make the Alpine environment unique. The geography of the region, which lies at the crossroads between the Mediterranean, the Atlantic and the Eurasian zone, affects landscape structure and forest composition, leading to a tremendous unevenness in both ecological and social issues. The continental gradient influences local climate and fire severity, which increases from the sea to the internal valleys.

In the eastern Alps, with the exception of the Karst Plateau, fire danger is reduced by the area's proximity to the Adriatic Sea. In the internal western Alps, vegetation is threatened by strong drying factors, associated mostly with severe Föhn episodes (Föhn is a warm, dry, down-slope wind that occurs in the lee of a mountain range). The incised valleys create pronounced differences in snow cover and fire behaviour between southern and northern sides. On the southern slopes, surface fires can shift quickly to the crowns of pines and generate eruptive fires, if weather parameters are favourable; on the other hand, wildfires may even occur when snow covers the ground on the northern side.

Most wildfires occur between December and April, when the growing season is over and the forest fuels are dry. On the southern slope of the Alps, ground fires caused by lightning are common in summertime. Even if a regular trend has not yet become clear, summer fires have increased in frequency, and result in higher costs for their control. The prohibitive steepness of ground fires often puts firefighters in dangerous locations or makes conditions extremely difficult for ground teams, as the fall of burning embers often restarts blazes at the bottom of hillsides where fuel accumulation is generally higher.

Both Carinthia (Austria) and the neighbouring Carnia (Friuli) experienced especially severe conditions recently, with 2003 and 2006 considered to be worst in the last 10 years. Problematic wildfires also occurred in those regions that are generally not involved in summer fires. In Veneto in August 2003, a lightning-triggered fire of just 40ha took more than a month to extinguish. In the Aosta Valley during the summer of 2006, a particularly serious incident occurred. In one week an area of approximately 80ha (more than 70ha of Scots pine) burnt and 50 per cent more was severely damaged.

If one considers these hot spots, reflection on global change is not inappropriate.

Though forest fires are seen as a minor issue, regional authorities are providing an expensive suppression service and must assure

a safe working environment for their crews and volunteers. During the last few decades, the abandonment of rural and mountain areas on a massive scale has taken place and the peasant and shepherding communities are no longer passing on the traditional culture of fire and fire management to the next generation.

Wildfires can play an important role in rural and mountain development, since the social and economic expenditures of dealing

small area), as well as the high specificity of Alpine fires. As a consequence, a long-lasting platform for cross-border co-operation in fire management and knowledge exchange was needed to share practical experience, to work towards common standards to be used in both fire application (prescribed burning) and fire suppression. In the case of a disastrous wildfire this platform will allow countries to exchange resources swiftly and work together efficiently.

The abandonment of rural and mountain areas on a massive scale means that the traditional culture of fire and fire management has not been passed on to the next generation by the peasant and shepherd communities

with fires and post-fire restoration are not in accordance with a sustainable development.

This means that action must be substantially enhanced in the Alpine space and one initiative that is aimed at addressing this need for action was the launch of the Sub-Regional Euro-Alpine Network during the Joint Meeting of the Wildland Fire Advisory Group/Global Wildland Fire Network, held in Freiburg in July 2008. The network was given a strong impulse by the European project on Alpine Forest Fire Warning Systems (ALP FFIRS), which started in August 2009.

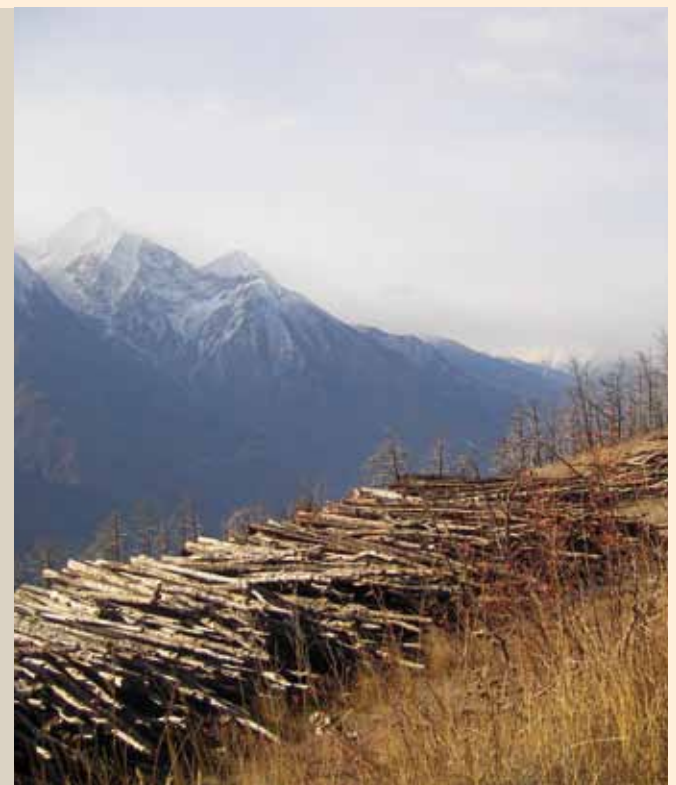
The network's mission is associated with the high cultural and linguistic complexity of the region (six countries and four languages in one

ALP FFIRS was launched in 2009 within the EU's transnational co-operation programme 'Alpine Space 2007-2013' under Priority 3 'Environment and Risk Prevention'. The Alpine Space, as an important transnational area of European co-operation, has been defined in the frame of the Alpine Space Programme. The mountainous 'core area' is spatially inseparably linked with the surrounding 'peri-alpine belt', containing some of the most attractive European metropolitan areas. The ALP FFIRS partnership comprises 14 public authorities from the Alpine Space (two from Austria; one from France; one from Germany; five from Italy; two from Slovenia; and three from Switzerland), including weather and fire



View of the Euro-Alpine region from space

NASA



A southern slope in Aosta valley, Italy, burned by a high intensity wildfire

E Valesse

services, universities, regional departments in charge of prevention, and forest services.

ALP FFIRS is strongly oriented towards the application of scientific issues. Data on wildfire frequency and distribution is still sparse and incomplete for the Alpine Space, so a preliminary investigation of the fire regime will be useful for understanding fire dynamics better at different levels (local, regional and global).

This knowledge will be employed during the project's operational phase, by creating a shared warning system based on weather conditions and vegetation patterns. It will also be useful for projecting future fire scenarios and assessing the potential effects of climate change. The system will provide stakeholders, and the public with enhanced and more accurate predictions of forest fire danger. Fire professionals will be involved continuously in the project, not only as final users, but also as expertise providers.

The big challenge of ALP FFIRS, even more than creating shared and adapted protocols, is that of enhancing the process of knowledge transfer by creating long-lasting training tools.

SHEPHERDING EXPERTISE

The use of fire in the Alps has been mainly to improve and manage grazing land and for conserving special habitats. Some traditional shepherding expertise has been lost during the last decades, along with the practice of prescribed burning as a normal tool for land management. The only exception is in France, where a programme of prescribed burning is already in place.

During the period 2006 – 2010, four countries from the Euro-Alpine Region (Switzerland, Slovenia, France and Italy) took part in the Fire Paradox project, in which the wise use of fire was addressed. From 2006, the University of Torino has been promoting a research on the use of prescribed burning in the heathland of Vauda, Piedmont. These two activities, together with recent 'hot spots', are awakening a new interest in fire as a management tool. **CRJ**

AUTHOR

Dr Eva Valesse is Post-Doc at the Department of Land and Agro-forest Environments (TESAF), University of Padova, Italy. She



is currently working under the ALP FFIRS project and is serving as facilitator of the UNISDR Sub-Regional Euro-Alpine Wildland Fire Network: www.fire.uni-freiburg.de/GlobalNetworks/EuroAlpine/EuroAlpine.html



Post-fire measures for controlling soil erosion

Veneto Regional Authority

A fire burning in organic terrain on a steep slope in Friuli, Italy, July 2010

RAFIG



On the southern slopes, surface fires can shift quickly to the crowns of trees and generate eruptive fires

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