



## **Fire Situation in Argentina**

### **Fire environment, fire regimes and the ecological role of fire**

Extending from 22°S to 55°S, Argentina presents a great diversity of ecosystems associated with the different climates. Fire is present in the different vegetation associations, varying in frequency, intensity and time of the year in response to the different habitat types, frequency of lightning storms, strong dry winds and rainy seasons. In the southern territories where the rainy season occurs in winter, wildfires start in late spring and last until early summer. Moving northward in the country, fires tend to occur in autumn and winter associated with the dry seasons. In addition to the environmental factors, fire occurrence in the different regions is affected by such human factors as cultural practices, varying population density, tourism affluence and characteristics of fire suppression activities.

### **Narrative summary of major wildfire impacts on people, property and natural resources that occurred historically**

According to anthropological evidence, indigenous pre-Columbian populations used fire extensively for hunting, clearing land for grazing and other purposes. These fire influence may date back to 8000 years B. P., or generally to the early Holocene (Goldammer 1991). It should be pointed out that natural fires have been present in the different ecosystems in a degree that has not been well documented.

With the European settlement fire started to be used intensively as a management tool to convert land for productive purposes, which included agricultural activities and livestock. Reports of expeditions to Patagonia in 1906 and 1914 (Rothkugel 1916; Willis 1914), indicated that extensive areas burned to open land for grazing. In the northern area of the country, post Columbian fires are described in documents left by explorers and Jesuit missionaries (Kunst 1997).

During the last century, an increasing number of fires have been reported in most areas of the country, mainly due to human factors. During atypically dry seasons, as in the 40's, 60's and 80's in Patagonia, human sources contributed to extreme fire situations in the region (Rodriguez unpublished). In the Mesopotamia, located in the northeastern extreme of the country, the extensive pine and eucalyptus plantations are often affected by lightning fires that did not occur with that frequency in native vegetation.

In some areas around Patagonian coastal cities, many ranchers have abandoned their ranching activities. The lack of grazing allowed the recovery of vegetation, increasing the shrub and grass components and ultimately fire hazard (Defossé et. al 1999).

Urban/wildland interface fires have become a very significant and constantly increasing problem during the last decade.

## Narrative summary of major wildfire impacts on people, property and natural resources during the 1990s

Some of the major events were:

**1993:** The province of La Pampa, in the central region of Argentina, experienced an unusual fire season. 1,227,440 hectares of grassland and shrublands were affected with great economic losses. This is four times above the annual average.

**1994:** On January 21st, 25 firefighters died in a rangeland fire in the coastal area of northeastern Patagonia.

**1995/1996:** During the 1995/1996 season, large wildfires affected the Patagonian/Andean Region in general and, in particular, the oldest National Park in the country. The public was shocked because of the possible effects of the fire on the ecosystem and on the economy of the region, strongly dependent on tourism and forest resources. In response to this situation, the Federal Government of Argentina established, in late 1996, the *National Fire Management Plan*.

**1999:** Large fires affected the central and southern areas of the country. One of the oldest pine plantations in Patagonia was lost, causing a great impact to the community. Two fatalities were caused by two different fires.

**2000:** The Mesopotamic region went through an unusually critical fire situation since early summer. The fires affected large pastures and eucalyptus and pine plantations, causing great impact on the forest related activities.

A very wet spring produced an abundance of fuels in 2000. This was followed by a summer with below average precipitation, extremely high temperatures and lightning storms. Thus, there were extreme fire occurrence and behaviour conditions in the provinces of La Pampa and Mendoza . Cultural practices of burning to improve grazing also ignited many fires.

Under these conditions shrubland and grassland fires in December 2000 and January 2001 affected an area that is estimated to be over one and a half million hectares. Besides the economic losses, extreme fire behavior caused eight fatalities, seven in Mendoza and one in La Pampa.

### Fire management organization

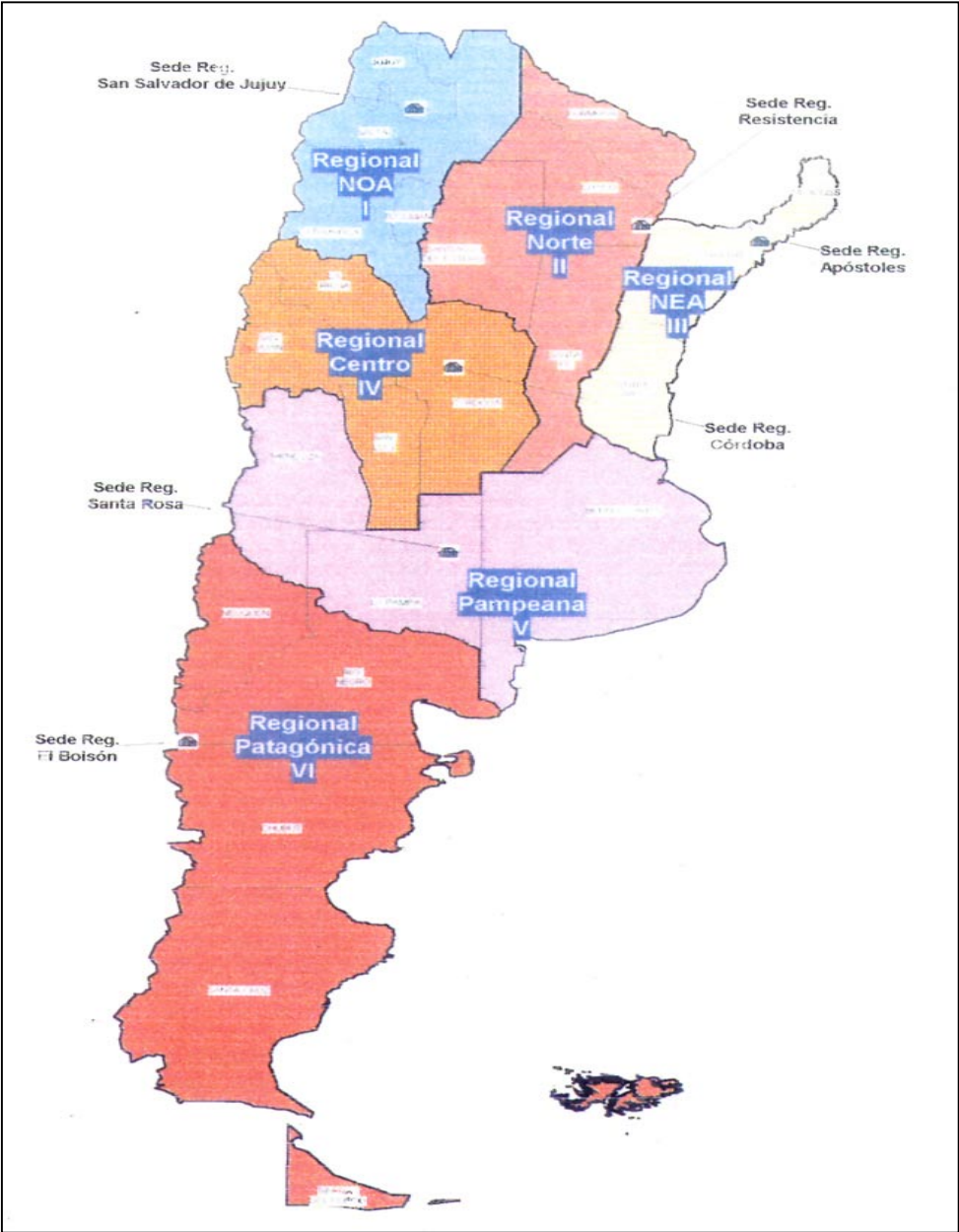
The National Fire Management Plan provides a system of coordination and federal support to the provinces in fire management related activities in Argentina. Its administrative scheme is provided in Figure 1.



**Figure 1.** Coordination of the National Fire Management Plan of Argentina

**National Coordination.** The National Coordination is responsible for providing regional centers with equipment and technical support, developing and coordinating prevention plans, promoting research activities, providing personnel training, coordinating suppression activities as required by regional authorities and organizing aerial operations. It shares with the Native Forests Resources Direction, also dependent to the Secretary of Sustainable Development and Environmental Policies, the responsibility for producing fire statistics.

**Regional centers.** The Fire Management Plan has grouped provinces with similar fire behaviour and occurrence problems into six regions and installed a regional center in each of them (see following map). These centers are responsible for the development and implementation of a fire management programme for the provinces under its jurisdiction. The provincial governments coordinate activities with the different local administrations and are responsible for the initial attack of fires.



**Figure 2.** Map of Regions of Argentina

## Wildfire database

Year	Total No. of Fires on Forest, Other Wooded Land, & Other Land No.	Total Area Burned on Forest, Other Wooded Land, & Other Land ha	Area of Forest Burned <sup>2</sup> ha	Area of Other Wooded Land and Other Land Burned <sup>3</sup> ha	Human Causes		Natural Causes %	Unkno wn Causes %
					Negligen ce	Intention al		
1990								
1991								
1992								
1993	343	1792336	1278966	513370	27	27	-	46
1994*	773	1011749	861434	124615	29	43	7	21
1995	4146	730946	370917	360029	38	31	6	25
1996	4119	450677	185388	265289	30	34	13	23
1997	4774	281984	98369	183615	41	25	7	27
1998**	8765	890784	283494	607210	54	11	17	18
1999	10587	714621	178034	536587	39	22	7	32

Comments: \* Non-discriminated forest type: 25700 ha

\*\* Non-discriminated forest type: 80 ha

2 includes plantations and natural forests

3 includes grasslands and shrublands

### Use of prescribed fire to achieve resource management objectives

Controlled fire is being introduced as a technique to reduce fire hazard in forest plantations, through research and extension projects conducted by the Secretary of Agriculture, Livestock, Fishery and Food. In many areas of the country fire is used with different objectives, such as reducing slash and for other cleanup, though these burns are not conducted under a prescription plan and often escape and cause large fires.

### Public policies affecting wildfires and fire management

The lack of common criteria and standardization of procedures for fire management among the different Argentine provinces has historically created difficulties. Recognizing this situation, the National Fire Management Plan is working towards setting standards in the country for different aspects of fire management, such as personnel training, personnel certification programmes, fire danger rating and prevention guidelines.

### Community involvement in fire management activities

Communities mainly become involved in fire management through Non-Governmental Organizations with different interests, such as safety in interface areas or preservation of fauna and flora. There is also an increasing number of private consortiums strongly interested in an active cooperation with state organizations to improve fire protection for their forests.

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