



IUCN
The World Conservation Union

The Nature Conservancy 
SAVING THE LAST GREAT PLACES ON EARTH



A GLOBAL FIRE PARTNERSHIP



BACKGROUND

Wildfires bring both destruction and life. They are a major force influencing the world's forests, savannas, grasslands and wetlands. In the last several years, large destructive fires in Portugal, France, Spain, North America, Russia, China, Brazil, Indonesia, and West Africa have caused enormous environmental damage, human suffering and economic loss. On average fires burn between 6 and 14 million hectares of forest per year world-wide – equal to the amount of forests cleared by logging and agricultural land conversion. For ecosystems not adapted to fire, the result can be catastrophic.

At the same time, fires in fire-adapted ecosystems can be beneficial and even necessary for maintaining crucial ecosystem functions such as regeneration and nutrient cycling. In boreal forests and eucalyptus savannas, for example, fire is essential for maintaining the ecosystem as well as associated plant and animal communities. Too little fire in these fire-adapted areas can be as ecologically damaging as too much fire in those that are fire sensitive.

The challenge lies in managing both fires that are beneficial and fires that are destructive. This is especially relevant as the global incidence of fires appears to be on the rise. In 2000, for example, it is estimated that 92 million hectares of forest were burned worldwide – an area equivalent to the size of France and Spain¹ and accounting for about 2.4% of global forest cover².

In 1997/1998, losses were estimated at \$9 billion USD world-wide³, equivalent to 20% of current total global spending on overseas development aid (\$50 billion USD⁴). Expenditures for fire fighting are also rising. Fire fighting costs in 1997/1998 were estimated globally at over \$2 billion USD⁵. Fires also create health and livelihood issues for people. The fires of Indonesia in 1997, for example, negatively affected the health of an estimated 35 million people⁶, with hospitalization estimates ranging as high as 267,000⁷.

The situation is made worse in that there is insufficient data to accurately gauge the true impact of fires on ecosystems, economies and societies.

Altering fire regimes can pose a major threat to conservation efforts – pushing ecosystems and species, already threatened by pressures such as habitat loss and pollution, into a more precarious state.

THE GLOBAL FIRE PARTNERSHIP – GOAL AND SCOPE

To date, too little attention has been paid to addressing the underlying causes of wildfires and the ecological and social implications of inappropriate fire management. Because these implications are often not well understood by policy-makers, or indeed in some cases by fire management authorities, there is a tendency to over rely on fire-fighting to provide a solution. A coherent, shared global response to fires is needed.

WWF - The World Wide Fund for Nature, TNC – The Nature Conservancy and IUCN - The World Conservation Union have joined forces to develop a Global Fire Partnership that will address fire issues worldwide. **The long-term goal of the Partnership is to maintain or restore ecologically and socially acceptable fire in ecosystems that depend on it, and reduce the incidence of unwanted fires in ecosystems where it is detrimental.** By 2012, the Partnership intends to show tangible progress in meeting these ambitious goals by drawing on the complementary skills, knowledge and previous successes of all three organizations.

① Pongo pygmaeus, Bornean orang-utan (WWF Indonesian programme, Forest Fire Ecological Survey, July 1998) East Kalimantan (Borneo), Indonesia
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③ Members of the forest fire ecological survey team of the WWF-Indonesia program taking measurement. Kalimantan Timur, Kalimantan (Borneo), Indonesia
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⑤ Fire fighting in a peat swamp (KSDA). Palangkaraya, Central Kalimantan (Borneo), Indonesia
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The Partnership's approach will be to assist in generating innovative solutions and help to increase the effectiveness of local, national and international institutions charged with managing fires. We intend on working together to:

- Build capacity for fire management among communities and governments
- Support development of effective policies
- Synthesize and disseminate fire-related knowledge

Integrating the many facets of fire management will be key - including analysis, prevention, fire use, response, and restoration. The collaboration is based on the principles that altered fire regimes threaten nature conservation, that these threats take many forms, and that by pooling resources and strategically joining efforts, fire issues can be dealt with more effectively.

All three organizations have in their own way made fire issues a priority. The Nature Conservancy has a "Global Fire Initiative" and more than 40 years experience managing fire-adapted ecosystems. WWF and IUCN collaborated on "Project FireFight" in Southeast Asia, to improve fire management in 10 countries region-wide. All three organizations

have established field projects that address fire issues at a local level. Key organizations such as the United Nations Food and Agriculture Organization (FAO), Association of Southeast Asian Nations (ASEAN), the European Union, and the U.S. Forest Service,

possess policies and programs that influence fire issues on a global, continental and local scale.

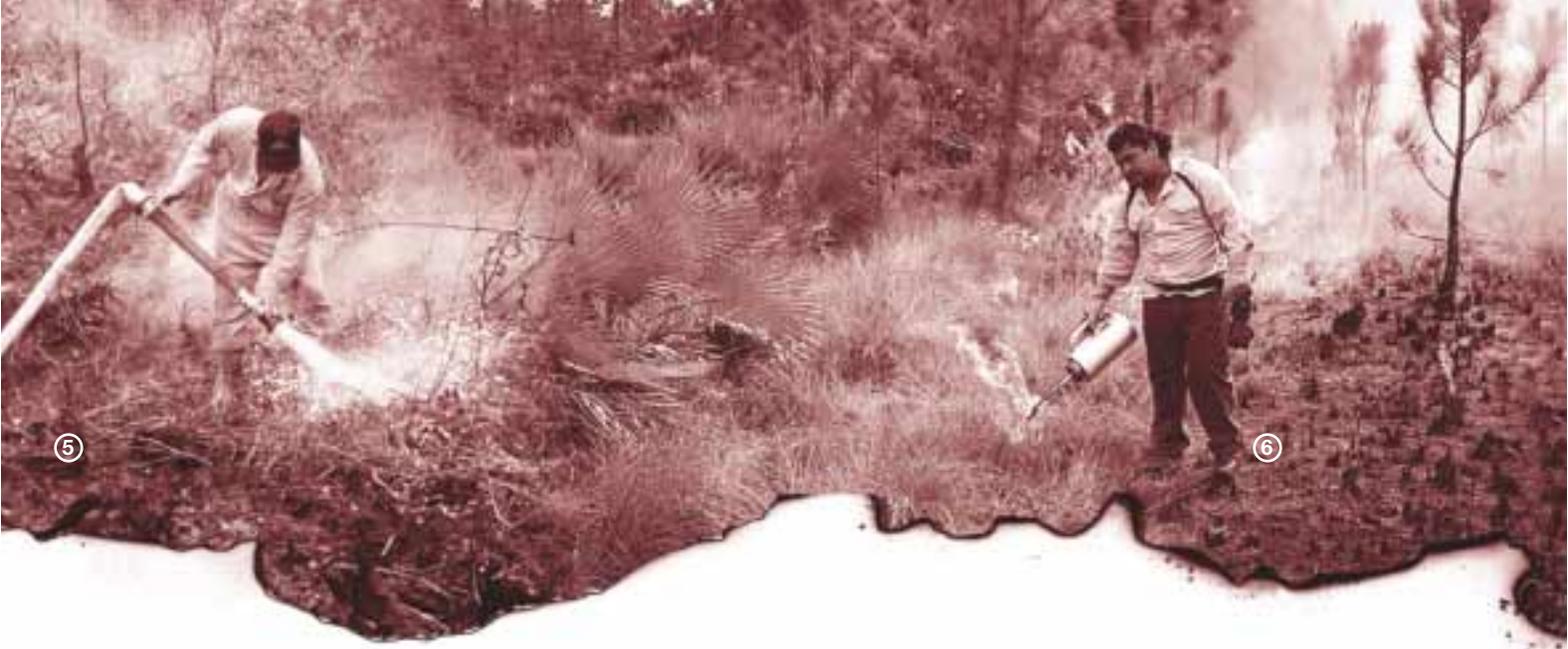
FIRE AND ECOSYSTEMS

Addressing fire issues with the intent of maintaining healthy ecosystems is an enormous challenge given the dynamic nature of both the environment and human communities. Landscapes today are increasingly fragmented through development and in many places human pressures have increased. Add to this the fact that different ecosystems respond differently to fire and it is clear that there is no "blanket" prescription available for managing fires worldwide. Solutions must be innovative, collaborative, ecosystem-specific and based on sound scientific knowledge.

Fire-Adapted Ecosystems: In fire-adapted ecosystems, forest fragmentation and fire suppression, together with invasion by exotic species, overgrazing and poor logging practices over many years have caused many of these ecosystems to deteriorate to an unhealthy state. Their degraded condition makes them susceptible to intense fires that can damage the long-term supply of environmental services necessary for the well-being of local communities, increase threats to endangered species, simplify the structure and composition of biologically important ecosystems and provide conditions suitable for invasive species.

Fire-Sensitive Ecosystems: Fire-sensitive ecosystems, including many tropical forests, are threatened by too much fire or fires that are unnaturally large and intense. The root causes of destructive fires may be fragmentation, illegal logging, inappropriate forestry and grazing management practices, movement of people into protected areas and invasion by non-native species - sometimes all of them. These problems can be exacerbated by government response - traditionally, increased investment in fire suppression as opposed to prevention. Many fires need not occur and they will continue to degrade ecosystems as long as governments fail to focus on their direct and underlying causes.

The Partnership's approach will be to assist in generating innovative solutions and help to increase the effectiveness of local, national and international institutions charged with managing fires.



FINDING SOLUTIONS

Solutions to fire issues are not as simple as just suppressing unwanted fires in fire-sensitive ecosystems or reintroducing prescribed fires and allowing natural wildfires to burn unsupervised in fire-adapted ecosystems. Instead, managing an appropriate role for fire will require innovative approaches, institutional resolve, sound science, effective community outreach and cooperative partnerships.

Community Involvement: Solutions will include community-based fire management partnerships that either encourage or find alternatives to traditional fire uses, and educate users about the costs and benefits of various kinds of fire. Communities will play an increasing role in both the prevention of harmful fires and restoration of fire-impacted areas in future years. Forest Trends estimates that at least 25 percent of the forests in developing countries are now legally owned or administered by indigenous and other communities. This creates an excellent opportunity to involve communities more directly in fire issues - local communities often possess traditional fire knowledge and live in close proximity to forests at risk.

Government Involvement: Governments can also ensure that laws and policies result in equitable sharing of costs and benefits related to fires, recognize community-use rights and remove incentives that encourage people to start harmful fires or suppress ecologically beneficial fires. More appropriate law enforcement focused on fire prevention can play a critical role. Governments, industry and other land managers will need to invest in fire management, educate forest and land managers regarding fire's role in forest ecosystems and develop capacity for managing fires in an effective manner.

Restoration: Restoration of ecosystems following too much or too little fire is critical to prevent destructive fire recurrence, help re-establish the productivity and ecological integrity of an area and assist communities who may have suffered from fires. Failure to consider appropriate restoration strategies can create a strain on impacted communities. Unfortunately post-fire restoration and appropriate fire use is given scarce attention by the media, national governments or international organizations.

Data analysis: Building the case for global action on fires requires a rapid assessment of problems, trends and needs. A target for the Global Fire Partnership is to address data gaps as well as unverified data and assumptions. Often even basic information on fires can simply not be found or is available in a format that makes it difficult to build the "big picture". A gap exists for information on biodiversity loss as a result of fire. Burned area figures are used as a surrogate but are indirect at best. Because the role of fire is still poorly understood in many ecosystems, investment in increased research and analysis are badly needed, including ecosystem-specific research. In order to address this, the Global Fire Partnership will use fire regimes as an organizing framework with focused regional or habitat-based assessments extrapolated to the global scale.

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Africa – Fire and Rural Livelihoods

Fire is considered one of the most important threats to the integrity of forests in West Africa. In Ghana alone, 29% of its gazetted forest estate, about 320,000 ha, has been lost principally to repeated forest fires since 1983 with a further 55% partially degraded by fire. It is estimated that 2% of Ghana's Gross Domestic Product (\$5 billion US) is lost annually to fires. This means that each year \$100 million US is lost to fires in Ghana, funds which could be spent alternatively on schooling, health services and poverty reduction.

More emphasis needs to be placed on equitably sharing the costs and benefits of post-fire restoration and creating legislative incentives to prevent unwanted fires. More concrete statistics on fire incidence are also needed as well as development of alternatives to fire for use by rural communities.

Research has shown that when communities are given greater autonomy to manage their land and take control of fire management, that great improvements can be made. In Namibia for example, where 4-5 million hectares of land burned in 1996, the Namibia-Finland Forestry Project was created. The purpose of the project was to transfer responsibility for forest protection to local communities. Today, the project has been a success with fire prevention and mitigation awareness raised in over 70 schools and a 30% reduction in fire incidents over three years.

Southeast Asia – Institutions and Fire

Nine significant fire events have taken place in Southeast Asia since the 1970s. In 1997/98, fires ravaged the country again, the resulting smoke crippling air, water and land transport sectors, stifling tourism and degrading public health. Economic damage from the fires was estimated US \$3 billion, with additional significant losses

in biodiversity resulting from negative impacts to forests and other ecosystems. Of 176 concessionaires, companies and developers that could be possibly linked to the fire, only 13 were investigated, 5 brought to court and none convicted.

IUCN and WWF, working on an initiative called Project FireFight South East Asia, have confirmed that fire issues in Southeast Asia have complex underlying causes. Problems include corruption, collusion, compromised local communities and incoherent laws which can all contribute to the incidence of damaging fires. Improved technical and scientific resources, education, data collection and research are needed to clarify the causes and create a basis for viable solutions. Governments can play a potentially pivotal role in this regard by involving key stakeholders in a movement to improve fire management strategies.

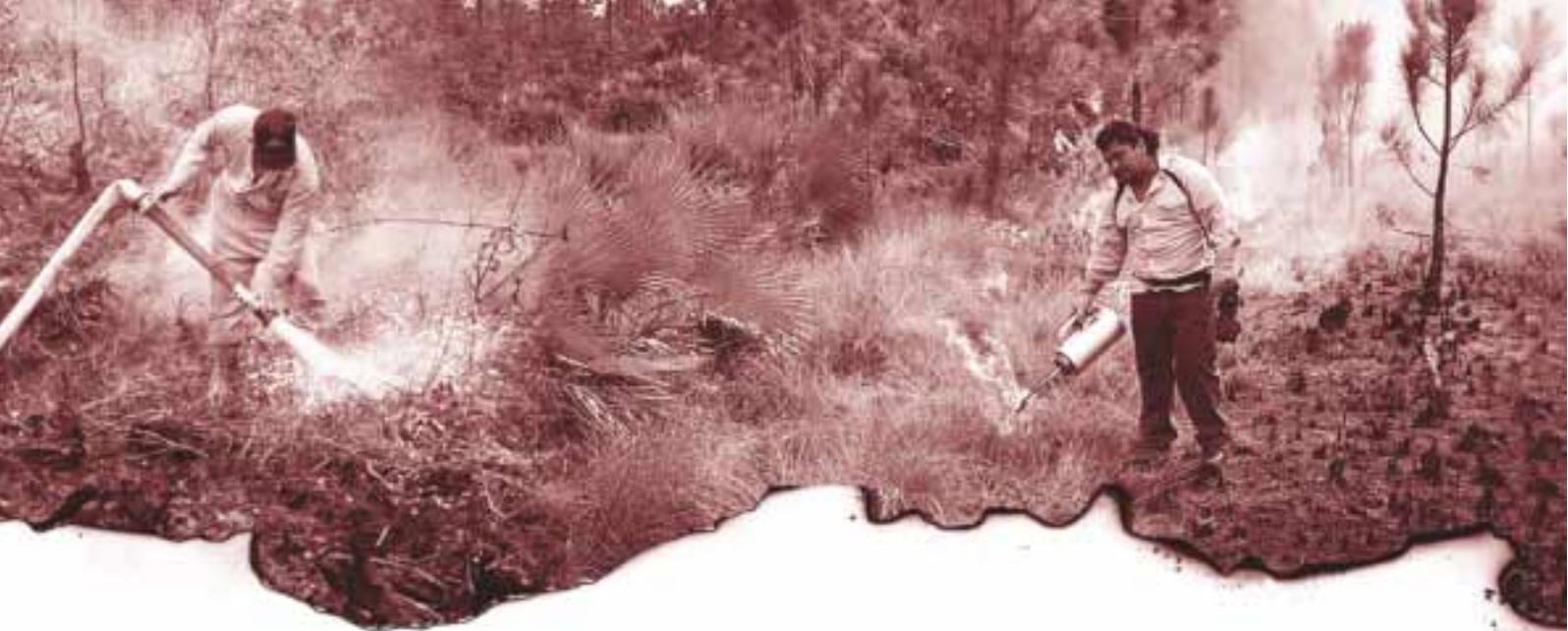
Mediterranean – Fire-adapted Ecosystems

Forest fires are a serious environmental issue in the Mediterranean. In the year 2000, over 3,000 fires burned over 680,000 hectares in France, Spain, Portugal, Greece and Italy alone - an area totaling 1.3 – 1.7 % of total Mediterranean forested land. In 2003, the situation may be worse. In Portugal alone, 215,000 ha have burned, an area the size of Luxembourg, and over 12 million metric tons of topsoil could be eroded next year as a result of damage from the fires, leading to water supplies being at risk from pollution as well as other negative effects. Although most Mediterranean ecosystems are fire-adapted, pressure on these ecosystems has been increasing in recent years with an apparent rise in human-caused, large-scale forest fires.

Forest fire incidence in the Mediterranean can be linked to the collapse of traditional rural socio-economic systems, rapid transformation of extensive areas of vegetation and significant land-use changes. Rapid change in Mediterranean rural society has reduced capacity to deal effectively with fire management in the landscape. Improvements to regional, national and local policies as well as institutional capacity are needed to address the complex factors underlying fires of the Mediterranean region.

United States - Restoring Large-Scale Fire-Adapted Ecosystems

In the U.S., at least 60 million hectares of public and privately owned habitat considered critical to the conservation of biological diversity is at risk from altered fire regimes. The causes are generally decades of active fire exclusion, fragmentation of landscapes, urban development, and ecologically inappropriate forest and rangeland management. The Nature Conservancy, the U.S. Forest Service and Department of Interior agencies agreed in 2001 to work together on long-term restoration of 50 sites in collaboration with local communities. These projects encompass more than 24 million hectares and include more than 250 partners. Twenty-five of the projects have been brought together in an innovative "fire learning network," where representatives from each project work through a facilitated, step-wise process of creating a scientifically credible and socially and economically acceptable comprehensive strategy. The network fosters and accelerates peer to peer and cross-project learning, as well as training, and expert review. To date, the majority of communities have developed plans and more than half of the projects began implementation of key actions in 2003. The partnership received an award from the Secretary of the Interior in 2002 for innovation and excellence in supporting implementation of the U.S. National Fire Plan.



TIME TO ACT

No blueprint exists for managing harmful wildfires or ensuring that the natural role of fire is sustained. Each situation has unique ecological, social and economic factors that need to be addressed. Sustainable fire management will require engaging a wide variety of stakeholders (government, non-government, community and the private sector) in the planning and implementation of a comprehensive strategy.

Through the Global Fire Partnership, IUCN, TNC and WWF call on governments and international organizations to address the underlying causes of unwanted fires and undertake the following steps to reduce their threat:

- 1 Involve key stakeholders (especially local communities and land managers) in fire management planning and implementation. Through training and other programs, assist stakeholders in obtaining the knowledge, skills and resources they need to participate effectively.**
- 2 Promote fire management strategies that mimic natural fire regimes and avoid manipulating natural or well-established fire regimes as a means of meeting international climate change obligations.**
- 3 Invest in ecologically appropriate restoration of areas adversely affected by fire, fire exclusion, or both.**
- 4 Improve understanding of fire issues by investing in research and analysis of associated costs and benefits.**
- 5 Build awareness among policy-makers, the public and media of the underlying causes of destructive fires as well as the beneficial ecological and social role that fires can play.**
- 6 Put in place reliable fire monitoring and recording systems that provide warning of high fire danger and the occurrence of fires. Include evaluation of the ecological and human impacts of fire and report annually in an internationally consistent manner.**

Cover image:

A firefighter dousing the burning forest. Central Kalimantan (Borneo), Indonesia

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¹ Global Burned Area 2000 Project from the Joint Research Centre of the EC. ² FAO State of the World's Forests. ³ Summarised from: Mutch R., Lee B. & Perkins J. (1998). Public policies Affecting Forest Fires in the Americas and the Caribbean. FAO, Rome. & Glover D. & Jessup T., eds. (1999). Indonesia's Fires and Haze, The Cost of Catastrophe. Institute of South Asian Studies, Singapore and International Development Research Center, Ottawa, Canada. ⁴ The North-South Institute, 2002. ⁵ Summarised from: Mutch R., Lee B. & Perkins J. (1998). Public policies Affecting Forest Fires in the Americas and the Caribbean. FAO, Rome.; Glover D. & Jessup T., eds. (1999). Indonesia's Fires and Haze, The Cost of Catastrophe. Institute of South Asian Studies, Singapore and International Development Research Center, Ottawa, Canada; Rodriguez T. & Pyne S.J. (1999). Mexican Fires in 1998. IN. International Forest Fire News, No 20. March 1999.; Velez R. (1999). Forest Fires in 1998, An Average Year. IN. International Forest Fire News, No 20. March 1999. ⁶ Glover D. & Jessup T., eds. (1999). Indonesia's Fires and Haze, The Cost of Catastrophe. Institute of South Asian Studies, Singapore and International Development Research Center, Ottawa, Canada. ⁷ BAPPENAS-ADB (1999). Causes, Extent, Impact and Costs of 1997/1998 Fires and Drought. Final report, Annex 1 and 2. Planning for Fire Prevention and Drought Management Project. Asian Development Bank TA 2999-INO. Jakarta, National Development Planning Agency (BAPPENAS), and Asian Development Bank. Glover and Jessup (1999) Op cit.