



United Nations  
International Strategy for Disaster Reduction



Global Fire Monitoring  
Center (GFMC)



UNECE / FAO Team of Specialists  
on Forest Fire

**UNECE / FAO Team of Specialists on Forest Fire  
UNISDR Wildland Fire Advisory Group / Global Wildland Fire  
Network**

Coordinator / Secretariat:  
Global Fire Monitoring Center (GFMC), Freiburg, Germany

**Implementation of the  
UNECE/FAO Regional Forum on Cross-boundary Fire Management  
Geneva, 28-29 November 2013**

**The International Wildfire Preparedness Mechanism  
(IWPM)**

**Global Fire Monitoring Center (GMFC)**

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## **The International Wildfire Preparedness Mechanism (IWPM)**

An enabling international environment is vitally important for providing nations around the world with the knowledge and skills that are necessary to develop and implement more effective and more coordinated approaches to wildfire prevention, preparedness and response. While there is evidence of some excellent recent examples of international collaboration and cooperation on wildfire issues, the *UNECE/FAO Regional Forum on Cross-boundary Fire Management* (United Nations, Geneva, 28-29 November 2013) and its follow-up consultations identified that the international exchange of knowledge on wildfire could be significantly improved through the creation of an International Wildfire Preparedness Mechanism (IWPM).

It was proposed at the Geneva Forum that the IWPM should be created as soon as possible to act as a central knowledge exchange gateway for wildfire professionals across the World.

The IWPM was formed in July 2014 and is currently hosted by the Wildland Fire Advisory Group (WFAG). The Global Fire Monitoring Center (GFMC) currently performs the role of an interim secretariat. The IWPM now provides a platform/framework from which to cascade knowledge, good practice, experience and expertise throughout the global wildfire community for the benefit of all.

The IWPM complements and builds upon international agreements in disaster management and, in particular, it coordinates activities that align with the priority areas identified within the *Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters*, and aims to contribute to the post-2015 HFA.

### **The rationale of the IWPM**

The White Paper “Vegetation Fires and Global Change” (GFMC, 2013)<sup>1</sup> states that globally fire regimes are altering in parallel with and under the influence of socio-economic developments, land-use change and climate change. Current predictions indicate that the number and severity of wildfire incidents will increase during the next few decades in many areas of the World, which could potentially lead to an increase in wildfire disasters. In short, global society is becoming increasingly more vulnerable to wildfires. In response to this increasing vulnerability, the IWPM has been created to assist wildfire agencies around the World to develop and implement common and more sustainable solutions to wildfire prevention, preparedness, response and recovery.

Some wildfire agencies around the World have developed an excellent understanding of wildfire science which has enabled them to develop effective wildfire management systems. These agencies are generally well organised, well prepared and have a highly trained and specialised workforce. Many of these wildfire agencies have demonstrated their willingness to share their knowledge, experience, skills and lessons learned with other agencies that request assistance and/or guidance. The three Case Studies outlined in Annex I provide examples of cross-border knowledge exchanges that have already taken place and which have been extremely successful. The IWPM will utilize existing expertise and build upon the success of previous knowledge exchanges by establishing a more formal approach to voluntary international collaboration and cooperation on wildfire issues.

### **The mission and objectives of the IWPM**

The mission of the IWPM is to support, on request, agencies and countries to build national capacity and resilience to wildfire through the exchange of best practice. The IWPM acts as an enabler to provide countries and/or authorities around the World with access to support that can assist in the enhancement of knowledge, understanding and capacity to manage wildfire prevention, preparedness, response and recovery.

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<sup>1</sup> Goldammer, J.G. (ed.). 2013. *Vegetation Fires and Global Change. Challenges for Concerted International Action*. A White Paper directed to the United Nations and International Organizations. Kessel Publishing House, Remagen-Oberwinter, 398 p. (ISBN 978-3-941300-78-1). Online version: <http://www.fire.uni-freiburg.de/latestnews/Vegetation-Fires-Global-Change-UN-White-Paper-GFMC-2013.pdf>

In order to achieve its mission, the IWPM has three key strategic objectives, which are to:

- Establish a sustainable global mechanism for knowledge exchange and continual global improvement in wildfire risk reduction and preparedness.
- Promote the global adoption of a holistic approach to wildfire risk reduction and management.
- Through exchange of expertise from countries of different regions of the world promote a culture of common understanding and cooperation in fire management, which would ultimately lead to enhanced inter-operability of agencies and countries in jointly addressing wildfire emergencies along common borders or otherwise on request of a country that may run out of resources during a wildfire emergency.

### **Management of the IWPM**

The IWPM is hosted by the WFAG and serving as a thematic working group in complementary to the International Fire Aviation Working Group (IFAWG), which has developed and promotes the use of the International Fire Aviation Guidelines and the International Manual of Common Rules for Fire Aviation. Both groups are implementing the recommendations of the UNECE/FAO Regional Forum on Cross-boundary Fire Management.

The host's role is to:

- Serve as supervisory and advisory board for the implementation of the IWPM and the Fire Aviation Guidelines
- Provide expert guidance to the Secretariat on matters relating to the international exchange of information and best practice on wildfire management.
- Encourage involvement of the international wildfire community in the IWPM.
- Identify existing voluntary guidelines and other important information that could be shared internationally.
- Coordinate the development of new voluntary guidelines, as deemed appropriate.
- Ensure all IWPM activities and all arrangements made via the IWPM comply with recognised standards.

The Secretariat, which is currently the GFMC, has a number of key roles, including to:

- Act as a central point of contact for the IWPM through:
  - The creation and maintenance of a website
  - Provide a central repository of information about the IWPM
  - Engage with the international wildfire community to gain an understanding of what assistance can be provided and by whom
  - Coordinate the involvement of the international wildfire community in the IWPM
  - Signpost countries/authorities requesting assistance, information and training to appropriate providers
  - Maintain a record of all requests and offers of assistance
- Provide non-financial support to agencies/countries requesting and providing assistance
- Provide advice on existing international funding schemes that could potentially be accessed by participating agencies
- Publicise and promote the IWPM
- Maintain awareness of new ideas, concepts and approaches within the professional global wildfire community
- Liaise closely with, take direction from and report to the WFAG

The IWPM is not a financial instrument and currently has no core financing. The IWPM acts as a facilitator and does not provide financial assistance to participating parties. All arrangements between participating parties must be negotiated and mutually agreed.

## **Future actions and priorities of the IWPM**

The current priority of the IWPM is to encourage the international adoption and development of best practice and guidance in:

- Terminology
- Training standards
- Voluntary guidelines
- Cross-border assistance (i.e. mutual aid agreements)

The IWPM will significantly improve international support and collaboration on wildfire issues. Those countries and organizations that participate in the IWPM will be provided with support to help them improve their capacity and confidence to prevent, prepare for, properly assess, respond to and recover from major wildfire emergencies. The IWPM will provide members of the international community with opportunities to cooperate to their mutual economic, social and environmental benefit.

## **ANNEX**

Three Case Studies of Successful Cross-Border Collaboration in Wildfire Preparedness  
by Members of the International Wildland Fire Community

## **Case Study I: Exchange of fire management expertise between the Western and Eastern UNECE region**

### Establishment of relationships: Initiation by the UNECE/FAO Team of Specialists on Forest Fire

In 1980 the UNECE/FAO Team of Specialists (ToS) on Forest Fire was founded. It included members from Western Europe, Eastern Europe and the Soviet Union, as well as Canada and the United States of America. In 1981 the Team became active to initiate the dialogue between the Western and Eastern UNECE region by convening the seminar "Forest Fire Prevention and Control" in Poland. In this seminar it was recognized that sharing of information, knowledge and expertise in fire science and fire management between the Western and Eastern UNECE region would benefit all. The seminar resulted, among other, in the launch of the journal "UNECE/FAO International Forest Fire News" (IFFN) in 1989 under the leadership of the Fire Ecology Research Group (Germany), the predecessor institution of the Global Fire Monitoring Center (GFMC). In 1991 two wildland fire specialists from the USA and Germany were invited for a fire management study tour to the Soviet Union. In 1993 the GFMC was assigned to assume the leadership of the ToS on Forest Fire. As an outcome of the study tour of 1991 the GFMC together with the Forest Committee and the Academy of Sciences of Russia organized the first East-West Fire Conference "Fires in Ecosystems of Boreal Eurasia" and initiated the "Fire Research Campaign Asia-North" (FIRESCAN) with the core activity, the "Bor Forest Island Fire Experiment". This experiment was designed to initiate a 200-years study aimed to clarify the long-term role of a forest fire on the ecosystem and the environment. Along with this international research project a number of bilateral research projects were launched and included technology transfer such as the use of satellite data, based on the "open skies" policy, and the establishment of internet-based near-real time exchange of data and information.

### Transition from first cooperative scientific to a policy dialogue

In 1996 the next steps of exchange were taken by initiating a policy dialogue. In 1996 the UNECE/FAO Seminar "Forest, Fire, and Global Change" was held in Shushenskoe, Russian Federation. For the first time in history this conference addressed the topic of consequences of climate change and socio-economic changes on fire regimes and challenged UNECE Member States to be prepared for changing fire regimes and action to be taken. A first proposal to standardize global fire statistics / fire impact assessments was made, which in turn in 1997 was endorsed by the 2nd International Wildland Fire Conference in Vancouver (Canada). Pragmatic steps followed by bringing practitioners from the Western and Eastern UNECE region together at the "First Baltic Conference on Forest Fires" (Poland 1998) and the "Baltic Exercise on Fire Information and Resources Exchange - BALTEX FIRE 2000" in Finland in 2000. Additional fora were instrumental to consolidate the East-West relationships:

- Creation of the Global Wildland Fire Network under the auspices of the UN International Strategy for Disaster Reduction (UNISDR) (2001)
- 3rd International Wildland Fire Conference in Australia (2003): Meeting of the Regional Wildland Fire Networks
- Regional Central Asian Forest Congress "Forest Policy: Problems and Solutions" (Kyrgyz Republic, 2004): Initiation of the wildland fire policy dialogue in Central Asia
- Regional "Central Asia Fire Management Consultation and Study Tour" (Russian Federation, 2005): Reaching out to the management community
- 4th International Wildland Fire Conference in Spain (2007): Second meeting of the Regional Wildland Fire Networks
- First International Central Asian Wildland Fire Joint Conference and Consultation "Wildland Fires in Natural Ecosystems of the Central Asian Region: Ecology and Management Implications", associated with the First Central Asian Forest Fire Experiment (Mongolia, 2008): Transfer of fire management practices, including the use of prescribed fire
- Regional conference on Transboundary Cooperation in Fire Management (Russian Federation, 2010)
- 4th International Wildland Fire Conference in South Africa (2011)
- International Congress Forest Fire and Climate Change: Challenges for Fire Management in Natural and Cultural Landscapes of Eurasia (Russian Federation, 2013)

## Focus on exchange of fire management expertise

During the decade between 2004 and 2014 a number of bilateral and international exchanges allowed participating countries to share their expertise, which had been evolved rather differently in the Western and Eastern hemispheres.

An exchange programme between the United States of America and the Russian Federation included the training of Russian firefighters in the Interagency Hotshot Crew program, smoke jumping and heli-rappelling.

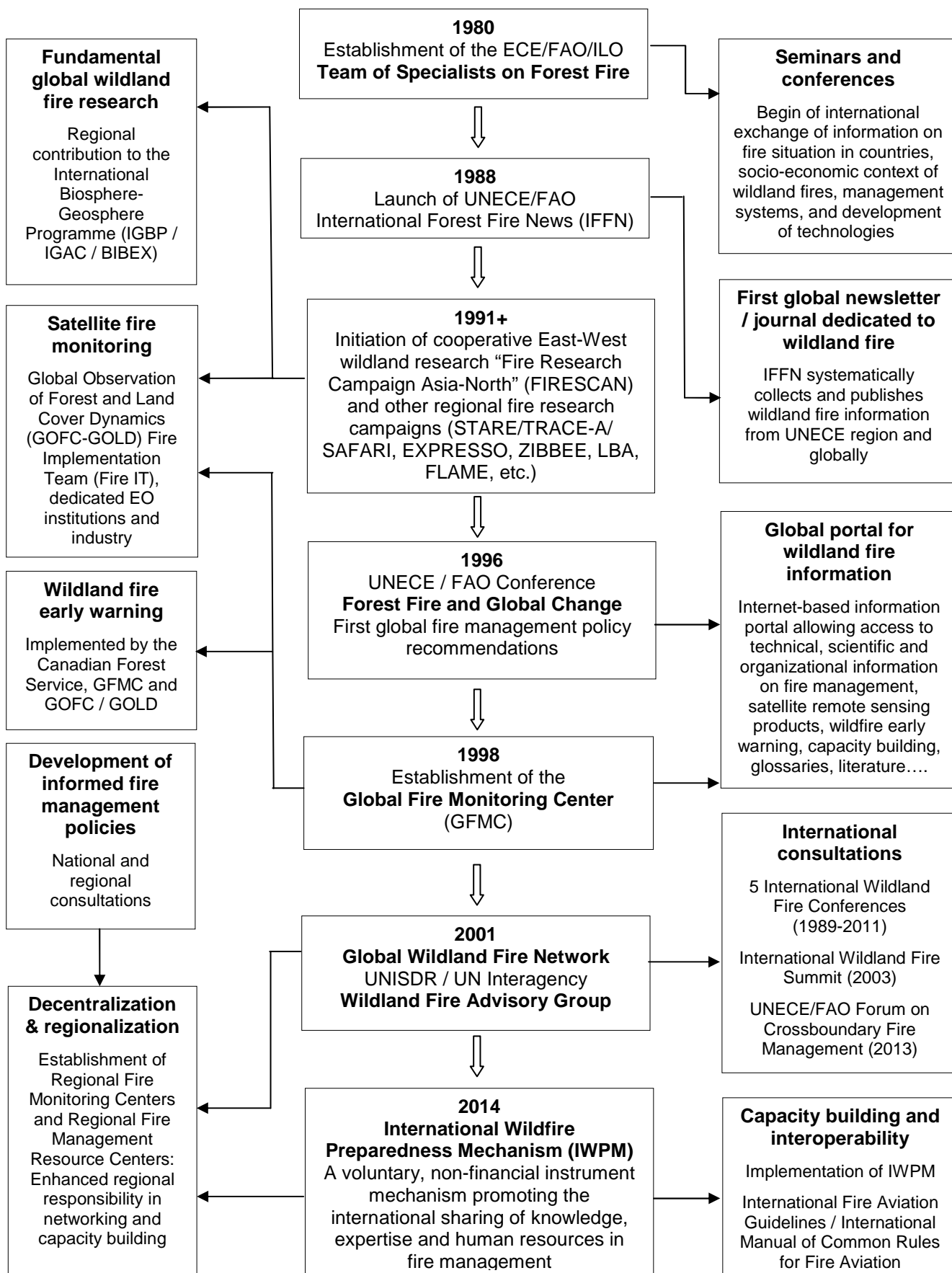
With the creation of the Global Wildland Fire Network the exchange intensified within the Regional Eurasia Wildland Fire Network (initially called Regional "Baltic" Wildland Fire Network) and the Regional Southeast Europe / Caucasus Wildland Fire Network (initially called Regional "Balkan" Wildland Fire Network). Members of the UNECE/FAO Team of Specialists on Forest Fire constituted the core groups of these networks, which brought together fire management specialists, decision makers and policy makers in various regional conferences and exercises, among other:

- Regional Eurasian network meeting convened in Helsinki, Finland, 10 May 2004, hosted by the Ministry for Interior, Finland, which resulted in the Helsinki Declaration on Cooperation in Wildland Fire Management in the Baltic Region
- Regional Scientific and Technical Consultation "Forest Fire Management in the Balkan Region", Ohrid, Former Yugoslav Republic of Macedonia, 4-5 April 2005, with the subsequent
- "Eastern European, Near East and Central Asian States Exercise on Wildland Fire Information and Resources Exchange - EASTEX FIRE 2005", in which international cooperation was exercised in managing a large-scale forest fire disaster requiring multilateral response, hosted by the Bulgarian Ministry for the Interior, National Fire and Emergency Safety Service, Haskovo, Bulgaria, 20-22 April 2005.
- Regional Central Asia Fire Management Consultation and Study Tour, Irkutsk, Russian Federation, 8-9 September 2005.
- Symposium on Fire Management in Cultural and Natural Landscapes, Nature Conservation and Forestry in Temperate-Boreal Eurasia, in which participants from the region exchanged experience at the GFMC in Germany, January 2008, and produced subsequently the "Freiburg White Paper on the Use of Prescribed Fire in Land Management, Nature Conservation and Forestry in Temperate-Boreal Eurasia" directed to policy makers.
- The "International Conference on Cross-Border Forest Fires and Cooperation in their Suppression" was hosted by the government of Russia, supported by GFMC, UNISDR and the UNECE/FAO Team of Specialists on Forest Fire, in Irkutsk, 16-18 June 2010. Government agencies of China, Belarus, Ukraine, Kazakhstan, Mongolia, South Korea, and the USA, prepared for international cooperation in wildfire emergencies, which led to swift and coordinated international response to the fire and smoke pollution emergency in Western Russia six weeks later.
- A project sponsored by the Council of Europe and implemented by the GFMC developed Guidelines aimed at capacitating local communities in self-defense of their homelands against wildfires ("Defense of Villages, Farms and Other Rural Assets against Wildfires: Guidelines for Rural Populations, Local Community and Municipality Leaders in the Balkan Region").

More than 20 years of cooperation by exchange between the GFMC and the National Aerial Fire Center of Russia *Avialesookhrana* resulted in developing visions and proposals for integrated fire management of Eurasian coniferous forests, including the use of natural fire and prescribed management fire for wildfire hazard reduction, silviculture and forest regeneration. Two „International Fire Management Weeks“ were organized in 2012 and 2013 Krasnoyarsk region, Russia, under the joint umbrella of the Federal Forestry Agency of Russia and the GFMC, both cooperating partners under the framework of the UNISDR and the UNECE and presented to the 6<sup>th</sup> and 7<sup>th</sup> "Forum Forests and Humans" in Moscow 2012 and 2014.

At the *UNECE/FAO Regional Forum on Cross-boundary Fire Management* (November 2013) and during the follow-up consultations the UNECE member states, who had actively participated in the East-West exchange, concluded that a rather long-lasting of exchange had resulted in sustainable relationships and systems in place that had benefitted from dialogue and sharing of expertise.

**Figure 1.** International transfer of wildland fire management knowledge: Building East-West relationships in fire management within the UNECE Region and at global level



## **Case Study II: History of North American Wildfire Cooperation**

### Canada/United States of America Agreement

The Canada/United States of America (U.S.) Reciprocal Forest Fire Fighting Arrangement was created in 1982 and is still in operation today. This agreement addresses the facilitation of rapid exchange of personnel and equipment between the two countries for wildland fire mutual aid. During the last three decades, huge amounts of resources have been mobilized – both ways – between the U.S. and Canada. Since 1982, at least 49 U.S. aircraft have been sent to Canada and 83 Canadian aircraft were sent to the U.S. to assist firefighting efforts. Since the mid-1980s, more than 2,000 firefighting personnel from the U.S. were sent to Canada and more than 4,000 Canadian firefighters have been dispatched to the U.S. Additionally, miscellaneous fire suppression equipment has been sent across both borders during times of need.

In addition to the Canada/U.S. Reciprocal Forest Fire Fighting Arrangement, there are three international Compacts that collectively facilitate the rapid exchange of personnel and equipment between most Canadian Provinces and Territories with their respective bordering U.S. States for initial attack assistance along the common border. Also, Canada and the U.S. have started discussions on a strategic approach to a more effective sharing of wildland fire information systems, planning tools and a joint approach to the off shore requirement of resources during emergency situations.

### Mexico/United States of America Agreement

Since 1983, technical exchanges between Mexico and the U.S. for the integration and training of Incident Management Teams, firefighting resources, scientists, hot shot crews, helitack training, radio communication systems, regional warehouse system, prescribed fires, and public policy projects have been facilitated by the relationships developed through the North American Forest Commission – Fire Management Working Group (NAFC-FMWG).

A Mutual Assistance “Wildfire Protection Agreement” between Mexico and the U.S. was first signed in 1999 with the purpose of providing assistance in the suppression of wildfires along the border. It is updated every year in an Annual Operating Plan. Every mile of shared border is covered under the agreement – recognizing that wildfires in one country could threaten resources across the border. The agreement calls for coordinated action between both countries to suppress wildfires on both sides of the border. The current agreement is up for renewal in 2014 and is being amended to include mutual assistance beyond the border area.

### Canada/Mexico Agreement

In the mid-2000s an exchange of personnel program was created and has been active each year between the Canadian Province of Alberta and the Mexican State of Jalisco. Each year since its inception, approximately 120 Mexican Firefighters are incorporated into the Alberta system. A “Memorandum of Understanding for the Exchange of Wildland Fire Management Resources between Canadian and Mexican Participants” was signed in Mexico in February of 2014.

### North America and International

The technical capacity of Mexico has evolved with the support of Canada and the U.S. which has allowed Mexico to support capacity building in Latin America, highlighting the involvement of Mexican technical experts as instructors in Guatemala (2003), Paraguay (2009), Costa Rica (2010) and Honduras (2014).

Support with complex wildfires between the NAFC-FMWG member nations has occurred through numerous exchanges of firefighters: 1987 Ontario; 1998 Chiapas and Oaxaca; 2000 U.S. assistance from Canada, Mexico, Australia, and New Zealand.

After a series of active wildland fire seasons in Canada beginning in 2003 and onward, the need for further international reciprocal agreements of assistance was identified. “An Arrangement for The



Exchange of Wildland Fire Management Resources between Canadian and New Zealand Participants” was signed in 2008. While preliminary arrangements have been initiated a couple of times, no resources have been mobilized through this agreement to date. Currently Canada and Australia are in the process of creating and signing a reciprocal agreement between the respective governments of the two countries.

In 2006 the Canadian Province of British Columbia and the Australian State of Victoria signed an agreement for the exchange of wildland firefighting resources. The two States have exchanged personnel for suppression and an exchange for learning opportunities on a few occasions since the signing of the agreement.

#### 2000 United States of America Critical Fire Season Example: North American and International Resource Sharing

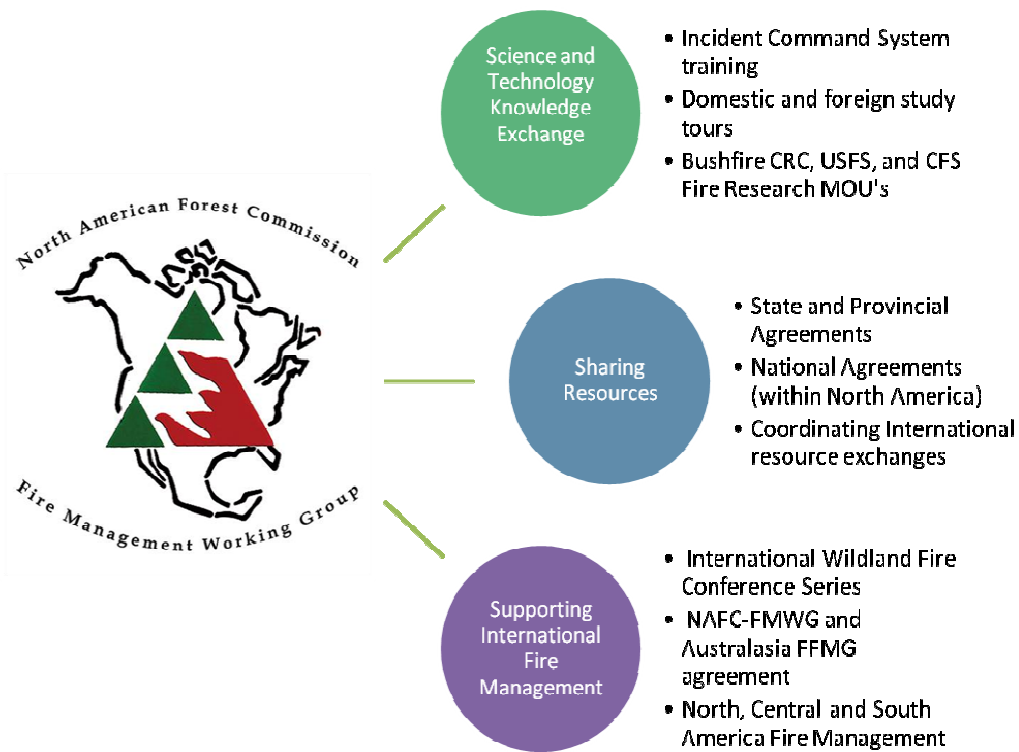
The wildland fire season in the U.S. during 2000 was the worst in more than 50 years. Almost 100,000 fires consumed more than 2.8 million hectares (6.9 million acres) of forest and range lands. This was approximately twice the U.S. ten-year average. The season was long and difficult and firefighters faced dangerous burning conditions throughout the western U.S.

At the height of the fire season in late August, the U.S. interagency wildland fire community, which consists of federal, state, and local resources, had mobilized more than 20,000 civilian fire fighters, approximately 4,000 soldiers and marines and thousands of other support personnel in dispatch centers, warehousing facilities, and administrative centers throughout the country.

Faced with this unprecedented situation, and with a forecast for a continuing hot and dry weather pattern, fire managers realized they would need to reach beyond U.S. borders for assistance. During the remainder of the 2000 fire season, the U.S. received assistance from more than 1200 Canadian firefighters, 96 fire specialists from Australia and New Zealand and 20 Mexican firefighters. These additional resources performed important roles in the U.S. firefighting efforts. Some international fire fighters provided much needed support to fire crews on the fire line while others performed as middle managers on incident management teams. International agreements with Canada and Mexico were in place prior to the 2000 fire season but none existed with Australia and New Zealand.

North American fire managers have had NAFC-FMWG sponsored informal *study group* exchanges with Australia and New Zealand for nearly 60 years (1951). These exchanges provide opportunities to share information about each other’s programs and experiences. Based on that exchange relationship and the knowledge of the Australian and New Zealand firefighting systems, when the U.S. fire situation reached a critical level in 2000, the U.S. approached Australia and New Zealand and asked for their help. Similar command structures, training, performance based qualification systems and physical requirements allow the New Zealand and Australian firefighters to easily blend into the upper level ranks of North American wildland fire organizations. The 96 fire specialists that came to the U.S. were integrated into the U.S. firefighting organization where they served in middle management positions on fires, freeing up U.S. fire managers to take on more critical tasks.

As a result, on September 9, 2001, the Secretaries of Agriculture and Interior signed an agreement with the Australian Prime Minister for mutual assistance in firefighting between the U.S. and three states in Australia. In 2002 New Zealand also entered into a mutual assistance agreement with the U.S. Since then, New Zealand and Australia have provided resources to the U.S. during the 2000, 2002, 2003, 2006, and 2008 fire seasons and the U.S. has supported the Australia fire season in 2003, 2007, 2009, and 2010.



**Figure 2.1.** NAFC-FMWG key objectives and fire management activities



**Figure 2.** NAFC-FMWG: Local to international cooperation

### **Case Study III: Exchange between Southwest and Northwest Europe – An illustration of the benefits of international exchange and the provision of specialist knowledge for wildfire**

Following a severe wildfire season in the UK in 2003, Northumberland Fire and Rescue Service (NFRS) identified that it did not have the knowledge and understanding of wildfire to safely and effectively manage wildfire incidents. Initially, NFRS sought assistance from other Fire and Rescue Services in the UK. However, NFRS quickly identified that all Fire and Rescue Services in the UK were in a similar situation and that there was a need both locally and nationally to import knowledge from the international wildfire community.

As illustrated within Figure 3, NFRS began approaching wildfire organisations around the world to exchange knowledge and good practice and made contact with Wildfire Specialists working for the Catalonian Graf Bombers (CGB) in Spain. Knowledge was exchanged through a variety of means, including the organisation of exchange visits between Northumberland and CGB. The CGB specialists provided extensive advice and support which helped NFRS to develop an understanding of the wildfire environment and an understanding of the local wildfire environment within Northumberland. NFRS was then able to develop and enhance its strategies for managing prevention, preparedness and response to wildfire incidents. The CGB also provided NFRS with copies of training systems and materials that were subsequently adapted and adopted for use within Northumberland and, subsequently, more widely throughout the UK.

Having established an understanding of wildfire, NFRS began promoting a national agenda for wildfire through its work in developing National Operational Guidance for Wildfire Incidents and National Occupational Standards for Wildfire Training. NFRS was also instrumental in helping to establish important national stakeholder groups for wildfire, including the England and Wales Wildfire Forum (EWWF) and the Chief Fire Officers Association's (CFOA) Wildfire Group.

While initial contact with the CGB enabled NFRS to make significant advances, NFRS was aware of the benefits of further developing a network of international partners with which it could continue to exchange information and expertise. Working in partnership with the CGB, NFRS organised a number of exchange visits with wildfire organizations around the World. NFRS's involvement in these exchanges helped to establish NFRS's position within the global Wildfire Community and helped to increase opportunities to participate in further exchanges and in a range of international collaboration projects.

From 2007 onwards, NFRS has been approached by a number of international fire and rescue services seeking to improve their training, policies and procedures for wildfire incidents. NFRS has provided support and training, and has exchanged information and experience, with Fire and Rescue Services in the Republic of Ireland and Denmark.

In a relatively short period of time, the assistance and support provided by the Catalonian Graf specialists has enabled NFRS to develop an understanding of its wildfire problems and to begin to implement significant improvements. The importation of knowledge from a few specialists has resulted in a significant cascade of knowledge to NFRS, to other agencies in the UK and to other international organizations. The CGB acted as a gatekeeper for NFRS for international knowledge on wildfire, and NFRS is now able to support other organizations by being playing a role within an informal global network of wildfire specialists.

**Figure 3.** International transfer of wildland fire management knowledge:  
An evolutionary and self-perpetuating process for improvement

