



## Workshop on Forest Fires in the Mediterranean Region: Prevention and Regional Cooperation



Sabaudia, Italy, 13-15 May 2008

# Report

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## PREFACE

The Workshop was organized in Sabaudia, Italy, from 12 to 15 May 2008, by the Corpo Forestale dello Stato (CFS) of Italy and FAO, with the support of the *Silva Mediterranea* Working Group on Forest Fires and the Joint Research Centre (JRC) of the European Commission in Ispra, Italy. The Workshop was hosted by the Circeo National Park in Sabaudia, while the premises of the Forestry School of the Corpo Forestale dello Stato in Sabaudia were also used.



## **INTRODUCTION**

Fire is the main cause of forest destruction in the countries of the Mediterranean Basin. About 50 000 fires sweep through 0.7 to 1.0 million hectares of Mediterranean forests, other wooded land and other land each year, causing enormous economic and ecological damage as well as loss of human life.

The forest fire situation in the Mediterranean Basin is significantly determined by predominant climatic conditions. Prolonged summers (extending from June to October and sometimes even longer), with virtually no rain and average daytime temperatures well in excess of 30°C, reduce the moisture content of forest litter to below 5 percent. Under these conditions, even a small addition of heat (lightning, a spark, a match, a cigarette butt) can be enough to start a violent conflagration.

Wild land fire information systems can help prevent major damage by alerting the responsible authorities when the weather conditions make fire outbreaks very likely.

Most damaging fires are caused by people for many different reasons: burning of waste and for pasture renewal which gets out of control, arson, pyromania, (illegal) clearing of land to change land use, not following existing obligations to avoid fire, etc. Other underlying causes like poverty, land pressure and lack of law enforcement create favourable conditions for these fires. The cause of a fire is often reported as not known and additional investigation to define the cause of fires needs more attention. A special point of attention is needed for arson, a phenomenon often mentioned as the cause of fire.

Cooperation within the Mediterranean on fire management could be a more effective way of preventing major damage by wildfires. New possibilities should be explored for this.

## **OBJECTIVES OF THE WORKSHOP**

The main objectives of the workshop were to:

1. Promote regional cooperation on wildfire management in the Mediterranean
2. Promote the use of information systems for the prevention of forest fires
3. Discuss the causes of fires in the Mediterranean, including the role of arson

## **PARTICIPATION AND AGENDA**

Forty-seven persons from 15 countries, the European Commission, the Global Fire Monitoring Centre and FAO participated in the workshop. The List of Participants is attached as Annex 1.

After the opening of the event, five sessions were organized over the two first days of the Workshop, during which presentations were made by participants and a discussion took place. The five sessions were:

*On day 1:*

1. Major activities in fire management of relevance to the Mediterranean
2. Legislation and information in the Mediterranean
3. Fire information systems in the Mediterranean

*On day 2:*

4. Human causes of fire in the Mediterranean
5. Cooperation in the Mediterranean

During the last day, recommendations were formulated for fire management and cooperation in the Mediterranean, concerning three areas: prevention, information systems and suppression. These recommendations were based on the discussions during the first two days.

For a more detailed programme, see [Annex 2](#). The report and presentations will also soon be available on the web and a CD will be sent to all participants.

## **DEVELOPMENT OF THE WORKSHOP: DAY 1**

On the first day, welcome words were pronounced by Dr Gaetano Benedetto, on behalf of Dr. Maurizio Ciaperoni, Director of the Circeo National Park and host of the event. This was followed by introduction words from Dr Franco Cozza, Head of the Policy Service, Corpo Forestale dello Stato, who also presented the Italian Corpo Forestale.

Mr José Antonio Prado, Director, FAO Forest Management Division, emphasized the importance of fire prevention in fire management and Mr Jesús San Miguel, from the EC Joint Research Centre in Ispra, stressed the importance of cooperation between the organizers of the event for the benefit of fire management in the Mediterranean Region.

### **Session 1 - Major Activities in Fire Management of Relevance to the Mediterranean**

This session was chaired by Mr José Antonio Prado.

Mr Alfredo Milazzo, Head of the Fire Fighting Division, Corpo Forestale dello Stato, explained the state of fire management in Italy, the different Italian risk regions, the development of fires and burned areas over the last 30 years and the organizational model of fire fighting through the example of Liguria, including national, regional and local responsibilities.

Mr Ricardo Vélez, Chair of the *Silva Mediterranea* Working Group on Forest Fire, reminded the audience about the specific recommendations approved during the 4<sup>th</sup> Conference on Wildland Fire Management, held in 2007 in Sevilla, Spain. He considered them as an essential basis for the Workshop. He specifically mentioned the recommendations which were developed in Session C, regarding Europe, Southeast Europe, the Mediterranean, North Africa and Caucasus. These recommendations appear in [Annex 3](#), and the report of the full session can be consulted on the following website: <http://www.fire.uni-freiburg.de/sevilla-2007/Session-C-Europe-Report-en.pdf>.

Mr Pieter van Lierop, Forestry Officer responsible for FAO's activities in Fire Management, described FAO's actual activities and challenges in Fire Management. FAO's main roles were to facilitate the development and implementation of global and regional strategies, to produce and facilitate global access to fire management data, information and terminology and to build capacity at national and regional levels. The FAO-coordinated Fire Management Voluntary Guidelines, and the Fire Management Actions Alliance - a global partnership with a Secretariat at FAO - are important tools and mechanisms to strengthen capacity in fire management. All activities under these roles include a participatory and an integrated approach.

The discussion in this session dealt mostly with the importance of prevention, the need to define better the efficiency of prevention, which indicators to use for this effect as well as the relation between climate change and fires. Regarding the last point, it was observed that although the fire risks in the Mediterranean most likely will rise through climate change, the main origin and underlying causes of fire will remain the same: most fires will still be caused by human.

## **Session 2 - Legislation and Information in the Mediterranean**

This Session was chaired by Mr Pieter van Lierop (FAO), and consisted of three presentations. One of them, presented by Mr Michael Bucki from the European Commission, had to be postponed to the next day but will be briefly discussed here.

Two presentations – one by Ms. Cristina Montiel, responsible for a FIREPARADOX research component on national policy instruments, with reference to wildfire suppression or prescribed burning, and one by Ms Maja Dittel (FAO), on legal issues regarding fire management from the Balkan and Northern Africa - showed interesting progress in defining recommendations for fire management legal frameworks. FIRE PARADOX will base its recommendations mostly on European lessons learned and the FAO survey will use case studies from the entire world. Ms Dittel focused her presentation on lessons learned from countries in North Africa and the Balkan.

*“Fire in the Mediterranean is an unavoidable cultural and ecological phenomenon, but an avoidable catastrophe” (Montiel)*

For the Mediterranean Region, Ms. Montiel gave also an interesting SWOT analysis of Wildfire legislation and policy for the Mediterranean region based on her survey.

<b>SWOT analysis of wildfire legislation and policy for the Mediterranean region (Montiel)</b>
<b>Strengths &amp; opportunities:</b>
<ul style="list-style-type: none"> <li>▪ All the countries have specific policies for wildland fires</li> <li>▪ Development of information systems</li> <li>▪ Political will on coordination</li> <li>▪ Improvement of the extinction efficiency</li> </ul>
<b>Weaknesses &amp; threats:</b>
<ul style="list-style-type: none"> <li>▪ Suppression-oriented actions at the expense of prevention</li> <li>▪ Need to enhanced community-based cooperation</li> <li>▪ Traditional burning practices were made illegal without prior educational programmes</li> <li>▪ Lack of a cross-sectoral approach</li> </ul>

Ms Maja Dittel emphasized the involvement of local communities in fire management and the counter-productivity of overly restrictive fire use. She recommended to use a participatory approach for Fire Management legislation development with the following benefits.

<b>Benefits of a participatory approach for the development of fire management legislation (Dittel):</b>
<ul style="list-style-type: none"> <li>▪ to ensure that legal solutions are practical and realistic</li> <li>▪ to ensure that the law is easy to understand</li> <li>▪ to build capacity among stakeholders to understand and use the law and exercise their rights</li> <li>▪ to make decisions in an integrated and inter-disciplinary manner</li> </ul>

Mr. Michael Bucki made a presentation on the EU framework on forest fire prevention. His presentation showed how five General Directions, plus the Joint Research Centre, are involved in Fire Management in the European Commission and emphasized that prevention should be the most important job, given the dramatic human aspects of disastrous fires and the high cost of disaster relief.

Discussion and comments in this session were related to needed regulations on urban interface fires, the fear to use backfires or prescribed burning as a consequence of a lack of training in these practices and biomass energy production as a measure to reduce fire risks.

*“Prevention should be the most important job, given the dramatic human aspects of disastrous fires and the high cost of disaster relief” (Bucki)*

## **DEVELOPMENT OF THE WORKSHOP: DAY 2**

### **Session 3 - Fire Information Systems in the Mediterranean**

This Session was chaired by Mr Ziad Al Jibawi, Director, Syrian Forestry Department, and consisted also of three presentations.

Mr Jésus San Miguel and Mr Andrea Camia presented the European Forest Fire System (EFFIS) and its components: the EU fire database with Danger Forecast, Active Fire Mapping and Rapid Damage Assessment.

Mr. Enrique Pompei made a presentation on the Italian experience with the cadastre of burned lands, and Mr Khalid Cherki explained how Morocco is developing, with FAO support, its National Fire Information System.

A discussion took place and comments were made on:

- The usefulness of the EFFIS system for regional objectives, like coordination of support from the region to big fire suppression (MIC-Brussels), and as complement to national systems, as well as its usefulness in the absence of a national system.
- Fire danger (EFFIS) vs fire risk (Morocco)
- How to deal with good and bad fires in the information systems
- The general public in Italy is not provided with all fire data, in order to avoid its use by arsonists

### **Session 4 - Human causes of fires in the Mediterranean**

The Session was chaired by Mr Angelo Mariano, Senior Forestry Officer, International Affairs Division, Italian Corpo Forestale dello Stato.

Presentations were made on the causes of fire in Syria (Mr Ziad Al Jibawi), Italy (Mr Giuseppe Vadalà) and Portugal (Mr Paulo Mateus).

Mr. Al Jibawi showed how the number of fires had clearly increased in Syria over the years, but the total area of burned had decreased as a consequence of better fire suppression equipment and more efficient rapid first attack. He also presented a FAO-supported Community-Based Fire Management project.

The presentation for Italy showed some specific fire cases from 2007 in Latina, Peschici and Vieste. Some specific interesting elements from the presentation by Portugal are shown below.

#### **Fire management in Portugal (Mateus)**

- Changing paradigm 1: use of fire (fire as an ally)
- Changing paradigm 2: more responsibilities to the private sector in fire management
- General 1% tax on fuel to support fire management
- General belief that arson is the main cause of fire was proven not to be true
- A national strategy which includes the utilization of forest biomass for energy through a Network of new power stations (goal: 2 Mtons/year by 2012) and of forest biomass for the local production of energy
- General awareness-raising and extension, but also focused on specific target groups, like shepherds associations.

The discussion in this Session was mainly about the profitability of using wood biomass for energy production.

#### **Session 5 - Cooperation in the Mediterranean**

The Session was chaired by Mr Lillo Testasecca, Senior Forestry Officer, International Affairs Division of the Italian Corpo Forestale dello Stato.

The session consisted of presentations in three categories:

- Networks on fire management in the Mediterranean
- Projects on fire management in the Mediterranean
- Cross border cooperation in the Mediterranean

#### ***Networks on fire management in the Mediterranean***

Mr Ricardo Vélez made a presentation on the past activities of the *Silva Mediterranea* Working Group on Forest Fire from the 90's, promoting common databases, training seminars, etc. and later multi- and bilateral cooperation and agreements. The working group has worked together with many institutions like the European Commission, the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) and the Joint Research Centre in Ispra. One of the latest events was the Regional Meeting for Europe, Southeast Europe, Mediterranean, North Africa and Caucasus during the 4<sup>th</sup> International Conference on Wildfires in 2007 in Sevilla, organized jointly with JRC.

Mr Andrea Camia presented the possibilities of cooperation between EFFIS and the Southern Mediterranean countries not yet included in the system. The main conclusion is that EFFIS does not replace national systems, it complements it, and when no national system is available it will also be of use. At the regional level, it will make it possible to better compare and sum the consequences of fire.

Mr Nikola Nikolov (Republic of Macedonia) gave a presentation on the Regional South/East European/Caucasus Wildland Fire Network. Of specific interest is the proposal for a regional strategy on international cooperation in this region with proposed thematic areas (terminology, database, information exchange, prevention and use of fire, early warning, detection and monitoring, suppression, training, policies and strategies, and research). Other activities include pilot projects and national and subregional meetings.

Mr Johann Goldammer (GFMC) gave an extensive overview of the Global Wildland Fire Network (GWFN), and activities of Europe in this network, the UNECE/FAO Integrated Plan of Work on Timber and Forestry, and support to activities in Balkan, Caucasus, Central Asia and Baltic region.

### *Projects on fire management in the Mediterranean*

Ms Lorenza Colletti, Senior Forestry Officer, International Affairs, Corpo Forestale dello Stato, presented the EU FIRE4 project, now known as FIRE5. Ideas on transboundary cooperation on training and preparedness started to develop in 2005 during the XVth Meeting of EU Director-Generals for Civil Protection in London. After the fires of the 2007 summer, with more than 500,000 hectares burned only in Italy and Greece and the loss of around 90 persons, a resolution of the European Parliament came out in September 2007 on fires and floods which underlines some areas for further activity (extraordinary Community Funds, going beyond the EU Monitor Information Center (MIC), better use of the Solidarity Fund, enhanced strategies, more prevention).

The call for the establishment of a EU civil protection force with modules, staff and aircrafts, in order to support national efforts and national cooperation between EU Member States and other countries, led to the development of this project with five leading countries: France, Italy, Spain, Portugal and Greece, and as associated countries: Cyprus, Czech Republic, Hungary, Malta and Slovenia. The main objective of this EU two-years project is the mutual exchange of experts for common training, experience sharing, and communication. The training component includes general training courses on fires and earthquakes hosted by the leading countries (five-day duration, lessons and practical activities); specialized courses for interventions against forest fires and earthquakes (civil protection); seminars for self-training between experts; and exercises (forest fires in Italy in April 2008, earthquakes in Portugal in April 2009) to test mixed staff and equipments.

In Sardinia in April 2008, the **S**ardinia **A**rsions **D**irect **N**ixing **A**ctions (SARDINIA) simulation took place, based on real, huge forest fires which had already occurred in the past in highly populated and tourist areas with national specialized staff and tools (Civil Protection, National and Regional Forest Corps, Fire Brigades, Volunteers, Red Cross, etc). Therefore this project will represent the first core of new EU Civil Protection strengthened activities, launched on March 2008 by Communication of the European Commission.

Mr Petteri Vuorinen (FAO) presented the main conclusions from the FAO Global Fire Management Assessment 2006:

<b>Main Conclusions of the Global Fire Management Assessment (FAO)</b>
<ul style="list-style-type: none"><li>▪ Expensive equipment alone is inadequate:</li><li>▪ Awareness-raising and education is critical</li><li>▪ Distinction between good and bad fires is needed</li><li>▪ More collaboration between fire authorities inside and between countries is needed</li><li>▪ Local communities should be involved</li><li>▪ Fire management is a land management issue (social, economical and environmental)</li></ul>



Mr Vuorinen then briefly explained the different kinds of projects and the main elements of most FAO projects on fire management: development of training, national strategies and awareness-raising, as well as review of legal frameworks. All projects have strong focus on capacity building, Integrated Forest Fire Management (IFFM) and Community-Based Fire Management (CBFiM). Projects had been recently accomplished in Bulgaria, Croatia and Syria, while new projects had started or were ongoing in Morocco, Lebanon and Syria (second phase). Projects are under preparation for the Republic of Macedonia and for Bosnia- Herzegovina. Mr. Vladimir Konstantinov, Head of the Forest Fire Management Sector, Bulgarian State Forestry Agency, explained how the project in Bulgaria laid the basis for the actual ongoing and increasing activities in Bulgaria.

### ***Cross-border cooperation in the Mediterranean***

Mr Luciano Massetti, Chief of the Office for the Aeronautical Activity of the Italian Civil Protection, presented technical and institutional problems of cross-border cooperation. His presentation included the Italian forest fire fleet, an overview of the fire events in 2007, the out-of area operations and the lessons learned.

***“Prevention is invisible. Aeroplanes are sexy; silviculture is not.” (Colletti)***

The contribution from Italy to other countries in the region started in the late 1990s (i.e. France, Spain, Portugal and Greece). At present, two Canadairs are ready to deploy with 3-hour notice and an operational deployment based on 4-day duration

Italy participates at the EU Civil Protection Mechanism which comprises 31 countries: the 27 EU Member States plus Norway, Iceland, Liechtenstein and Croatia. The mechanism facilitates the exchange of teams, experts and dedicated means across national borders.

#### **Lessons Identified during Out of Area Operations (Massetti)**

1. Non-standard activation procedures.
  - EU MIC (Monitor Information Center - Bruxelles)
  - Bilateral agreements
2. Unclear definition of Command and Control Authority
3. No entry point of contact fluent in English
4. Lack of fire assessment information
5. Limited Host Nation support
  - Fuel
  - Parking/Ramp space
  - Hangar space for maintenance (if needed)
  - Maps and Flight Information Services
  - Lodging and transportation
6. Undefined Liability
  - Collateral damages
  - Incidents
  - Third Party claim

Mr Kostas Papageorgiou, Forest Fire Protection Officer, Cyprus, made a presentation on cross-border cooperation in Eastern Mediterranean.

The 2007 summer season witnessed unusually big forest fires across Cyprus. Cyprus received assistance in the form of aerial fire-fighting from Lebanon, Israel, Italy and Greece and provided assistance to Greece in the form of ground forces and to Lebanon in the form of a fire-fighting airplane.

As regards Cyprus, the existing collaborations are not based on any formal collaboration agreement. Whenever possible, the different countries provide assistance, mainly in the form of aerial fire-fighting. However, the level of assistance provided is, most of the time, limited as fires are raging at the same time in several countries and the risk of fires is high in other countries. The response time is too long because of the necessary bureaucratic procedures.

The climate change in the Mediterranean region leads to hotter and drier summers and increases forest fire hazard. In fact, following the prolonged water-scarce conditions of 2007, the probability of intense fire events was estimated to be quite high. As a consequence, the existing national forest fire-fighting systems most probably will not be able to withstand their own future fires, which are expected to

increase in number, size and frequency, and therefore the cross-border assistance, especially in air means, will be very limited. Under these conditions, the need for official regional collaboration agreements between the neighbouring countries appears imperative.

#### **Regional cooperation and agreements (Papageorgiou)**

- The need for official regional collaboration agreements between the neighbouring countries appears imperative.
- Mutual assistance should not only be based on air means but also on ground forces, exchange of experts, knowledge and experiences.
- Collaboration must cover not only fire suppression but also prevention.
- A number of Coordination Centres must be established. They should operate in selected Mediterranean countries where the fire risk is high and be located at geographically strategic points.
- Necessary economic resources for the establishment and maintenance of these centres should be ensured.

Mr Ricardo Vélez described the specific agreement between Portugal and Spain concerning mutual assistance in the field of forest fires in the border area between the two countries. As the border area has been defined 15 km at both sides of the border, requests for assistance for fires outside the border area will have to come from and go to the central authorities. Within the border areas, however, regional or local fire authorities can directly request assistance across the border to the regional or local fire authority. A fire detected by one country in the border area of the other country, with high probability of crossing the border, will cause the local or regional fire authority to inform the authorities on the other side of the border and even dispatch resources to suppress the fire on the other side of the border. In all cases, both national authorities and the EC Monitoring and Information Centre (MIC) will be informed. This agreement goes together with many pre-fire season preparation activities, including joint exercises before the fire season.

A similar bilateral agreement will be soon signed between Italy and France.

#### **Discussion in the last session**

The discussion in this last session mainly concentrated on:

- The need for agreements guidelines; attention was drawn to the existing FAO template Working Paper (<http://www.fao.org/docrep/009/ag043e/ag043e00.htm>), the FAO International Agreements and National Legislation Working Paper (<http://www.fao.org/docrep/009/ag044e/ag044e00.htm>) and the website containing existing agreements: <http://www.fao.org/forestry/6721/en/>
- A new approach on forest fires is needed and should include prevention and awareness.
- The challenge to include fire management in forest management.
- Lack of (funds for) research on prevention and on fire causes.
- The dispersed competences and funds regarding fire management in Europe and the EC make it necessary to create a central overview of all information.
- The fact that the eroded forest sector in general, with less funds and less maintenance, leads to less forest protection and higher fire risks.

## **DEVELOPMENT OF THE WORKSHOP: DAY 3**

The last session was chaired by Mr Ricardo Vélez. The participants, to whom recommendations of the Sevilla meeting ([Annex 3](#)) were reminded, met in working groups and in one plenary session, to develop recommendations in three categories, based on the discussions which took place during the Workshop. The categories were:

- prevention
- information systems, and
- suppression

These draft recommendations were edited by the organizers and the final version is available in the next chapter.

## **RESULTS OF THE WORKSHOP**

### **Recommendations and conclusions from the Workshop “Forest Fires in the Mediterranean: prevention and regional cooperation”, (Saubaudia, Italy, 12 – 15 May 2008)**

organized by  
FAO, the Corpo Forestale dello Stato, the *Silva Mediterranea* Working Group on Forest Fire and the  
EC Joint Research Centre in Ispra

The participants in the Workshop support all recommendations approved in the 4<sup>th</sup> Conference on Wildland Fire Management, held in 2007 in Sevilla, Spain, considering them as an essential basis for the Workshop recommendations. Of special importance from this Conference are the following recommendations for Europe, Southeast Europe, Mediterranean, North Africa and Caucasus:

1. The protection of the environment in Europe, the Mediterranean Basin and the Caucasus region cannot be effective without a Regional Strategy for Fire Management designed according to the distribution and intensity of the danger and developed in cooperation with the public and private stakeholders of the forest sector.
2. Priority is to be given to the prevention of fires caused as a consequence of the socio-economic changes in rural areas, and the promotion of the participation of the local population.
3. To include in this regional strategy the maintenance, improvement and enlarging of the European Forest Fire Information System.
4. Agencies and groups are encouraged to participate in the Fire Management Actions Alliance in support of their adoption of the Voluntary Guidelines for Fire Management.

All participants agree that forest fires cannot be considered in isolation from other land use sectors and rural and vegetation fires. For this reason, an integrated approach is necessary. Terms like forest fires, wildfires, wildland fires and others all have different including and excluding features. The Workshop dealt with fire in a broad sense, including all types of vegetation fires and interfaces.

The participants in the Workshop concluded their work with the following recommendations for the Mediterranean region:

## I. Recommendations on Fire Prevention

1. Fire prevention actions, including participatory approaches like Community-Based Fire Management, should be stressed against an approach merely oriented toward fire suppression and should be integrated in forest and fire management planning.
2. The Fire Management Voluntary Guidelines, Principles and Strategic Actions are recommended as a useful instrument to develop new or adapt existing policy, legal, regulatory or other frameworks with an integrated approach.
3. Prevention strategies should be dynamic, evolving according to spatial, socio-economic and natural changes, and also adapted to different socio-economic and territorial contexts, taking into consideration all influencing factors:
  - a. forest value;
  - b. forest owners associations to promote;
  - c. administrative system;
  - d. territorial level for planning;
  - e. spatial and socio-economic dynamics; and
  - f. urban development.
4. A minimum of essential actions to be included in the management plans should be defined like:
  - a. Silviculture: fuel management and forest infrastructure for fire suppression (roads, water points, etc);
  - b. Social prevention: public awareness, local population participation, etc;
  - c. Spatial planning issues: urban planning, land management, etc.
5. Special attention should be given to the new territories at risk, such as the wildland-urban interfaces, where specific preventive measures should be considered.
6. Both public decision-makers and private enterprises should be informed that fire prevention should get a much higher priority given on one hand the benefits, and on the other the social, environmental and economic impacts of disastrous fires as well as the high cost of disaster relief. They should also be involved in developing preventive actions.
7. Prevention actions should be cross-sectoral; more coordination between the stakeholders (forest owners, civil protection, rural development, spatial planning, and forest services) is needed at national, European and Mediterranean level.
8. Legal aspects should be clarified and enhanced through the development of incentives and obligations concerning preventive actions (forest owners, building enterprises, municipalities, etc).
9. Prescribed burning should be an alternative technique, but carefully adapted to the different contexts (territorial patterns): rural abandoned areas, wildland urban interface, productive rural regions, etc.
10. Preventive actions have to be long term and permanent activities, although they are often not as visible as big suppression material, thus maybe receiving less political attention and consequently not receiving the same needed resources. Politicians from the Mediterranean should be made aware of the importance of fire prevention actions.
11. There is a need to make existing European Union funds for national, subregional and regional prevention measures (structural funds and rural development fund) better available for all Mediterranean countries, including non-EU countries.

12. The use of a European fund and the international cooperation implies the availability of comparable information for the evaluation and follow-up process and thus the need of indicators for monitoring prevention activities. For instance, it is important to know the investment distribution in each country for prevention and suppression measures.
13. Existing regional networks like the FAO Silva Mediterranea, the Regional South-East European Wildland Fire Network and the European Forest Fire Information (EFFIS) network, should be considered when developing new international cooperation activities.

## **II. Recommendations on information systems**

14. Harmonization of terminology on fire management should be promoted. A common, agreed terminology is important also as the basis for the fire database and should be supported with related trainings. An example of a piece of effort in this direction is the handbook of terms used in fire-fighting, written in six languages in the context of the Fire-4 project.
15. Harmonized and flexible information systems are important, both at regional and national level.
16. The European Forest Fire Information System (EFFIS) could be used beneficially also in Mediterranean non-EU countries. The inclusion of these countries should start by the definition of the national point of contacts, in order to establish a communication channel between the EFFIS and the national systems.
17. Detailed databases on fires, consistent with the EU/Mediterranean system, should be developed at national level also in non-EU Mediterranean countries, as well as national fire danger rating systems. The EFFIS fire database and fire danger forecast should be considered as the core scheme to be used as reference in this respect.
18. The EFFIS fire danger indices should be adapted also to Southern Mediterranean countries, taking into account the different range of climatic conditions. The adaptation would require some time and fire data will have to be available.
19. Fuel maps are regarded as highly important tools. They should be built both at regional and local level following consistent methodologies.
20. National Forest Inventories are important, but for some countries are lacking information on fires. The mapping of fire perimeters and their recording in a specific fire cadastre is considered important in some Mediterranean areas.
21. Investigations on fire causes are needed, also accompanied by spatial analysis that would allow identifying and grouping of the risk areas in order to further support the investigation process.
22. It is important to establish international protocols for border fires in order to facilitate common investigation on fire causes. Some common training/capacity building initiatives such as seminars are needed in order to exchange experiences and keep the services updated on modern systems of investigation which are continuously evolving.
23. More attention should go to fire economics to study overall impacts of fires and the effectiveness of fire management.

## **III. Recommendations related to fire suppression**

24. It is necessary to harmonize the existing and future agreements within the Mediterranean. The work already done by international organizations must be taken into account, e.g. the template for international agreements as those available on the FAO and Global Fire Monitoring Centre homepages. Templates for bilateral agreements in place should also be taken into consideration.

25. Co-operation initiatives should be encouraged between Northern and Southern Mediterranean countries.
26. Operational rooms in different countries should use harmonized procedures and technical tools.
27. Application of Incident Command Systems (ICS) must be used for co-operation on wild fire-fighting.
28. Fire Management training (including aerial and ground fighting) should be standardized.
29. In order to prevent injuries and save the lives of fire-fighters, technical reports on suppression activities should include detailed information on accidents and near-miss experiences. This is already applied, on a voluntary basis, by the Aviation (e.g. Aviation Safety Reporting System) and since 2005, by the International Association of Fire Chiefes.
30. Individual protection equipment should be designed accordingly with the different tasks assigned to fire-fighters. Thanks to an enhanced exchange of experiences, such equipment should be standardized and its use strongly encouraged, also avoiding disparity of treatment in case of international fire-suppression interventions.
31. Civil infrastructure and settlement planning in rural and forest areas should take into account not only the obvious risk of fire (thus, a low presence of inflammable vegetation and the availability of proper safety equipment are required), but also the possible future need of fire-suppression interventions (thus, a good accessibility to men and vehicles).
32. Knowledge transfer should be encouraged especially among neighbouring countries and meetings to share national experiences and lessons learnt should be organized.
33. Use of backfires should be considered and authorized, especially in areas which are difficult to access and where there is a limitation of water to extinguish fire. It may also be considered under certain conditions in the presence of infrastructures and for the sake of the safety of fire fighters.

#### **IV. Recommendations actions to be started at short term**

34. To share updated information between countries on structural prevention issues (e.g. area of proper protected forest, area of fuel managed each year, techniques used for fuel management, ton of biomass utilization for energy, pasture or others), and accountability.
35. To implement a common awareness campaign at the Mediterranean basin addressed not only to the local population but also to all people visiting the Region for vacation during the fire season (tourists).
36. To develop and implement an harmonized methodology for training programs on fire management issues.

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## ANNEX 2 - PROGRAMME

### MONDAY, 12 MAY

Evening      Arrival of participants in Sabaudia

### TUESDAY, 13 MAY

- 09.00-09.15      Opening by the President of the Circeo National Park  
*Speaker: Gaetano Benedetto on behalf of Dr. Maurizio Ciaperoni, director of the Circeo National Park*
- 09.15-09.25      Welcome words by the Corpo Forestale dello Stato  
*Speaker: Mr Franco Cozza, CFS*
- 09.25-09.35      Welcome words by FAO  
*Speaker: Mr José Antonio Prado, FAO*
- 09.35-09.45      Welcome words by the Joint Research Centre (JRC) (European Commission)  
*Speaker: Mr Jesus San Miguel, JRC/EC*
- 09.45-10.00      Presentation of the Programme, participants, etc.  
*Speaker: Mr Lillo Testasecca, CFS*

#### 1. Major Activities in Fire Management of Relevance to the Mediterranean

*Facilitator: Mr José Antonio Prado, FAO*

- 10.00-10.15      Setting the scene: Fire in the Mediterranean  
*Speaker: Mr Alfredo Milazzo, CFS*
- 10.15-10.30      Towards a coordinated collaboration on fire management in the region  
*Speaker: Mr Ricardo Vélez, Chair, Silva Mediterranea Working Group on Forest Fire*
- 10.30-10.45      Roles of FAO on Fire Management  
*Speaker: Mr Pieter Van Lierop, FAO*
- 10.45-11.00      Coffee Break
- 11.00-12.00      Questions and Discussion

#### 2. Legislation and Information in the Mediterranean

*Facilitator: Mr Pieter VanLierop, FAO*

- 12.00-12.15      EU Framework on forest fire prevention: Forest focus regulation and forest fire prevention  
*Speaker: Mr Michael Bucki, European Commission*
- 12.15-12.30      National policy instruments with reference to wildfire suppression or prescribed fires  
*Speaker: Ms Cristina Montiel, Fire Paradox Study, Universidad Complutense, Madrid*
- 12.30-12.45      Legal issues regarding fire management from the Balkan and Northern Africa  
*Speaker: Ms Maja Dittel, FAO*
- 12.45-13.30      Questions and discussion
- 14.00-15.00      Lunch Break

#### 3. Fire Information Systems in the Mediterranean

*Facilitator: Mr Ziad Al Jibawi, Syria*

- 15.30-16.00      Presentation of the European Forest Fire Information System, and possibilities for the Southern Mediterranean  
*Speakers: Mr Jesus San Miguel and Mr Andrea Camia, UE/JRC*
- 16.00-16.15      The cadastre of burned lands: the Italian experience  
*Speaker: Mr Enrico Pompei, CFS*
- 16.15-16.30      Development of a Fire Information System in Morocco  
*Speaker: Mr Khalid Cherki, Morocco*
- 16.30-16.45      Coffee Break
- 16.45-17.45      Questions and Discussion
- 19.00              Cocktail offered by FAO

#### 4. Human Causes of Fires in the Mediterranean

*Facilitator: Mr Angelo Mariano, CFS*

- 09.00-09.15 Causes of fires in the Near East countries, with special attention to arson  
*Speaker: Mr Ziad Al Jibawi, Syria*
- 09.15-09.30 Causes of fires in Italy, with special attention to arson  
*Speaker: Mr Giuseppe Vadalà, CFS*
- 09.30-09.45 Causes of fires in the West Mediterranean countries, with special attention to arson  
*Speaker: Mr Paulo Mateus, Portugal*
- 09.45-10.00 Questions and Discussion
- 10.00-10.30 Coffee Break

#### 5. Cooperation in the Mediterranean

*Facilitator: Mr Lillo Testasecca, CFS*

- 10.30-10.45 Past activities of the *Silva Mediterranea* Working Group on Fire Management  
*Speaker: Mr Ricardo Vélez, Chair, Silva Mediterranea AdHoc Working Group on Forest Fire*
- 10.45-11.00 EU Project FIRE 4: Transboundary cooperation on training and preparedness  
*Speaker: Ms Lorenza Colletti, CFS*
- 11.00-11.15 EFFIS Network and cooperation with SilvaMed  
*Speaker: Mr Jesus San Miguel, UE/JRC*
- 11.15-11.30 FAO projects in the Mediterranean  
*Speaker: Mr Petteri Vuorinen, FAO*
- 11.30-11.45 The work of the UNECE, GWFN and GFMC in Europe and the Mediterranean Region  
*Speaker: Mr Johan Goldammer, GFMC*
- 11.45-12.00 Questions and Discussion
- 12.00-12.15 The Regional Southeast Europe/Caucasus Wildland Fire Network  
*Speaker: Mr Nikola Nikolov, Macedonia*
- 12.15-12.30 Cross-border cooperation: technical and institutional problems  
*Speaker: Mr Luciano Massetti, Air General, Chief of the Office for the Aeronautical Activity, Italian Civil Protection Department*
- 12.30-12.45 Cross-border cooperation in East Mediterranean  
*Speaker: Mr Kostas Papageorgiou, Cyprus*
- 12.45-13.00 Cross-border cooperation in West Mediterranean  
*Speaker: Mr Ricardo Vélez, Chair, Silva Mediterranea Working Group on Forest Fire*
- 13.00-14.00 Questions and Discussion
- 14.00-15.30 Lunch Break
- 15.30-18.30 **Field visit in the Circeo National Park**

### THURSDAY, 15 MAY

#### 6. Future Cooperation on Fire Management in the Mediterranean

*Facilitator: Mr Ricardo Vélez, Chair, Silva Mediterranea Working Group on Forest Fire*

- 09.00-09.30 Reminder of the conclusions from Sevilla (Ricardo Velez)
- 09.30-09.40 Explanation of Group work to formulate recommendations for the Mediterranean on fire  
*Speaker: Mr Pieter van Lierop, FAO*
- 09.40-11.00 In groups definition of recommendations
- 11.00-11.30 Coffee Break
- 11.30-12.15 Presentation of group work
- 12.15-12.45 Plenary discussion on the recommendations
- 12.45-13.15 Final words by:  
- *Mr Ricardo Vélez, Chair, Silva Mediterranea Working Group on Forest Fire*  
- *Mr Alfredo Milazzo, Head of Division 3, Forest Fires Corpo Forestale dello Stato*  
- *Mr Pieter van Lierop, FAO*
- 14.00-15.30 Lunch break
- 15.30 Departure to Rome

## ANNEX 3 – RECOMMENDATIONS FROM THE 4<sup>th</sup> INTERNATIONAL WILDLAND FIRE CONFERENCE (Sevilla, Spain, 2007)



Sevilla, ESPAÑA. 13 -17 mayo 2007  
4ª CONFERENCIA INTERNACIONAL SOBRE INCENDIOS FORESTALES

### Conclusions and Recommendations from Regional Session C: Europe, Mediterranean, North Africa and Caucasus

1. The protection of the environment in Europe, the Mediterranean Basin and the Caucasus region cannot be effective without a Regional Strategy for Fire Management designed according to the distribution and intensity of the danger and developed in cooperation with the public and private stakeholders of the Forest Sector.
2. Rural abandonment and decline of the forest economy in the Mediterranean Basin is a major concern as climate change may aggravate the natural conditions of fire risk.
3. Special attention must be given to fires burning on radioactively contaminated lands, by fires on areas with unresolved conflicts and on territories with post-war hazards such as land mines and unexploded ordnance, as they affect human security and peace in the region
4. Priority is to be given to the prevention of fires caused as a consequence of the socio-economic changes in rural areas, and the promotion of the participation of the local population.
5. Some issues to be included in this Regional Strategy are:
  - Maintenance, improvement and enlarging of the European Forest Fire Information System (EFFIS) with standardized procedures for data collection and use of remote sensing for quick appraisal of large fires impacts, as a tool to identify the high risk zones.
  - EFFIS to set a danger prediction network covering all Europe, the Mediterranean Basin and the Caucasus.
  - Definition of forest fire risk areas taking into account the fire incidents, fuels, value of forests, protected areas, forest-urban interfaces and forest ownership.
  - Analysis of forest fire emissions and impacts on human health
  - Studies on the silvicultural condition of woodland areas, including forest fuel and biomass maps in coordination with the National Forest Inventories.
  - Analysis of socio-economic impacts of fires
  - Studies on fire causes, including the use of fire at the rural areas and possible preventive actions in cooperation with the local population.
  - Scientific research programmes addressing the consequences of changes of climate, land use and land cover and socioeconomic changes on fire regimes, environment and society.
  - Creation and distribution of awareness materials in several languages.
  - Programmes of preventive infrastructures: preventive silviculture, roads, lookouts, water reservoirs.

- Joint actions on border areas, where appropriate, such as observation and monitoring networks with compatible communication systems (considering languages).
- Promotion of bilateral and multilateral agreements, where appropriate, for cooperation in suppression activities, including standardized procedures of integration of resources.
- International training courses
- Programmes for burned areas restoration, giving priority to the surfaces destroyed by large, intense fires, where the environmental impact is the greatest.

6. These Recommendations for a Regional Strategy are to be included in the Conference Conclusions and presented to the international bodies competent in the Region, like a contribution to the build up of a Regional Strategy of Cooperation in Fire Management.

7. Agencies and groups are encouraged to participate in the Fire Management Actions Alliance in support of their adoption of the Voluntary Guidelines for Fire Management.

8. It is also recommended that a Regional Consultation on Global Change and Wildland Fire will be convened within the next 2 years to progress to the 5<sup>th</sup> International Wildland Fire Conference.