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**INSTITUTE OF MEDITERRANEAN  
FOREST ECOSYSTEMS AND  
FOREST PRODUCTS TECHNOLOGY**

## **PRESS RELEASE**

**Subject:** Conclusions of the International Scientific Workshop on "Forest Fires in the Wildland-Urban Interface and Rural Areas in Europe: an integral planning and management challenge".

The International Scientific Workshop on "Forest Fires in the Wildland-Urban Interface and Rural Areas in Europe: an integral planning and management challenge" was held successfully on May 15 & 16, 2003, in Athens, Greece.

### **The problem**

In the last years, forest fires affecting the Wildland-Urban Interface and Rural Areas (W-UI/RA) have populated news front-pages around the world, as one of the most dramatic natural events in which human lives and properties are threatened and destroyed. Several recent examples in USA, Australia, Asia and Europe have exceeded the circle of fire managers, specialists and scientists, touching directly public sensibility and often becoming a major preoccupation.

Fires in the W-UI/RA have been studied and characterised in the USA, Canada and Australia, among other countries, for decades. Looking at this experience, a number of European Union co-funded research projects are now focusing into the reality of W-UI/RA fire management in Europe. Within the scope of one of these projects, entitled WARM (Wildland-Urban Area Fire Risk Management), the current event was organised as follow-up of the first workshop on W-UI/RA user needs held in Marseille (France) in June 2002.

The project WARM is focused on the problem of forest fire in areas where there is an interface of forests and settlements. Its general objective is to identify and characterise direct and indirect risks to the human activity due to the fire occurrence in the wildland-urban interface (W-UI) in Europe. WARM aims to provide a methodology to minimise losses of residences and other structures, while reducing social and environmental impact. An information system is planned to offer assistance in the elaboration of rationalised, encompassed wildfire defence plans. The project is co-funded by the Direction of Environment of the European Commission within the 5<sup>th</sup> Framework Research Program.

## **The workshop**

The International Workshop took place in the conference room of the Institute of Mediterranean Forest Ecosystems and Forest Products Technology (IMFE&FPT) of the National Agricultural Research Foundation of Greece (NAGREF), in Athens.

The workshop was co-organized by:

- The Institute of Mediterranean Forest Ecosystems and Forest Products Technology, Forest Fire Laboratory, Athens, Greece (a partner of the WARM project).
- The General Secretariat for Civil Protection. Athens, Greece.
- The General Direction for the Development and Protection of Forests and Natural Environment of the Ministry of Agriculture, Athens, Greece.
- The General Secretary of the Region of Attica, Athens, Greece
- ALGOSYSTEMS S.A., Athens, Greece (a partner of the WARM project).
- TECNOMA S.A., Madrid, Spain (the coordinator of the WARM project).

The objective of the workshop was to give the opportunity to various research groups and operational managers from European countries, to meet and exchange points of view and research findings concerning the fire problems encountered in areas where forest, rural and urban areas intermix, creating the so-called Wildland-Urban interfaces (WUI) which have become quite extensive in the last decades.

## **Participation**

The workshop attracted more than 160 participants from Greece and other European countries (Austria, Czech Republic, France, Germany, Italy, Slovakia, and Spain). The Prefect of Eastern Attica Mr. L. Kouris, the General Director of the General Directorate for the Development and Protection of Forests and Natural Environment Mr. D. Benidis, representatives of the General Secretariat of Civil Protection, the headquarters of the Greek Fire Corps, the General Secretary of the Region of Attica, and representatives of the administration of NAGREF were present at the opening session of the workshop and delivered short speeches on the significance of the Wildland-Urban interface problem and their points of view.

The audience and the speakers included both researchers and operational officers from various state and local authorities in Europe. The three main European research projects dealing with the WUI issue, namely WARM, FIRESTAR and SPREAD, were represented and contributed to the content of the workshop. Two more wildland fire-related European research projects, namely AUTO-HAZARD PRO and FIREGUARD, were also represented by their coordinators, while AUTO-HAZARD PRO offered an overview of its activities and an explanation of its relevance to the WUI issue.

The papers presented were very interesting and covered such aspects as examples of fire disasters in the wildland-urban interface in Europe, planning problems in such areas, solutions and guidelines, many of them as findings of current research, and, finally, modern technologies that can help improve planning and development of WUI areas. Of particular interest was the presentation of Mr. Jack Cohen, a researcher of

the US Forest Service, who was the invited speaker of the workshop. Mr. Cohen, who has focused his research on the WUI problem in USA for more than ten years, presented the newer developments in the field, simultaneously providing the opportunity to the audience to comprehend the conditions that prevail in the USA. His participation and contribution to the discussion that followed was also very important. That session offered a good opportunity for exchange of examples and views from the perspective of countries with very different environments and social conditions.

## **The conclusions**

The presentations and the discussions that followed resulted in a series of conclusions in regard to the fire problem in the WUI/RA. These conclusions range from the protection of individual residences to more general measures for the reduction of the potential for disaster in such areas. The conclusions are presented below.

### **Conclusions concerning residences and their danger of destruction**

1. The **sensitivity of residences to fire**, both in regard to initial ignition and to the potential for flame spread to their parts (walls, roofs, furniture...) constitutes the most important element determining the extent of damage a wildfire may cause to citizen properties.
2. **Vegetation treatment around structures** is particularly important near them but is less important at some distance from them, at least in regard to the probability of a structure being burned. However a residence may burn even if the fire does not reach it.
3. Continuing from the previous conclusion, the **direct contact of parts of a residence with flames**, even small ones, increases steeply the probability of damages to that residence. To avoid this, there should be no vegetation around the house, mainly grasses, shrubs and tree branches, which will bring the flames up to the structure. **Exposure to flame radiation poses a less significant danger** except if there are especially flammable materials, such as nylon curtains, in the house.
4. Damages in houses are often due to ignitions within them from burning **embers that originate at some distance**. Open windows, ventilation openings and chimneys without protective wire mesh are the most common entrance points.
5. It is quite common to see residences which appear quite safe, to catch on fire during a WUI fire, because of specific weaknesses that make them especially vulnerable. Examples of such **weaknesses** are:
  - **Use of tar paper under the roof tiles**, because this paper is easily ignited
  - **Presence of nylon curtains**
  - Lack of **non-flammable window shutters** that will protect window glasses, the curtains and the interior of the house from radiation.
  - **External use of flammable materials** such as PVC rain-gutters which are flammable. Concentration of dead needles and leaves in them aggravates the situation.
  - **Positioning of flammable materials**, such as firewood piles, outside the house but at a short distance from it or under it.

6. **Often residences are destroyed** quite some time after the passage of the fire because there is no one there to locate and extinguish small fire starts in and around them.
7. The conclusions above demonstrate the **possibility of citizens to take important measures in order to increase the safety of their residences. Residences in the Mediterranean areas of Europe are relatively non-flammable, mainly with regard to their exterior wall materials.** Given this fact, removal of weaknesses, such as those mentioned above, in combination with presence of the house owner in his prepared-for-fire residence, can ensure survival of houses when a fire arrives from the forest.

### **Conclusions concerning the planning and the protection of Wildland-Urban Interface areas from fire**

1. Technology today makes available many tools that can be very useful in support of better planning in Wildland-Urban Interface areas. Geographic Information Systems are one such tool that can support objective and quantitative problem analysis in such an area. Other tools include modeling and simulation of fire behavior and of the thermal field of a flame front. Such models can be used, among other uses, for the development of fuel treatment guidelines (shrub removal, tree distance from homes, etc.). Many applications of such technologies, both at research and at operational level, were presented during the Workshop.
2. In regard to making use of technology, one of the elements that should be evaluated in each WUI area is the possibility of effectively protecting it from wildfire. This can be done using various criteria such as type and characteristics of residences, their location, density, etc. More specifically, one of the conclusions that resulted from the discussions of the Workshop was that **when a certain number of residences (density) is exceeded, then, in critical conditions, any firefighting plan collapses** due to the requirement for protection of residents and their homes. This requires excessive number of fire trucks and firefighters ,which once committed there, cannot work towards stopping the spread of the fire. Thus the fire spreads uncontrolled in other settlements down its path further worsening the problem. A characteristic example that was presented during the workshop was a fire that swept successively the communities of Sykaminos, Oropos, Mjlesi, Bafi, New Livissi, Markopoulo, and Kalamos in Northern Attica, Greece, on June 4<sup>th</sup> 2001. The extent and density of the WUI areas that have been developed during the last two decades without developing the respectively required fire protection infrastructure are most probably the main reason for the serious fire damages that occur with increasing frequency in the last few years.
3. The **availability of technologies and knowledge is not enough** for correct planning that will lead to the development of safer WUI areas. They must be used for developing rules for planning and for enforcing application of these rules in practice. Furthermore, it **is equally important to secure participation of residents** in the effort.
4. Aiming for the last point, it is important to stimulate the interest of the citizens. They must be made aware of the problem and must become part of the solution, which will serve their immediate interests. The phrase coined

- during the workshop was “**we must learn to work together, or else we’ll burn together**”.
5. In general, a balanced approach is needed. Given the existing conditions (effort to escape the noise and pollution of the big cities, vacations, tourism..) which push large number of people (and not a few individuals only) to built residences in WUI interface areas, it must be recognized that such development is inevitable. On the other hand, it is not fair for the society to bear the burden of protecting un-planned, often illegal, high-risk settlements. **The solution is development of rational, scientifically designed, stable laws, rules and standards.** These rules should be used for designing well-planned areas appropriate for such development.
  6. **Certain laws may have negative results in the correct development of WUI areas.** In Greece, for example, the existing forest law tends to encourage illegal development of WUI areas. In reality there is very little land where such development can be done legally. Furthermore, according to the law, if an agricultural field has been left uncultivated for years, for example due to immigration of the owners, and this has led to growth of forest vegetation (e.g. shrubs), this vegetation cannot be removed for re-cultivation of the field. The result of this law is the development of an uninterrupted forest landscape around villages. In such conditions, fires reach the houses while in the past they would be stopped in the agricultural fields at some distance from the settlements.
  7. In regard to sensitization and involvement of citizens, it was proposed to use scientists that deal with the problem as opinion leaders, promoting their projection through the media in order to achieve better **transmission of knowledge to the public.** They can present their research findings better than anyone else, and they can present analyses of previous disasters that will help improve citizen awareness about the problem. In parallel, they can propose solutions in a rational and friendly way that is often more effective than any effort to enforce the law.
  8. It was pointed out that it is good to **avoid excessive pressure and police-like measures to the citizens.** The measures to be taken and the rules established must be reasonable and practical in order to be easily accepted. It was further pointed out there are already areas in Attica where sensitized residents have made significant collective efforts (fuel treatments, fire lookouts, labeling of streets, removal of garbage ...) in order to make their settlements safer. Such actions and especially their results must be publicized and supported by the State.
  9. Finally, during the Workshop, a series of examples of settlement planning and development in Central Europe were presented (North Italy, Czech Republic, and Slovakia). There, the order, the rational approach, the correct specifications and, most important, their application in practice, presented a picture quite different from the often anarchic conditions prevailing in certain Mediterranean countries.

All the papers that were presented at the Workshop will be included in the book of proceedings, which will be published as soon as possible. The proceedings will also become available on the Internet sites of the Institute of Mediterranean Forest Ecosystems and Forest Products Technology ([www.fria.gr](http://www.fria.gr)) and of the WARM

research project ([www.euwarm.org](http://www.euwarm.org)). Interested users will also find there additional information and research developments about the WUI problem.

Additional information can be obtained by contacting the chairman of the Scientific Committee of the Workshop:

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