

Operational tools for improving efficiency in wildfire risk reduction in EU landscapes

FIREfficient

Pilot sites test on the United Kingdom context

U.K. from 7th to 10th April 2015

FINAL VERSION

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I.- Introduction, aim and scope:

The main aim of the mission was to exchange the learnt lessons, knowledge and experiences on wildfire risk reduction between the project FIREfficient (<http://fireefficient.ctfc.cat>) partners and different U.K. actors with regards on wildfire risk management, for instance firefighters and rescue services, forest managers, land planners, ecologists groups and scientists/researchers. A broad variety of stakeholders involved in the wildfire risk issue, that have given the chance listen and understand how to face the same problem from different points of views and hence different realities, in order to promote and strengthen a multi sectoral approach to successfully build up resilient landscape and society, in front a severe wildfire events.

The main actions carried out, are included within the Task 3 “Building capacity on potential fire events assessment for land and fire planners” purposes and scope.

Specifically it has been done successfully:

- Action 3.1: Assessment of abilities to perform wildfire hazard and prediction of potential crown fire events through pilot site tests.
- Action 3.1: Assessment of the extent to which planners and end-users have an appropriate perception and comprehension of nature of large fire risk.
- Action 3.2: Developing a methodology for incorporating large fire risk into landscape management decision making
- Action 3.3: Set up a common framework for training on wildfire risk planning for land and fire planners et EU level, in order to make available common training standards.

To achieve these goals, many activities were planned to achieve the objectives and to ensure a reliable understanding about the methodologies presented and their adaptability and applicability into different European contexts.

The more relevant activities were:

- Conferences and discussion sessions at the Northumberland fire & rescues service headquarter
- Study case of wildfire affectation on environmental goods and services
- Practical trainings about forest crown fire charts
- Fieldtrip at the National Forest of Thrunton Woods (next to Rothbury)
- Workshop on high severity crown fire at the University of Greenwich

II- Conclusions

1-The wildfire risk at the U.K. region:

- Compared to many other European countries, particularly those comprised into the Mediterranean basin, UK has a relatively low occurrence of forest fires. In average, every year the Fire and Rescue Service (FRS) has to deal with about 2300 wildfires along the country, affecting mainly grasslands and moorlands. In these ecosystems, wildfires rarely cause serious direct damage or losses at the population or infrastructures level, in part because of the fuel type (low heat irradiation rate) and in part because the location of these habitats (far from dense human settlement). Nevertheless this trend has experimented some changes during last decades and could turn into worst conditions (in term of frequency and severity), even more assuming the coming weather conditions under the climate warm predictions. In this scenario the likelihood of canopy forest fires would increase as well as the population risk exposition, because of the increasing of social usage and demand of woodland for leisure and recreation activities.
- Woodlands represent the 12% of U.K.'s land surface, owned in 40% by public sector and 60% by private owners, and dominated in 55% by broadleaf forests and in a 45% by conifers forests. The most damaging forest fires tend to occur during a dry spring and with an extended summer drought, when material from the previous growing season still litters the forest floor, increasing the available fuel load and resulting in fire episodes as lived on Swinley Forest during spring 2011. Facing this fire category (high intensity and severity degree), represents a big challenge for the U.K. FRS, who have to deal with "uncommon" fire behaviour without the optimal equipment and knowledge, carrying an important increase of the firefighters injury risk rate.
- A proactive attitude in term of wildfire risk assessment and mitigation is currently ongoing through a cross-sector work frame involving multiple agents such as FRS, land planners, forest managers, policy makers; in order to anticipate the future undesirable situations and minimize the social, environmental and economic losses due to forest fires. The main objective to be achieved is to build up a more fire's resilient society and landscape, by means of changes in woodland management, improving citizenship awareness and extended training programs and equipments for fire-fighting.

2- Organizational wildfire risk management

- Aside the organizations charts, substructures and technical or human equipments available and ready to face wildfire risk at any given moment, U.K. is provided with a pretty interesting tool to deal with the wildfire's dimension complexity, with regards to its stakeholders diversity; "the Wildfire Groups" (WG).

- WG are partnerships of public, private and voluntary organisations that work together on a range of wildfire-related activities. They contribute towards a sustainable rural development through minimising the risk of wildfires. The main activities taken by the wildfire groups are focused on:
 - Reducing the incidence of wildfires through awareness, education and the advocacy of safe land managements practices
 - Improve the readiness degree to face incidents by the way of planning, training and sharing equipments and knowledge.
 - Fostering effective multi-agency relationships to utilise available resources and expertise when responding to wildfire incidents
- Along the country, many wildfire groups are distributed in order to cover different fire risk regions, nonetheless they keep linked by means of the “England and Wales Wildfire Forum” (EWWF). EWWF is a voluntary strategic body, independent of government which has been created to expand knowledge and understanding of wildfire phenomena at U.K. context, promoting joint working and collaborations between all the interested groups; with the overall purpose of reduce the harmful impact on forest fires (see Box 1). The Forum hold no legal status; members agree to work together to deliver the Forum’s aims and address wildfire issues.

Box 1. Aims of the EWWF (Source: <http://www.northumberland.gov.uk/default.aspx?page=17399>)

Achieve appropriate recognition of wildfire as an issue in England and Wales and maintain the profile of this risk.
Promote the highest standards of practice in managing wildfire risk including prevention, response and recovery.
Place the EWWF at the heart of the on-going development of wildfire strategies in England and Wales and work closely with Scotland and Northern Ireland to seek synergy across the UK.
Promote and maintain the ‘EWWF Network’ to facilitate effective communication between members and stakeholders.
Communicate with relevant Government departments, participate in and support research, develop systems and activities to improve knowledge and learning around wildfire issues, including the development of the wildfire early warning system and a fire danger rating system.
Facilitate the on-going operation of the Forum.

- This structure to voluntary involvement interest and concerns, is a perfect tool to transfer and share responsibilities within the stakeholders community, because everyone could feel part of the problem and the solution as well. It could be a really interesting exercise implements this philosophy around countries with huge difficulties to create a common work line including all the interest groups. This is the case of Spain for instance, where the major diversity of actors, agencies and organisations difficult the intra and inter cooperation and coordination and avoid the stakeholders consensus, weakening the effectiveness responses and solutions.

3- Learned lessons:

- Managed fires and wildfires are strongly linked: managed fires can reduce wildfire risk by controlling fuel loads using a combination of different techniques such as prescribed fires, grazing, mechanical treatments... in a specific location and moment.
- Grasslands and moorlands historically are semi-natural ecosystems, intervened by human actions; mostly fire and grazing. To preserve the natural role of these communities and its environmental and social multifunction, fire has been reintroduced as a natural disturbance within the ecologic dynamic. New knowledge on prescribed burns techniques were learned and trained in different countries with further experience (USA, Spain) by the U.K.'s FRS, in order to create a specific groups implementing and teaching about technical fire as a management tool.
- A great example of prescribed burns to reduce wildfire risk it is found on the Mourne Mountains (North Ireland), where after the “Gorse Fires” 2011, land managers have switch the way to face the problem. Gorse fires can have major implications on this delicately balanced environment, posing a threat to human life and can cause major damage to people's homes. There is a danger to livestock and loss of grazing land to farmers which is essential to the health of the ecosystem, also loss of business for tourism enterprises and the cost to the public purse not only from the firefighters but the additional costs of water treatment in the Silent Valley Catchment that Northern Ireland Water will have to bear for months and perhaps years to come. To deal with, and minimize the damage and losses, it has been applied and addressed a Catalonia wildland firefighters (GRAF) methodology based on “management of critical areas”. Critical areas are designed according the wildfire type present depending on the synoptic weather conditions coming up, in order to treat the minimum surface to allow the maximum landscape protection; in Mourne Mountain this happens when the 2% of total area is managed with prevention treatments (e.g. prescribed burns).
- To successfully achieve the landscape protection in the future using the critical areas, some recommendations are done:
 - Members of the FG should develop the expertise, knowledge and understanding to manage the critical areas effectively
 - Stakeholders should share in the responsibility of intervening at wildfire and provide both financial and practical support to the Fire and Rescue Service.
 - Land managers should be trained and equipped to provide an initial response team that can assist on intervention activities
 - Stakeholders should form a collaborative response to wildfire, to break with the barriers existing and manage a long term strategy.

4- Knowledge gaps and opportunities

- Some common gaps at the knowledge level have been identified into U.K. and Mediterranean countries; for instance:
 - Synergies and conflicts between policies
 - Appropriate costing tools for ecosystem services
 - Acceptable multi-disciplinary criteria for assessing and measuring fire severity
 - Stakeholder's attitudes to wildfire
 - Defining an appropriate fire regime
- Many strengths and opportunities could be exchanged between U.K and other European fire prone countries to improve the fire risk management it self:
 - Increasing the exchanges of knowledge and experience between Mediterranean countries with many years dealing with large and severe fires and U.K., at three levels:
 - Fire fighting strategies and tactics
 - Research partnership
 - Social awareness and multi-stakeholders integration programs
 - Adapt the Spanish forest crown fire charts to the U.K context and integrate them into silviculture procedures and forest planning/management, in order to avoid as possible the occurrence of severe crown fires

5- key messages and final remarks

- Three main challenges to future wildfire risk management are highlighted: land and recreation management and the effects of climate change.
- Wildfire management needs combined strategies of fire suppression, prevention and protection of ecosystem services, including fuel and risk reduction.
- Specialist equipment, training, models and forecasting tools are needed.
- Research and knowledge exchange on wildfire need to be supported.
- Partnership working is an effective approach to address the wildfire problem.
- Fires are costly to put out, and have long-term cost implications for ecosystem services. Treating ecosystems services as property assets would allow the costs of suppressing wildfires to be set against the avoided costs of damages to these services.

6- Highlights from the Swinley Seminar

- In the cost and benefit assessment, consider the different landscape levels; losses at site level can be assumed as benefit at landscape level as burnt areas are creating mosaics and make easier further wildfire suppression.
- In the global change scenario, wildfire have arrived to the country and will keep here from now on, .. let's learn how to life with fire.
- Wildfires are offering the opportunity to have a permanent dialogue with society regarding the challenges of the landscape values conservation. Proactive communication strategies are recommended.
- All success in suppression in increasing the vulnerability for the next event if no intervention is done in the fuel distribution at landscape level (this is known as the “fire paradox”).
- At this initial phases of building up the wildfire risk management strategies, there is a change introducing the responsibilities debate, and the need of sharing the management cost (for instance, enhancing the self-protection attitudes in wildland urban interface). Wildfire groups experience offers an excellent forum where to deal with it.
- Important challenges are identified in the fields of;
 - Citizens awareness and capacity building; how to motivate the own prevention responsibility
 - Urban and spatial planning policies involvement: As more sever the fire are, protection of people and infrastructures is the priority. Wildfire risk suppression is totally affected by the vulnerability of them. Settlement and infrastructures distribution are at the same level of importance of forest land distribution in terms of fire suppression.
 - In the same way, crops and grazing policies should be integrated as they are affecting the fuel distribution and suppression opportunities at landscape level.

III. Further information

List of participants from the FIREfficient project partnership

Institution	Name
Forest Sciences Centre of Catalonia (CTFC)	David Martín Gallego
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Pau Costa Alcubierre Foundation (PCF)	Mariona Borràs
King's College London	Thomas Smith
UT GRAF	Edgar Nebot
UT GRAF	Jordi Pagès

Agenda

April, 7th: Arrival to Newcastle

April, 8th: Pilot Site PCF- UTGRAF Wildfire risk planning training and CTFC_EP Focus group on wildfire risk perception and management

09:00- 09:30h Arrive (Coffee)

09:30- 09:45h Welcome. Northumberland Fire and Rescue Service Director and Steve Gibson, Northumberland Fire Group (NFG)

09:40 – 09:45 Introduction: Towards a more efficient management of wildfire risk, lessons learned from the Mediterranean. Eduard Plana, FIREfficient Project Coordinator, CTFC

9:45– 10:45h. The use of SMPs as a management tool. Edgar Nebot, Jordi Pagès, GRAF

10:45 – 11:00h. Short Coffee Break

11:00 – 12:45h. SMP methodology and exercises. Feedbacks with participants. Jordi Vendrell, PCF

12:45 – 13:30h. Lunch

13:30 – 14:15h. Application of SPMs tool and presentation of case studies. GRAF & PCF

14:15 – 14:35h. Forest management planning. Rob Gazzard, Forestry Commission England

14:35- 14:50h Short Coffee Break

14:50 – 15:30h. Focus groups

**Location:* All the planning activities will take place at the Northumberland Fire and Rescue Headquarters at West Hartford Business Park, NW23 3JP.

April 9th: Meet at Newcastle House Hotel, Rothbury, NE65 7UT

8:30 – 9:00h. Arrive

9:00 – 9:30h. Presentation of the Mourne Mountains Project. Matthew Bushby, Mourne Heritage Trust

9:30 - 10:30h. Crown fire charts presentation

10:30 - 11:00h. Coffee Break

11:00h – 13:00h. Field visit to Thrunton Woods

15:30h – 18:42h. Transfer by train to London

April 10th: Workshop Swinley Seminar “Wildfire research and its impact on Policy, Planning and Operations: The Swinley Forest Fire”

8:30h -16:30h at University of Greenwich

Presentations on:

- The Swinley forest fire, wildfire modelling, evacuation modelling, threat analysis, impact costs and improving mitigation and adaptation.
- Cross Sector panel discussion reflecting on policy, planning and operational impact of the presentations
- Breakout sessions on preparation / prevention, response and recovery phases.

IV.- Organization and contact

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V.- Summary of the project FIREfficient

Project FIREfficient «Operational tools for improving efficiency in wildfire risk reduction in EU landscapes»

The FIREfficient project (Operational tools for improving efficiency in wildfire risk reduction in EU landscapes) aims to establish a sustainable platform for efficient exchange of available knowledge in which “lessons-learned” can be made available to relevant stakeholders and public agencies at EU level, dealing with innovative operational tools and means to integrate the prediction of potential fire events into emergency strategies and land-use planning. The Project seeks to build capacity for planning developers to enhance the transfer of best practices and lessons-learned in wildfires to planning practices and processes.

The main results of the projects will be:

- Capitalization of knowledge of innovative tools for a cost-effective wildfire risk management in the context of climate change.
- EU context adaptation of operational transfer tools for prior fire assessment and actor participatory processes.
- Development of a knowledge base and “lessons-learned” platform of innovative tools and means for wildfire hazard assessment.

Project duration is 24th month (January 2014 – December 2015).

The Partnership is composed by five institutions of 3 countries: Forest Sciences Centre of Catalonia (Coordinator), Department of Interior from the Government of Catalonia, Fire Ecology and Management Foundation Pau Costa Alcubierre (Spain), European Forest Institute – Central European Regional Office and the Observatory for European Forests (Germany) and King’s College London (United Kingdom).

The project is one of the 17 projects co-financed in the Call for proposals 2013 for projects on prevention and preparedness in civil protection and marine pollution from **Directorate-General for Humanitarian Aid and Civil Protection – European Community Humanitarian Office (ECHO)**.