

WORKSHOP ON THE ASSESSMENT OF FOREST FIRE RISKS AND INNOVATIVE STRATEGIES FOR FIRE PREVENTION
Rhodes, Greece 4-6 May 2010

SESSION 2: INNOVATIVE STRATEGIES AND POLICY INSTRUMENTS

WILDFIRE RISK MANAGEMENT & LAND-USE PLANNING

Mr. Eduard PLANA BACH
Head of Wildfire and Land-use Department
TECHNOLOGICAL FOREST CENTER OF CATALUNYA

CENTRE TECNOLÒGIC FORESTAL DE CATALUNYA

The center has 10000 m² of area

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Growing with the fire risk: A band master in a school of strict education

**Changing context of risk :
adaptable strategy needed**

INTEGRATION OF FIRE RISK IN LAND USE PLANNING AND FOREST MANAGEMENT TOOLS IN CATALUNYA (NW SPAIN)
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Where to focus the attention:

WILDFIRE RISK MANAGEMENT
Integration socioeconomical and ecological driving forces affecting positively or negatively fire risk from vulnerability approach

SUPPRESSION & CIVIL DEFENSE

SOCIAL DEMANDS & PERCEPTIONS

LAND-USE PATTERN
Forestry
Agricultural land and grazing
Settlements

FIRE PREVENTION
Prevention plans
Prescribed burning
Investigation of causes
Social awareness

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Where focus the attention: WILDFIRE RISK MANAGEMENT APPROACH

Ecology /

- From wildfire as the enemy: towards fire as a natural perturbation of the ecosystem "Living with wildfires" Birot Y. (Ed.)
- Efforts focused on reach more tolerant landscape patterns to fire perturbation from fire ecology perspective: harmonize forest owners – society – managers interests (overall in non profitability lands)

Bombers

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Where focus the attention: WILDFIRE RISK MANAGEMENT APPROACH

Social /

- Improve society understanding of the role of fire in the ecosystem : Previous step to promote a strategy based in fuel management for tolerant landscapes patterns & low intensity fire management
- Improve society understanding of the exposition to risk : To promote self-protection attitudes and the own responsibility on ignition control
- The influence of mass media and opinion leaders in social perception: "Facts are facts but perception is the reality"

ENTREVISTA a Marc Castellnou, ingeniero forestal y director del GRAF
"Cataluña sufre incendios inabarcables para los actuales sistemas de extinción"

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Where focus the attention: WILDFIRE RISK MANAGEMENT APPROACH

Economy /

- Integrate the positive and negative externalities of all human-made activities related with the increase or decrease (prevention) of fire risk : In order to improve cost-effectiveness of wildfire risk management
- Supporting forestry & grazing & crops: as fuel control activities
- (as example) Including prevention cost in the price of housing in wildland urban interface (WUI) : Protection houses from forest, or forest from houses?

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WILDFIRE RISK MANAGEMENT APPROACH

Economy /

Budget in prevention is needed but high suppression budget in the current vulnerable context it is also needed up to vulnerability doesn't change

➤ Supporting forestry & grazing & croops: as fuel control activities

↓

Including prevention cost in the price of housing in wildland

Which are the benefits of rural development related with: ?

1st) wildfire severity reducing (prevention + suppression + restoration costs reducing)

2nd) rural development itself, keeping landscape identity (strong related to welfare of local communities and tourism incomes), biodiversity environmental services conservation, ... Social demands!

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Spatial planning & wildfire risk management

LAND USE – SUPPRESSION – PREVENTION – RESTORATION

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What we have learnt at the school?

Castellnou et al. 2009

GRÀFIC 1. NÚMERO D'INCENDIS I SUPERFÍCIE FORESTAL AFECTADA A CATALUNYA. PERÍODE 1986-2009 (Font: DIPC-GRAMA)

Statistic fire regime in Catalonia (NW Spain)
1986-2009: 238.948ha burnt (13% forest land)
70% burnt in 3 years (1986 / 1994 / 1998)
80% of fires less than 10ha, but
0'5% of fires (more than 500ha) burnt 80% surface

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Some lessons learnt related with wildfire risk management at land-use planning level:

- ✓ Fuel accumulation is the main driving force of wildfires (more relevant than ignition causes - ignition risk zero doesn't exist)
 - ✓ Suppression capacity has a limit
- ✓ Emergency management has a limit (simultaneously and WUI)
- ✓ Our efficiency in low-intensity fires does us more vulnerable to the high-intensity fires in extreme conditions ("fire paradox")
 - ✓ Fire has a behavior pattern
- ✓ Wildfire risk management need a cross-sectoral approach, strong institutional coordination, and social participation

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Some lessons learned (and considerations for wildfire risk management at land-use planning level) :

Suppression & emergency mang

Wildfire risk

Spread risk

Ignition risk

We can not solve wildfires without acting in propagation capacity of the landscape

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Some lessons learnt related with wildfire risk management at land-use planning level:

- ✓ Fire has a behavior pattern

Knowledge of wildfire propagation patterns or fire typology ⇒ Provide guidelines for a **cost-efficiency** fuel management plan

Castellnou et al. 2009

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Some lessons learnt related with wildfire risk management at land-use planning level:

✓ *Fire has a behavior pattern*

Knowledge of wildfire propagation patterns or fire typology → Provide guidelines for a **cost-efficiency fuel management plan**

SUPPRESSION SYSTEM: Improve efficiency through a pro-active approach to be prepared by future extreme fire behaviour (pre-suppression actions)

FOREST MANAGEMENT : fire ecology species adaptations / productive and or prevention objectives / prescribed burning / incentives!

LAND USE PLANNING: Integration of grazing and agrarian mosaic as prevention infrastructure

SPATIAL PLANNING: To reduce wildland urban interface vulnerability & to increase self-protection capacity

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Some lessons learnt related with wildfire risk management at land-use planning level:

✓ **1st step) suppression and prevention planning goes together**

✓ **2nd step) Integrate wildfire risk management into forest and spatial planning in order to reduce landscape vulnerability**

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✓ **2nd step) Integrate wildfire risk management into forest and spatial planning in order to reduce landscape vulnerability**

1.- Including fire behaviour specialist knowledge in the multi-scale hierarchic forest planning model

Regional Forest Plan (*Strategic planning*)
General guidelines of SFM

County Forest Plan (*Tactical planning*)
Regional guidelines of SFM

Forest Unit Plan (*Operational planning*)

50.000- 200.000 ha

➤Determination of vocation and preference of forest land use and establishing guidelines for forest planning into de region (including fire risk management)

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✓ **2nd step) Integrate wildfire risk management into forest and spatial planning in order to reduce landscape vulnerability**

2.- Legal frame and support for that areas where prevention or pro-active fuel management is a priority

Spaces of special forest interest (8 categories):

Strategic forest land for fire risk prevention
In that forest land defined by the PORF (*tactical planning*), because of its strategic role in spread control of fire or prevention of fire effects, that activities which suppose an additional risk of fire will be forbidden and active measures of forest management to decrease the vulnerability of the forest land will be promoted.

Article 17th Normative of Forest Policy Plan of Catalonia (still not approved)

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✓ **2nd step) Integrate wildfire risk management into forest and spatial planning in order to reduce landscape vulnerability**

3.- Enhancing Forest Plan normative rank in order to strengthen the linkage between spatial planning and forest one

(in Catalan spatial planning legislation, NFP is recognized as a specific plan with prevalence over low scale spatial and urban planning figures)

➤Regional Forest Plan, delegates into the inferior planning figure, the delimitation of **Strategic forest land for fire risk prevention** in order to become assimilated by spatial and urban planning (infrastructures, settlements, ..). So that it will be easier its posterior transposition into the urban planning figures according to the own hierarchic position within spatial planning.

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In conclusion...

Without changing spread capacity (fuel accumulation process), current prevention & suppression capacity represents the level of risk that society has to assume

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Head of Wildfire and Land-use Department
TECHNOLOGICAL FOREST CENTER OF CATALONIA
eduard.plana@ctfc.cat / www.ctfc.cat

Thanks for your attention

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