

FORESTS FIRES AND SOIL EROSION in the area of Viseu

Soil erosion affects a large part of the Earth's surface; accelerated soil erosion is considered one of the main soil threats, compromising soil protective and productive functions.

WHAT IS SOIL EROSION

Erosion is a process in which small rock and soil particles are separated from their original location; they are moved and deposited somewhere else by action of erosive geological or natural agents (wind, rain) or by human activity.

WHY ARE FORESTS SO IMPORTANT?

Forests have a protective function in terms of soil erosion.

In terms of hydrologic function, forests prevent flooding, reduce flood peaks, they enrich underground aquifers, they contribute to water quality.

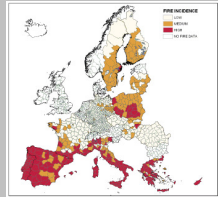
Forest also provide protection from wind, noise and has an impact in climatic factors (light intensity and quality, mitigation of extreme summer and winter temperatures, air humidity).

They contribute to the oxygen cycle: absorption of carbon dioxide, air de-pollution and oxygen production.

MEDITERRANEAN FORESTS:

- De-population of rural areas;
- Abandoning of traditional land-uses and practices in rural areas;
- Reduced use of forests for raw material production;
- Increased use of wildland areas for recreational use;
- Increased occurrence forest-urban interface conflict.

Picture 1 – Fire incidence map for the EU



FOREST FIRES appear as a violent tool in these conflict situations.

CLIMATE CHANGE IMPACT:

Extreme weather conditions, such as recurrent droughts and reduced precipitation led to an increase and severity of fire seasons as well as to a growth in the length of areas at risk.



Picture 2: NASA; AUGUST 5, 2005

In the Mediterranean ecosystems, fires are an inevitable ecological phenomenon that can be caused by several reasons:

- Natural factors;
- Negligence;
- Flammable forest material increment;
- Land-use conflicts on forests lands;
- Climate conditions;
- Other factors: emphasis on fire suppression instead of fire prevention and inappropriate vegetation control.

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Sources:

- <http://observador.pt/2016/08/14/incendio-de-sao-pedro-do-sul-pode-ficar-resolvido-se-for-possivel-usar-avioes>
- <http://www.dailymail.co.uk/news/article-3738920/Families-evacuated-central-Portugal-forest-fires-break-water-bombers-struggle-contain-flames.html>
- <http://www.icnf.pt/portal/florestas/dfici/relat/raa/rel-tec/rel-caramul13>
- <http://www.dn.pt/portugal/interior/acusados-dos-incendios-do-caramulo-condenados-a-18-e-12-anos-de-prisao-4292708.html>
- http://freguesiadoguardao.blogspot.pt/2015_03_01_archive.html
- http://www.aetomazribeiro.net/joomla/images/atividades20141015/plantar_caramulo03.JPG
- <https://www.noticiasominuto.com/pais/116499/caca-proibida-nas-zonas-do-caramulo-atingidas-pelos-fogos>
- http://www.fireparadox.org/images/eu_fire_incidence.gif
- <https://earthobservatory.nasa.gov/IOTD/view.php?id=5736>
- <http://www.conserve-energy-future.com/causes-effects-and-solutions-of-wildfires.php>



FOREST FIRES IN CARAMULO 2013

In the summer of 2013 three major arsons affected 9.415 ha of land in the districts of Viseu and Aveiro leaving destruction everywhere

Picture 3: Landscape after the fire in Caramulo



- In the case of the Fires in Caramulo, three stages have been adopted:
- Stage 1 – emergency stabilization – occurs immediately after (or even during) the firefighting; its aim is to control soil erosion, to protect water lines, infrastructures and the most sensitive habitats.
 - Stage 2 – restoration and rehabilitation – occurs in the two years following the fire; there's an assessment in the damage and in the ecosystem's reaction and eventually reforestation in the most sensitive areas.
 - Stage 3 – long-term – planning of definitive restoration/reforestation projects, 3 years after the fire.

Picture 4: Campaign - Reforesting Caramulo



Picture 5: Students from local schools also participated as volunteers



FOREST FIRES IN VISEU 2016



Picture 6: Struggle - Containing the blaze has been a struggle - almost as soon as flames were extinguished in one location, another one starts elsewhere



Picture 7: The fires that engulfed Sao Pedro do Sul

WHAT HAPPENS AFTER A FIRE?

HOW CAN WE AVOID EROSION AFTER A FIRE?

- Creating a barrier effect using logs;
- Using organic residues;
- Creating infiltration.

EFFECTS OF WILDFIRES

Wildfires take away homes, wildlife, as well as vegetation;

The soil in the area of the wildfire has been completely destroyed. When a wildfire hits this soil it becomes too hot and **all of those nutrients are gone for good; Animals lose their lives;**

Trees and plants are gone as well;

Too much water in the soil can cause erosion;

Some human lives are also lost in wildfires;

Ash and smoke can cause **serious health problems to humans** who suffer from allergies and other medical problems;

Incomes and **jobs are lost for workers;**

The loss of animals has the ability to also create **extinction for certain animals** and other creatures of the forest.