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Femme
post-fire erosion risk
modelling tool



Wildfires in Europe: the role of land use/land cover changes

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European Geoscience Union 2020: Sharing Geoscience Online

4-8 May 2020

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This work was supported and conducted in the framework of the FEMME project (PCIF/MPG/0019/2017) funded by FCT - Portuguese Foundation for Science and Technology. The study was also supported by: i) National Funds by FCT - Portuguese Foundation for Science and Technology, under the project UIDB/04033/2020; and, ii) National Funds by FCT - Portuguese Foundation for Science and Technology, under the project UID/AMB/50017/2019. Data were provided by the European Forest Fire Information System – EFFIS (<http://effis.jrc.ec.europa.eu>) of the European Commission Joint Research Centre.



1. Motivation

- Wildfires (WF) are controlled mainly by environmental drivers such as vegetation structure, meteorological/climate conditions, and human activities, in different land cover types around world;
- Land use/land cover changes (LULCC) are one of the most important global changes;
- Between 2000 and 2018, the total area of LULCC in Europe was **23,387,347 ha** (Figure 1);
- In same period, according to European Forest Fire Information System (EFFIS), Europe registered 18,882 WF that burned a total of **6,887,713 ha** (Figure 2);

1. Motivation

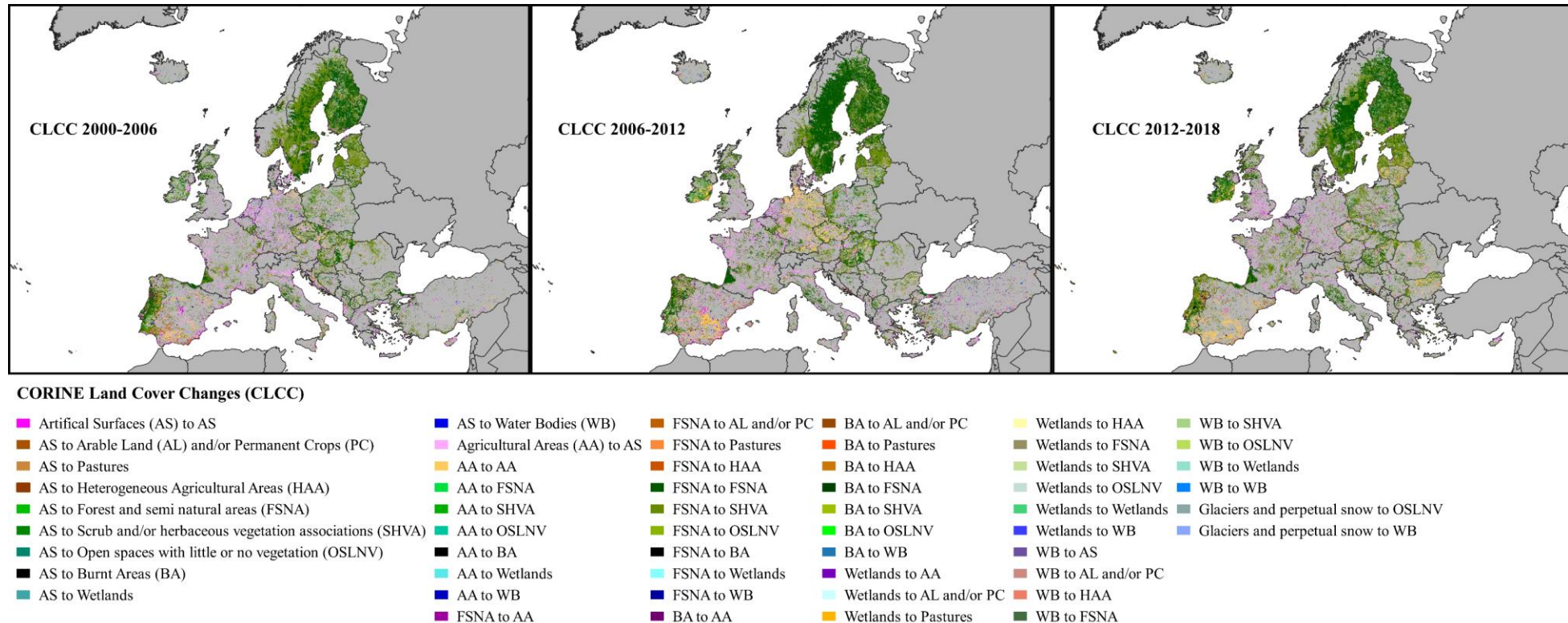


Figure 1. CORINE land cover changes (CLCC) inventories for 2000-2006, 2006-2012 and 2012-2018 (Copernicus, 2020).

1. Motivation

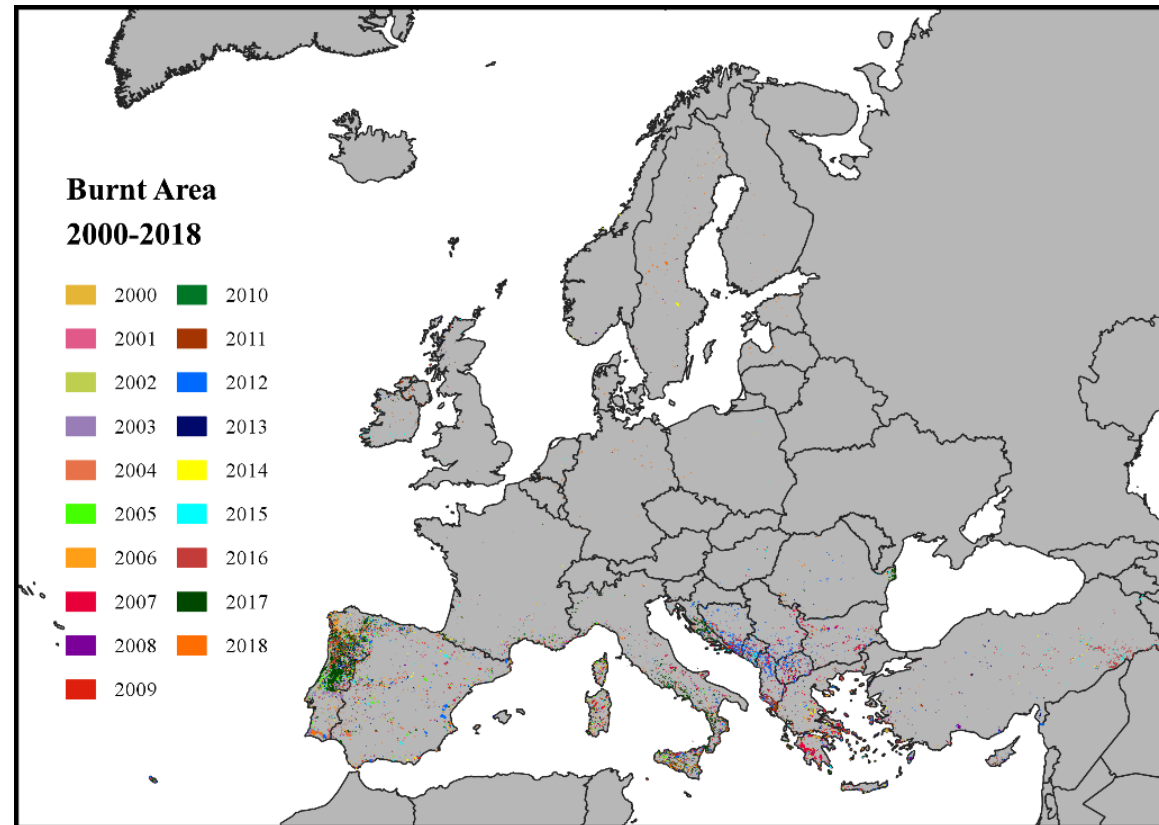


Figure 2. European Burnt areas between 2000-2018 (San-Miguel-Ayanz et al., 2012).

2. Objectives & Data

- The main objectives of this study were to **answer the following question: how European LULCC are associated with WF?** For that, LULCC in burnt areas (BA) was assessed for the 5 most affected countries in Europe by WFs in the 2000–2018 period, namely Portugal, Greece, France, Spain and Italy.
- This study used BA polygons from **BA product of EFFIS** (San-Miguel-Ayanz et al., 2012) and LULCC information from CORINE programme coordinated by the European Environment Agency (Copernicus, 2020), namely **CORINE land cover changes (CLCC)**.

Copernicus, P., 2020. CORINE Land Cover [WWW Document]. URL <https://land.copernicus.eu/pan-european/corine-land-cover>

San-Miguel-Ayanz, J., Schulte, E., Schmuck, G., Camia, A., Strobl, P., Liberta, G., Giovando, C., Boca, R., Sedano, F., Kempeneers, P., McInerney, D., Withmore, C., Oliveira, S.S., Rodrigues, M., Durrant, T., Corti, P., Oehler, F., Vilar, L., Amatulli, G., 2012b. Comprehensive Monitoring of Wildfires in Europe: The European Forest Fire Information System (EFFIS), in: Approaches to Managing Disaster - Assessing Hazards, Emergencies and Disaster Impacts. InTech. <https://doi.org/10.5772/28441>

3. Results

According with CLCC mostly of 334-Burnt Area layer (334) pass to Transitional bushy and herbaceous vegetation with occasional scattered trees (324), which may represent woodland degradation, forest regeneration/recolonization or natural succession (Figure 3), with the exception of Italy were 40% of 334 pass to Sclerophyllous vegetation (323) between 2006-2012.

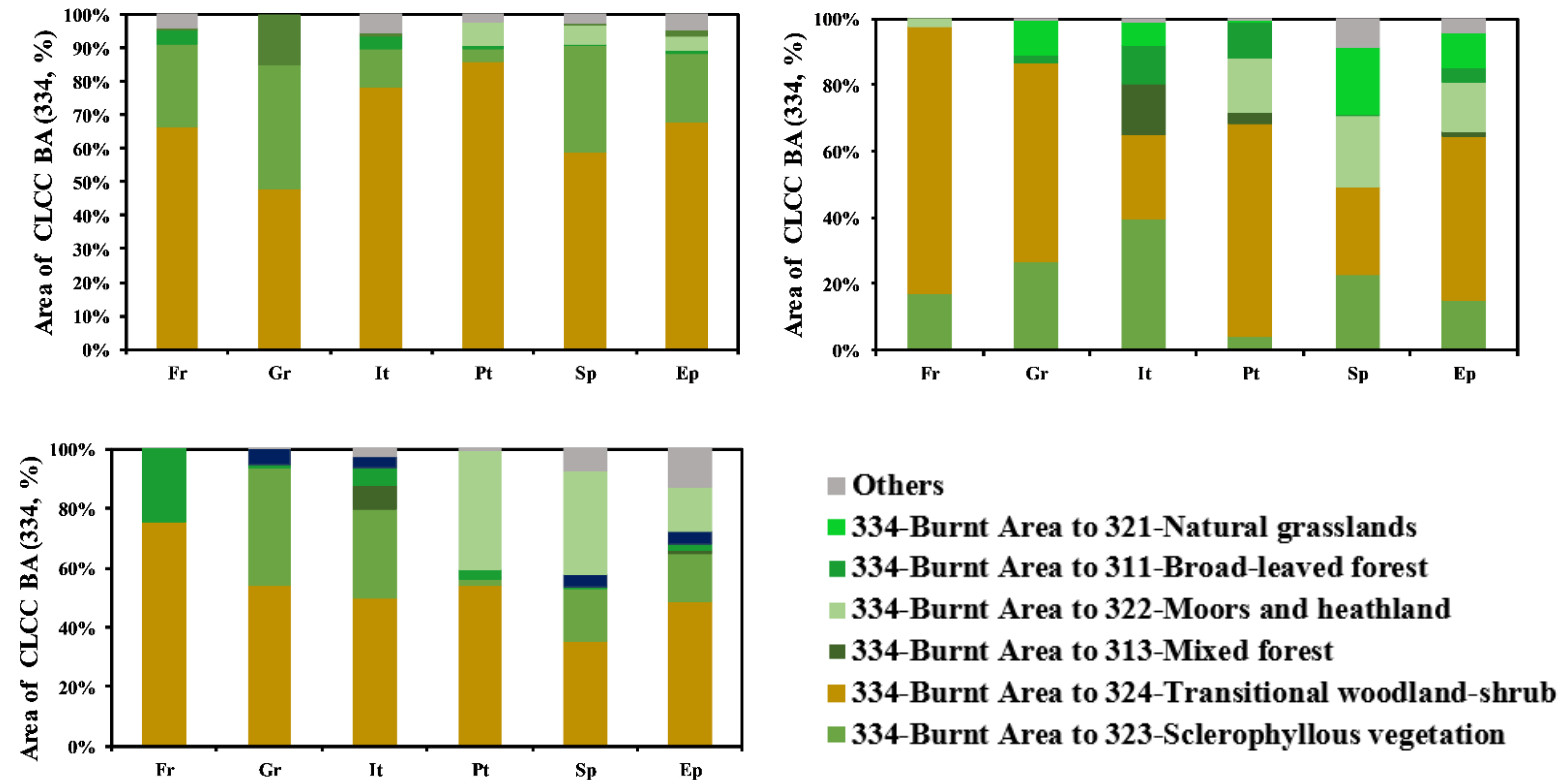


Figure 3. Total area (%) in the area of CLCC Burnt Area in Europe (Ep), France (Fr), Greece (Gr), Italy (It), Portugal (Pt) and Spain (Sp) between 2000-2006 (left panel), 2006-2012 (right panel) and 2012-2018 (middle panel).

3. Results

Within EFFIS BA polygons most of the WFs occurred in Forest and Scrubs areas, which give origin to vegetated areas of the same type or new BAs.

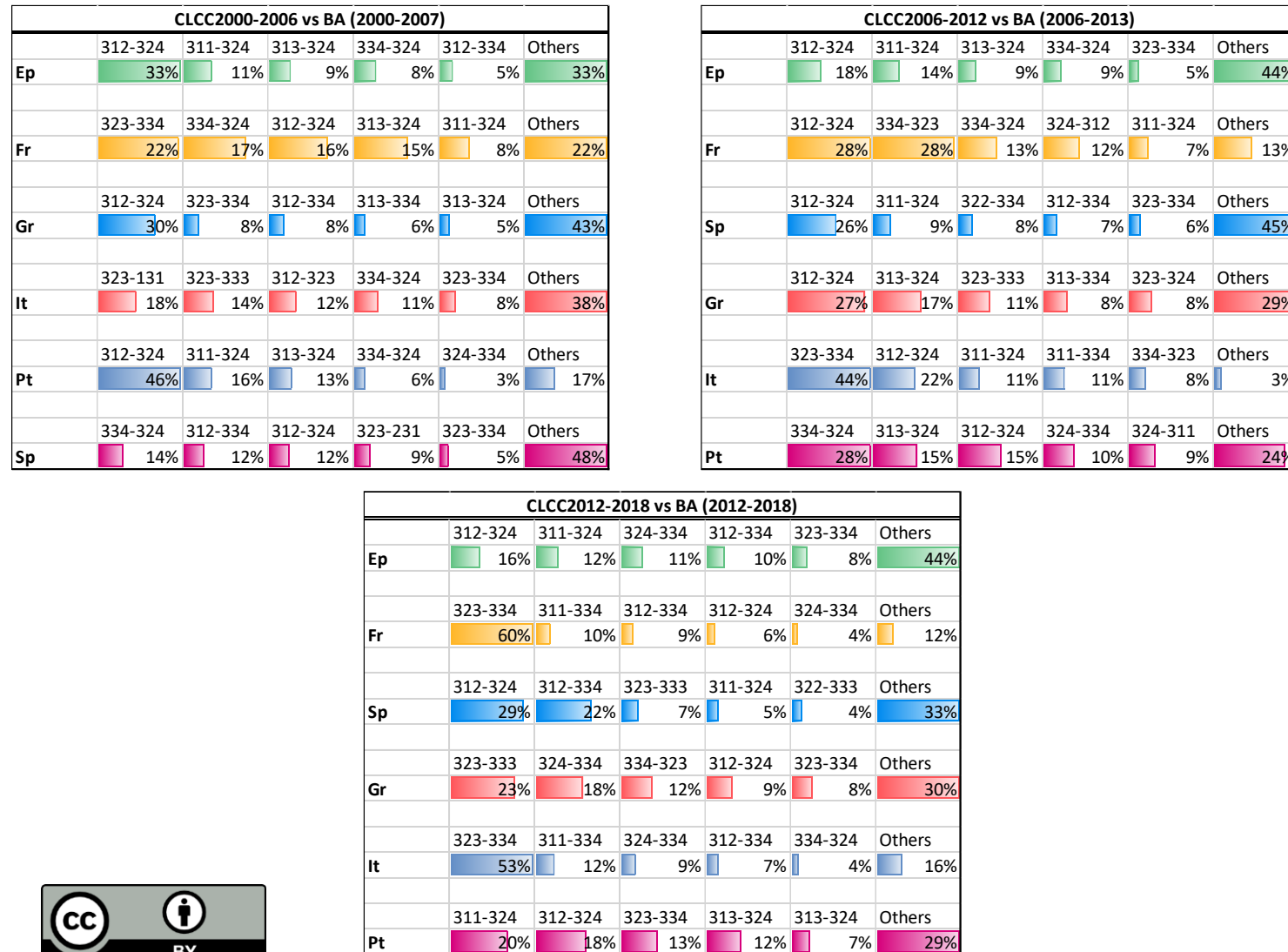


Figure 4. Total area (%) of land use/land cover changes (LULCC) according with CORINE land cover changes (CLCC) inventories in burnt areas (BAs) defined by EFFIS dataset for the periods 2000-2006 (left panel), 2006-2012 (right panel) and 2012-2018 (middle panel), in Europe (Ep), France (Fr), Greece (Gr), Italy (It), Portugal (Pt) and Spain (Sp).



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The end. Thank you for participating.

Please have a look at our publications:

Tonini Marj, Parente Joana, Pereira Mário G. (2018) - Global assessment of rural–urban interface in Portugal related to land cover changes. Natural Hazards and Earth System Sciences, 18 (6) pp. 1647-1664 . <https://doi.org/10.5194/nhess-18-1647-2018>

Tonini, M., Amato, F., Parente, J., Pereira, M.G., 2018. Wildland urban interface assessment and prediction in relation to land use and land cover changes: the Portuguese case study, in: Advances in Forest Fire Research 2018. Imprensa da Universidade de Coimbra, Coimbra, pp. 870–877.
https://doi.org/10.14195/978-989-26-16-506_96