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Envisioning a new rural landscape for Centre Region, Portugal

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Abstract

Rural fires represent a complex problem in Mediterranean countries, with high social and economic costs, such as fire suppression investment. Agriculture abandonment, associated with the economic raise of pulp industry, increased fire risk. This is aggravated by the lack of forest management, explained by demographic and economic constraints, such as depopulation and land property fragmentation.
In Portugal, fires occur mainly in Centre Region, a landscape dominated by maritime pine and eucalyptus forest. In the megafires of 2017, this region was the most affected, representing 16% of total region area (455000 ha). The new landscape should be diversified, with more areas of broadleaved native species, agriculture and pastures. These land uses would contribute to diversify local economies with agriculture products, non-wood products (e.g. nuts, honey and mushroom) and nature tourism. Forest recovery itself would generate business opportunities, such as native species nurseries and forest management companies. This landscape change would also improve ecosystem services provision, such as resilience to fire, biodiversity, soil and water conservation.
To achieve this, a landscape transformation model - FIRELAN - was applied to Centre Region. This model integrates different principles related to fire behaviour and ecological suitability into a land-use plan, using the river basin as a landscape unit. The FIRELAN model is made up of landscape components that fall into three types of systems: physical, biological and cultural. For each component there is a set of potential land uses that can be promoted. These potential land uses were compared to the existent land uses in Centre region and landscape transformation actions were proposed.
The results show that it would be advisable to implement landscape restoration actions in about 35% of the region's area and that with the implementation of this plan, agriculture could increase from 23% to 35% and native species could be expanded in 31% of the region. Existing agriculture and forest land uses can be maintained in about 58%.
Finally, based on the concept of green firebreaks, the linear components of the model have been defined as priority intervention areas. These areas correspond to 22 % of the Centre region and correspond to the physical linear components (streams, valley bottoms, ridgelines, hilltops and headwaters) and the cultural linear components (urban

and rural settlements protection buffer, the road protection buffer and the energy and communications infrastructures protection buffer). These priority intervention areas were defined to guide policy makers on the planning of landscape transformation.

Keywords: Landscape Planning, Fire, Resilience, Portugal

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