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https://doi.org/10.3390/environsciproc2022017048

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Abstract

Characterizing and Mapping the Wildland-Anthropic Interface of the Italy-France Maritime Cooperation Area †

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† Presented at the Third International Conference on Fire Behavior and Risk, Sardinia, Italy, 3–6 May 2022.

Abstract: In this work, we proposed a standardized approach to characterize and map wildland-anthropic interfaces (WAI) in the neighboring areas of the Italy-France Maritime cooperation area, which includes three Italian (Sardinia, Tuscany and Liguria) and two French (Corsica and Provence-Alpes-Côte d'Azur) regions and covers approximately 93,000 km^2 of land. For the purpose of this study, we defined WAIs as the areas in which anthropic buildings (isolated housings, industrial, commercial structures, etc.) coexist with wildland vegetation. As the first step, we extracted raw data from different geospatial files and sources to characterize, at fine-scale, both anthropic buildings and vegetation types for the whole study area. We then reclassified anthropic blocks according to structure density and percentage of area covered, and determined the main land cover types (rural, forest, non-vegetated areas, or water bodies). In addition, we identified the so-called "intense wildfire and ember exposure grids" by determining a 2 km buffer from dense and contiguous forest areas (>5 km^2). We finally combined the above layers and derived the 100 m wildland-anthropic interface raster map of the study area. The final WAI map was subdivided into four main classes: (a) anthropic: medium anthropic presence and high anthropic presence; (b) wildland-anthropic (WA): WA interface and WA intermix; (c) dispersed anthropic (DA): DA in forest areas, DA in rural areas, and DA in non-vegetated areas; (d) non-anthropic: forest areas, rural areas, non-vegetated areas, and water bodies. We then characterized total area and percentage of the diverse classes of anthropic, WA, DA, and non-anthropic areas, considering the whole study area and the five regions, and highlighted spatial differences among and within classes and regions. The results of this work can be useful to inform and optimize strategies to mitigate wildfire impacts in the surroundings of anthropic areas of the Italy-France Maritime cooperation area.

Keywords: wildland–urban interface; anthropic areas; Mediterranean basin; fire risk; GIS; communities

Citation: Del Giudice, L.; Arca, B.; Scarpa, C.; Pellizzaro, G.; Jahdi, R.; Duce, P.; Salis, M. Characterizing and Mapping the Wildland-Anthropic Interface of the Italy-France Maritime Cooperation Area. *Environ. Sci. Proc.* **2022**, *17*, 48. https://doi.org/10.3390/environsciproc2022017048

Academic Editors: Donatella Spano, Valentina Bacciu and Costantino Sirca

Published: 9 August 2022

Author Contributions: Conceptualization, P.D. and M.S.; methodology, L.D.G. and M.S.; software, L.D.G. and B.A.; validation, B.A., G.P., C.S. and R.J.; formal analysis, L.D.G. and B.A.; investigation, L.D.G. and M.S.; resources, L.D.G.; data curation, L.D.G. and R.J.; writing—original draft preparation, L.D.G. and M.S.; writing—review and editing, L.D.G., M.S., R.J. and B.A.; visualization, G.P. and C.S.; supervision, M.S.; project administration, P.D.; funding acquisition, P.D. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by "MED-Star" (grant no. E88H19000120007), "Med-Foreste" (grant no. B85I1900010007) and "Med-Coopfire" (grant no. B81I1900010007) projects, supported by the European Union under the cross-border Programma Italia-Francia Marittimo 2014–2020, and the Italian Ministry of University and Research (MUR)—"FOE2019—Climate Change: risk mitigation for sustainable development", grant number: Ministerial Decree no. 856/19.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: http://dx.doi.org/10.1016/j.dib.2021.107355.

Conflicts of Interest: The authors declare no conflict of interest.