Authors thanks the reviewer for her/his time and constructive comments and suggestions, which we believe have improved the manuscript by making it more clearly and consistent. Our answers to the more general Reviewer' suggestions were uploaded in the form of a supplement.

Comment from Referee2
The MS would benefit from an English language revision, some sentence are not clear and should be rephrased.

Authors changed/rewrote all the sentences highlighted by the reviewers to make them more comprehensible. An English-proofreading expert has revised the entire manuscript.

Comment from Referee2
The authors should select and better clarify objectives. In fact, it is not clear if the main aim of this study was to assess the impact of land use changes on burned areas, to provide a global assessment of land cover changes, or to assess the evolution of RUI.

We reorganized the **Abstract** and the **Introduction** to better explain the objectives of the present paper, and we specified at the end of Introduction: "In the present study, authors investigate the RUI in Portugal: the main objective is to analyze changes in land use/land cover occurred in this country in the period 1990-2012 and to assess their impact on RUI's evolution. Moreover, a qualitative and quantitative characterization of burnt areas within the RUI in relation to the LULCC is provided. Finally, this research provides a first attempt to map the RUI's extension at national level for continental Portugal."

Comment from Referee2
Page 1, lines 28-30: Three important points of view are condensed in a single short sentence. The authors should either give some details on different aspects of fire problem or to delete the whole sentence, it does not seem essential for introducing paper topics.

We moved this sentence later where it make more sense.

Comment from Referee2
Page 3, lines 6-9: I was not able to find coherence in this sentence, i.e. why is "spatial extension of the WUI" determined by the factors above-mentioned?
We reformulated this sentence

We changes in "these factors are broadly considered to elaborate WUI maps."
This is also clear from the cited literature.

Comment from Referee2

Page 3, lines 21-23: Authors should explain if WUI and RUI terms have different meanings and, in this case, why they chose RUI.

We added: "In this respect, recent studies defined the Rural-Urban Interface (RUI) as an alternative to the WUI, to highlight the importance of including the rural area,… In the present study, authors investigate the RUI in Portugal"

Comment from Referee2

Please check citation style. Done

Comment from Referee2

On the whole the authors should give some more details on methodology.

We implemented the "**Data and Methodology**" section and we moved some explanations from "**Results**" to this section.

More in detail: (i) we provided in "**Data and Metgodology**" section a new and more complete version of Table 1, showing the CORINE Land Cover nomenclature for the three level; (ii) the concept of "Area gained and lost" and "Net Chenges" was detailed and the computation of these values was well described; (iii) The choice of the buffer width used to computed the RUI has been discussed and justified; (iv) the CLC hierarchical level considered for each analyses was deeper explained and justified based on the objectives.

Table 1: Authors showed in table 1 first and second level classes of CLC but in the 4.2 section they discussed results relative to Corine Land Cover third level. I suggest adding CLC 3rd level in table 1. Done

Page 5, line 24: I suggest adding a figure where an example of RUI map at local scale is shown. This could help reader to better understand which land cover classes were included in RUI and how RUI was mapped.

We better explain the procedure to map the RUI in the section "**Data and Methodology**": "RUI was then mapped for each period using a geospatial approach designed to extract the area of intersection between a buffer around the Artificial Surfaces (AS) and the area resulting from the sum of the Forest and Semi-Natural Area (FSNA) plus the Heterogeneous Agricultural Areas (HAA). Different buffer width from 100 m to 2000 m were tested, but finally we adopted a buffer width of 1 km, corresponding to two times the spatial resolution of the CORINE Land Cover inventory (that is 500 by 500 m): this value is in line with values applied in other countries for WUI mapping (Vilar 2016, Radeloff et al., 2005) and, in the same time, is enough large to avoid bias in the results. The others agricultural areas (i.e. arable lands, permanents crops and pastures) were not included in the RUI definition since these vegetated land covers are usually well managed, mostly irrigated and frequently constitute an

obstruction to fire spread. Similarly, San-Miguel-Ayanz et al., (2012) suggested that HAA have to be considered in the definition and quantification of the rural-urban interface in Portugal, together with forest and semi-natural areas. The geocomputation which allowed producing the RUI's maps was performed under ArcGIS^{TM} software environment. Namely, the geoprocessing workflows was implemented into a Model Builder (Fig.3), a specific application used to create, edit, and manage models, meant as workflows that string together sequences of geoprocessing tools (e.g. selection, buffer, intersect), feeding the output of one tool into another tool as input (i.e. the raster or vector spatial data). "

Page 6, line 4: explain in the text what AA means. Done

Page 6, line 8-9: "predominating in the inner northern region and especially in the southern half of the country" the meaning of this sentence is not clear, please rephrase. Done

Page 6 line 10, and page 7 figure 5 and 6: in order to avoid confusion in reading the results reported in figures 5 and 6, I suggest adding in "Data and methodology" section a description of approach authors followed for calculating area gained or lost and net percentage changes. Done

Page 6, Figure 4: could authors improve resolution of this figure? Done: all the figures were uploaded in high resolution as single files

Page 9, lines 7-8: what total do authors refer?
We specified that it refers to the total burnt area

Page 9 lines 10: authors should give some further details in the text. Reader has to look for CLC classes and codes in table 1, to calculate the sum and to compare it with the other burned areas.
We changed as : *"*. It also emerges that the three over four sub-level of heterogeneous agricultural areas (code 243, 241, 242) are highly affected by wildfires"

Page 9 lines 11-12: I was not able to find a logical connection between this sentence and the previous one. Please explain better your thought.
We changed as *"*thus confirming the need of including HAA in the definition of the RUI".
Moreover, since in methodology we better explained the CLC classes we used to map the RUI, we hope that this sentence is now clearer.

Figure 8: it is not clear what percentage authors refer to.
We refer to the percentage over the total BA for each frame period. We better explained this both in the image caption and in the text.

Page 13, lines 1-3: authors should explain how the factors listed in this paragraph have affected RUI changes.

We removed this sentence and we and the following : "These changes could be associated with the relative decrease of BA in the last investigated period, as a consequence of recent plans for territorial spatial planning and protection of forest against forest fires (Mateus and Fernandes, 2014; Parente et al., 2016)."

Page 13, lines 34-39: conclusions reported in this paragraph are not arising from results of this study. It would be better to move this paragraph to introduction or discussion section.
We deleted the second part of this paragraph (line 37-39) and we moved the first sentence on to "**Introduction**".

Page 13, line 43: "identify which regions need to be prioritized in term of : : :: : :: : :" I do not think that this issue was addressed in this study.
We changed as : "and identify which areas need to be prioritized in term of RUI monitoring". These are in fact the mapped RUI area.

Finally, better quality figures have been produced and will be uploaded separately