



2017 FIRE CONGRESS
Research Highlight



Wildfires and wildland urban interface in Andean Patagonia, Argentina: First assessment in a rapid growing community

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MAIN QUESTIONS OR ISSUES THAT YOU ADDRESSED

- Wildland-urban interface (WUI) areas are focal zones for wildfire occurrence.
- Population density in WUI areas and fire frequency is especially relevant in Mediterranean climate regions such as the eastern side of the Central Andean Patagonian Region of Argentina. House building and resident numbers in these WUI areas are growing fast.
- We assessed the current WUI and its recent changes near the towns of El Bolsón, El Foyel, Mallín Ahogado; Lago Puelo, Epuén and El Hoyo.
- We also analyzed the relationships between fire ignition points and wildfire perimeters within that WUI.

LOCATION AND ECOSYSTEM INVESTIGATED

The ecosystem investigated is the eastern side of the Central Part of the Andes, South America, Argentina.

- About 75% of annual precipitation falls in winter and early spring, followed by dry and hot summers and early fall. Rainfall sharply decreases in a few km toward the eastern Patagonian steppe. Annual rainfall: Timberline: 1500-4000 mm; Mid-elevations: 600-1500 mm; Ecotone forest/steppe: 400-600 mm.
- Vegetation: mixed *Nothofagus antarctica*–*Austrocedrus chilensis* forests and other tree species in a matrix also comprising grasses.

KEY FINDINGS OF YOUR RESEARCH

- WUI occupies 21,366 ha, that is 6.4% of the entire study area. However, it has 97% of the houses. Half of the houses are intermingled with the vegetation (intermix WUI).
- Between 1981 and 2016, the WUI increased by 76%.
- Between 2010 and 2015, 77% of the ignition points were located in the WUI.
- Burned area was of 982 ha in the WUI and 11,594 in the non-WUI.

This research was presented at the 7th International Fire Ecology and Management Congress, which was held in Orlando, Florida, November 28-December 2, 2017 and was hosted by the Association for Fire Ecology, in cooperation with the Southern Fire Exchange.

HOW DID YOU ANSWER THE MAIN QUESTIONS OR INFORM THE ISSUES?

- For the WUI assessment: We used a point-based approach method which estimates building density and wildland vegetation. The main spatial datasets were: (i) building locations digitized from current resolution imagery (15 m), and (ii) land cover map 10 m pixel of wildland vegetation.
- Quantifying changes in WUI area: We used topographic maps from the 1980s (National Geographic Institute of Argentina IGN) and the same land cover data for supporting the 2016 and 1980 WUI.
- Quantifying the incidences of wildfires in the WUI: Data of ignition points from Rio Negro Province and wildfire polygons in the Chubut Province. Minimum wildfire size was 5 ha.

HOW MIGHT/WILL IT INFLUENCE FIRE MANAGEMENT DECISIONS OR PRACTICES?

- It might and will influence fire management decisions by knowing where is more important and urgent to make fuel management plans to prevent and avoid undesirable wildfires.

WHO IS THE MAIN END-USER OF YOUR RESEARCH?

- Local fire managers and local people should be the main end users of our research.
- Local forest managers of Rio Negro and Chubut provinces should know where exactly the WUI areas are located to work more efficiently.

CONGRESS SESSION

Fire Ecology and Effects

