A Spatial Analysis of Land Cover, Climate, and Fire Relationships in The Colombian *Llanos*

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Fire in the Eastern plains of Colombia are known to cause soil degradation, greenhouse gas emissions, ecosystem disruption, and other harmful impacts. Through remote sensing imagery, it was calculated that an average of 2.75 ± 0.5 million hectares of Colombian tropical savannas are burned every year. These numbers are projected to get worse as climate change intensifies. One key question to consider is whether agricultural development will affect the fire regime, and if so, how? In an attempt to answer this question, we sought to find out the relationship of fire to climate and land cover during the 2015-2016 dry season. Using a land classification map and previously collected rainfall and fire data, each 1 km^2 pixel across the study area received a land cover class, fire categorization, and standardized precipitation index (SPI) value. The interpolated dataset allowed for the visualization of SPI-value distribution functions (for both the entire study area and individual land cover types) as well as fire densities per land cover. Results show some evidence that fire in the Colombian tropical savanna tends to occur in relatively dry conditions. It is also possible that natural land cover types are more flammable, particularly recently burned areas, whose fire densities were roughly 2 to 3 times higher than the next most flammable land cover type. To produce more conclusive results, an inter-annual analysis is needed. Fire counts in the 2015-2016 dry season were low due to a lack of strong precipitation gradient and relatively wet conditions. Cultivated land covers especially did not have fire counts sufficient to infer their relationships to fire.