Geophysical Research Abstracts
Vol. 16, EGU2014-16922, 2014
EGU General Assembly 2014


# Dendroecological potential of Fabiana imbricata shrub for reconstructing fire history at landscape scale in grasslands

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Fire recurrently affects many of the terrestrial ecosystems causing major implications on the structure and dynamics of vegetation. In fire prone, it is particularly important to know the fire regime for which precise fire records are needed. Dendroecology offers the possibility of obtaining fire occurrence data from woody species and has been widely used in forest ecosystems for fire research. Grasslands are regions with no trees but shrubs could be used to acquire dendroecological information in order to reconstructing fire history at landscape scale. We studied the dendroecological potential of shrub F. imbricata to reconstruct fire history at landscape scale in a fire prone grassland of northwestern Patagonia. To do this, we combined spatio-temporal information of recorded fires within the study area with the age structure of F. imbricata shrublands derived by dendroecology. Sampling sites were located over 2500 ha in San Ramón ranch, 30 km east from Bariloche, Río Negro province, Argentina (latitude -41° 04'; longitude -70° 51'). Shrubland age structure correctly described how fires occurred in the past. Pulses of individuals' recruitment were associated with fire in time and space. A bi-variate analysis showed that F. imbricata recruits individuals during the two years after fire and spatial distribution of pulses coincided with the fire map. In sites without fire data, the age structure allowed the identification of two additional fires. Our results show that shrub F. imbricata can be employed with other data sources such as remote sensing and operational databases to improve knowledge on fire regime in northwestern Patagonia grasslands. In conclusion, we raise the possibility of utilizing shrubs as a dendroecological data source to study fire history in grasslands where tree cover is absent.