




Ökologie der Wälder der Erde – 24. Oktober 2015

Fire Ecology of Chile


Arbeitsgruppe Feuerökologie, Max-Planck-Institut für Chemie
 Global Fire Monitoring Center (GFMC), United Nations University (UNU)
 c/o Universität Freiburg

- República de Chile
- 15 Regions
- Peru (North)
- Bolivia (Northeast)
- Argentina(East)
- ~17.3 M ha covered by forests (22% of the territory)
- ~14.2 M ha native forest
- ~3 M ha plantations




Mainly desert, scarce vegetation, oasis



Prosopis tamarugo

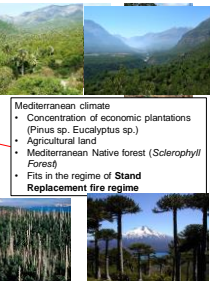

Prosopis chilensis

Azorella compacta (Yareta)



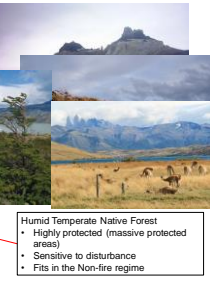
Mediterranean climate

- Concentration of economic plantations (*Pinus* sp., *Eucalyptus* sp.)
- Agricultural land
- Mediterranean Native forest (*Sclerophyll* Forest)
- Fits in the regime of Stand Replacement fire regime

Humid Temperate Native Forest

- Highly protected (massive protected areas)
- Sensitive to disturbance
- Fits in the Non-fire regime



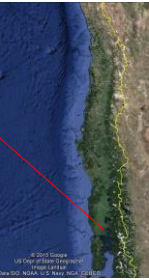
To have in mind...

- Fires in Chile are 99.9% of cases by anthropogenic causes
- 0.01% by lightning or volcanoes
- Only some species re-sprout after fire
- Some species are resilient to fire




The past (i)

- Colonization of the South and Deep South started in 1850
- Need of agricultural lands led to open the forests using fire, transforming and degrading the soil
- 5,5 Million hectares of Humid Template Native forest burned

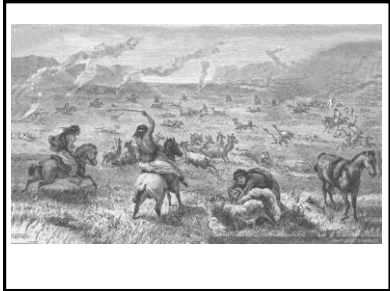



The past (ii)

- Fire used by natives to hunt
- Fire burned in the Patagonian steppes

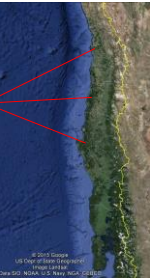


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The present (i)

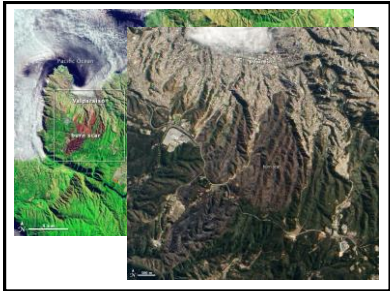
- 60's 70's plantation of the coastal mountain range with productive purpose (Pine sp, Eucalyptus sp.)
- Accumulation of fuel
- Large fires + "El Niño" phenomena
- Increase in number of fires, decreasing size of fires
- Increase of fire in WUI



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April 2014, Valparaiso Chile, UNESCO World Heritage Site

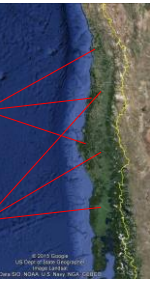
- 2000 houses burned
- 12 people killed



The present (ii)

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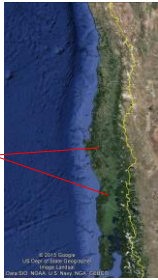
- Agricultural burnings wrongly applied
- Burn native forests
- "prescribed burning" with no-ecological purpose, for firebreak and controlled agricultural burning



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The present (iii)


- Arson ("Terrorism")
- Insurance, pyromaniacs, children that want to see the firefighters act
- Conflicts with native Araucarians claiming their ancestral lands
- Burn forests and fight the brigades
- True terrorists that burn protected species to sell the wood. E.g. *Fitzroya cupressoides* (Larch)



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The present (iv)

- Non-fire regime
- Difficult access
- Isolation from the rest of the country
- Poor education access
- Small debris burning goes out of control



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- Steppes of extreme Patagonia
- Burnings to avoid encroachment for cattle grazing

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The present (iv)

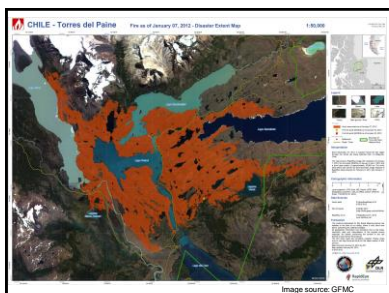
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- Steppes of extreme Patagonia
- Burnings to avoid encroachment for cattle grazing

- Massive and attractive protected areas, unique in the world
- Increase of tourism

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2011-2012 – Israeli tourist burns toilet paper on a difficult access area, the fire lasted from the 27 December – 24 February burning 17,600 ha



The future

- Climate change + Most severe "El Niño" on record
- Longer dry season
- Drier winters (E.g. 2014-2015 fire season lasted until July)
- Increase in reports of fires started by lighting
- Increase of tourism
- More development in the WUI
- More challenges for fire managers and policy makers

Thanks for Your Attention