

IFP²

Romina's Case

Tucumán Floods, Argentina

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–
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Case study

Tucumán floods



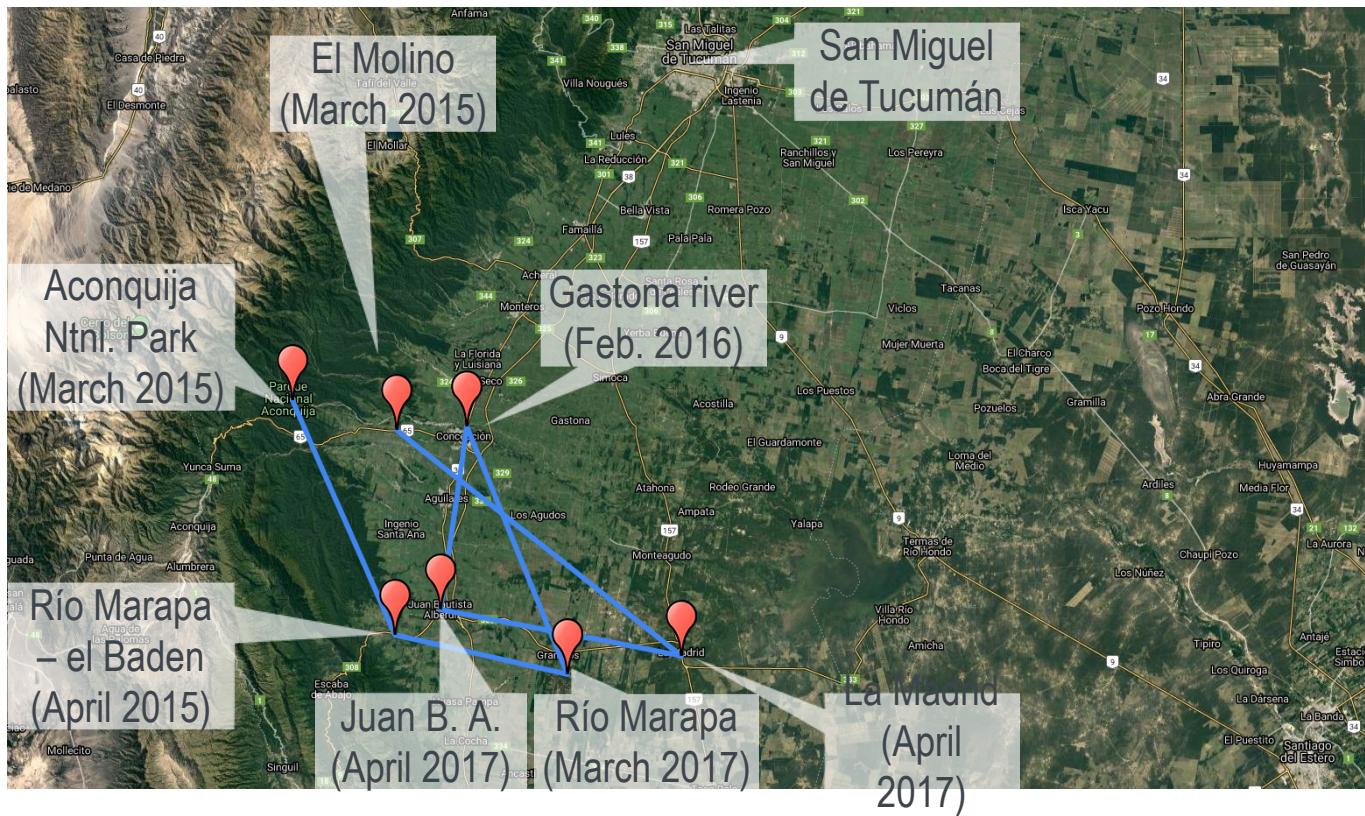
Faldeo oriental del
Aconquija "Eastern Slopes"
(Concepción City)

Buenos Aires



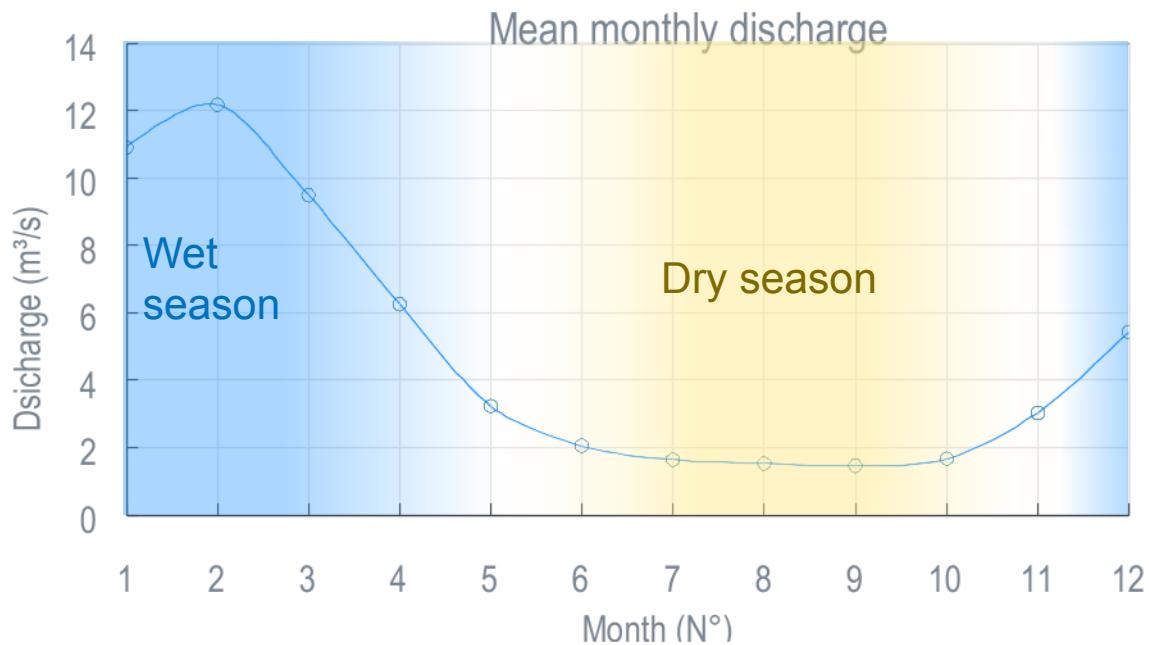
Case study

Tucumàn floods



Case study

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Case study

Tucumàn floods

CHALLENGE:

- Problem of groundwater recharge and root infiltration
- Affected by land cover and use: crop types

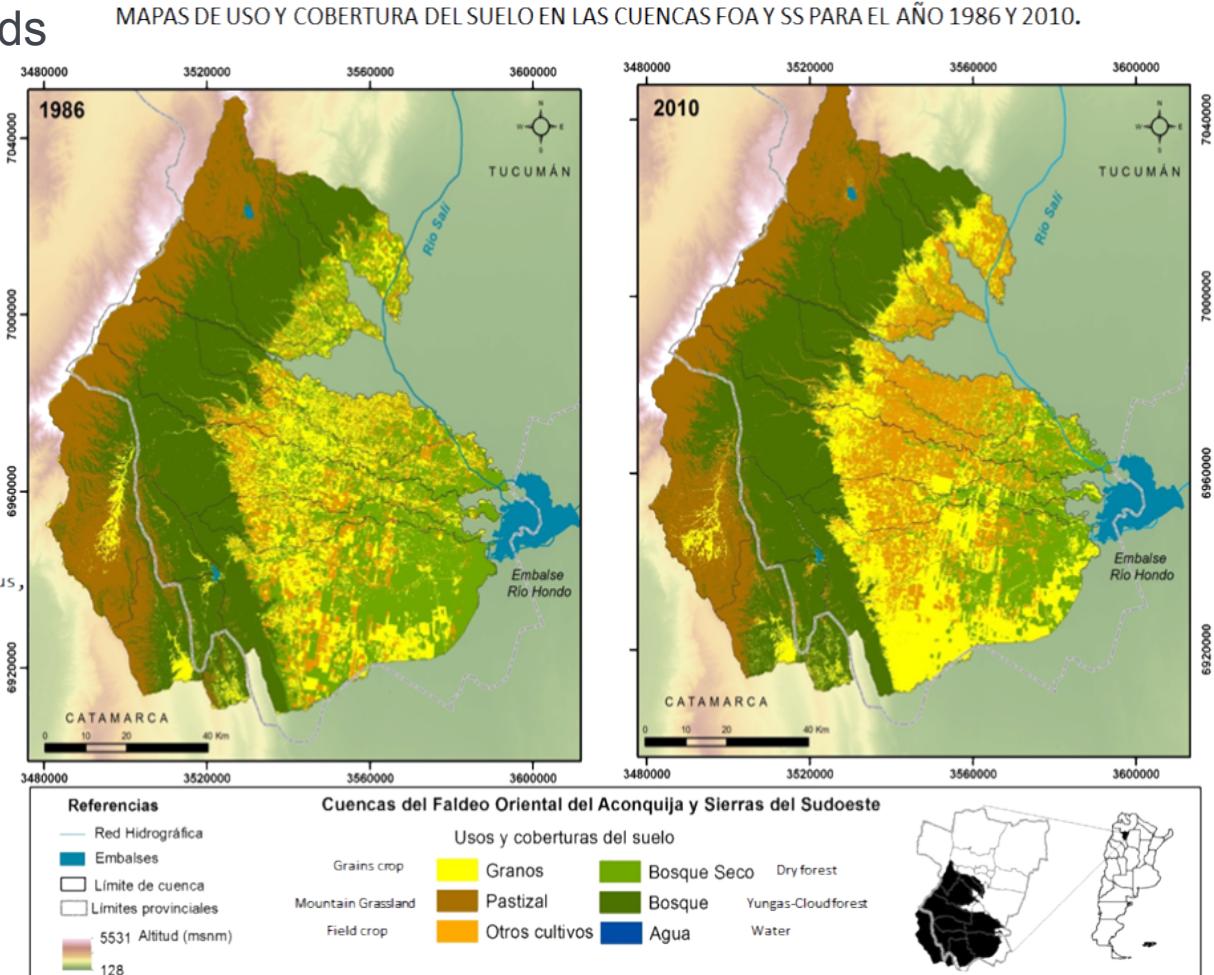
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Tucumán floods

- Land cover
and use

land_use_cover_2010

ID	label
1	Yungas-Cloud forest
2	Dry forest
3	Water
4	Field crop(sugar cane, citrus,
4	Grain crop(soybean, maize)
6	Mountain grassland



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Tucumán floods

- Law enforcement: No low-infiltration crops in high altitudes (> 800m asl.)
 - High infiltration crops: Citrus
 - Low infiltration crops: Soy beans, potatoes
 - More information on crop water needs:
 - FAO
 - crop yield response to water: <http://www.fao.org/3/i2800e/i2800e.pdf>
 - chapters on crop evapotranspiration
<http://www.fao.org/3/u3160e/u3160e04.htm>
 - <http://www.fao.org/3/X0490e/x0490e0e.htm>

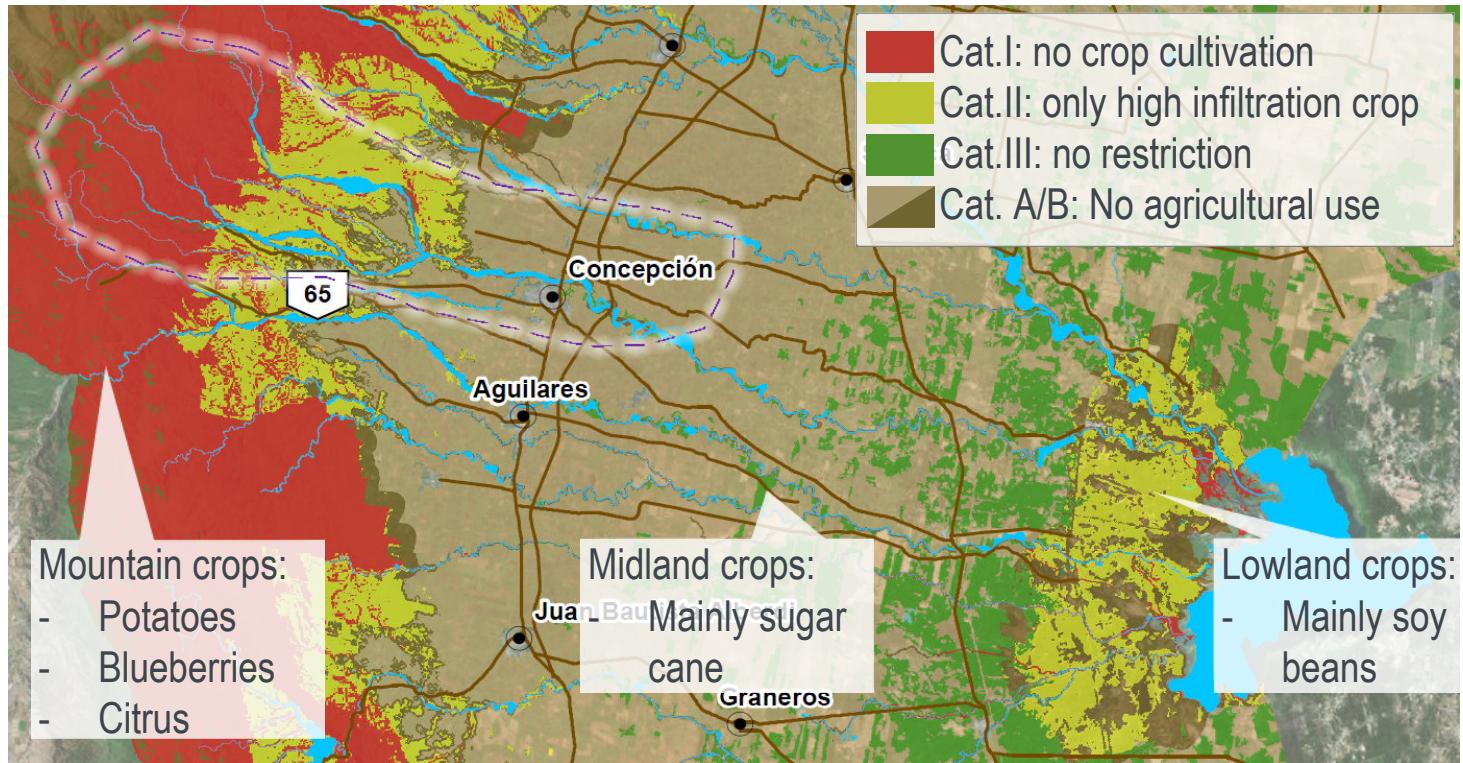
Problems:

- Low penalties
- Arbitrary controls

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Tucumán floods

- Law enforcement: No low-infiltration crops in high altitudes (> 800m asl.)



More information: <http://rides.produccióntucuman.gov.ar/areas-otbn-provincia-de-tucuman/>

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Tucumán floods

- Law enforcement: No low-infiltration crops in high altitudes (> 800m asl.)

 Cat.I: no crop cultivation

Sectors with high conservation value that should not be converted to another land use type. Sustainable tourism activity, through conservation plans.

 Cat.II: only high infiltration crop

Sustainable use, tourism, harvesting and research. Activities in this category should be carried out through Conservation or Sustainable Management Plans.

 Cat.III: no restriction

Low conservation value; sectors can be partially or totally transformed for agricultural land use.

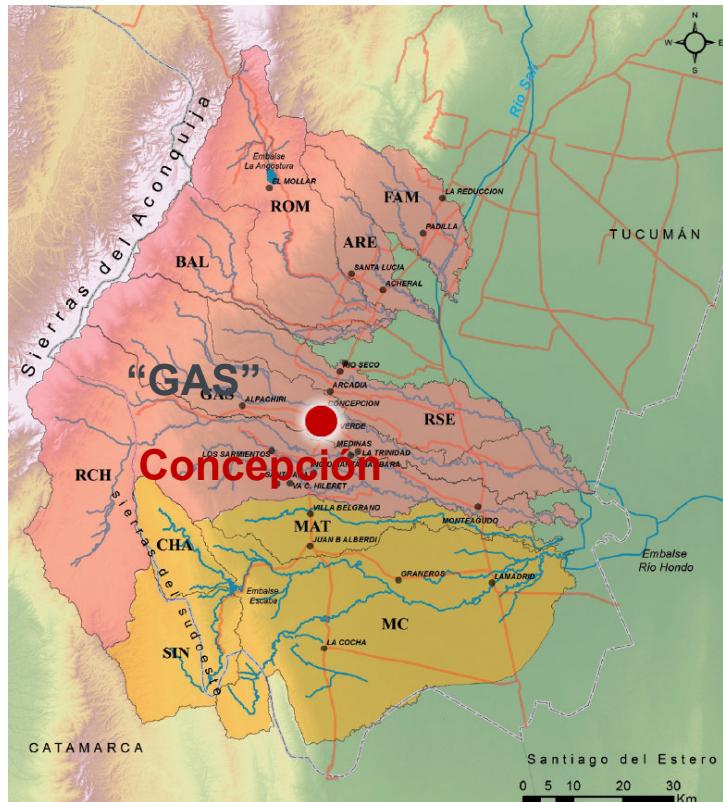
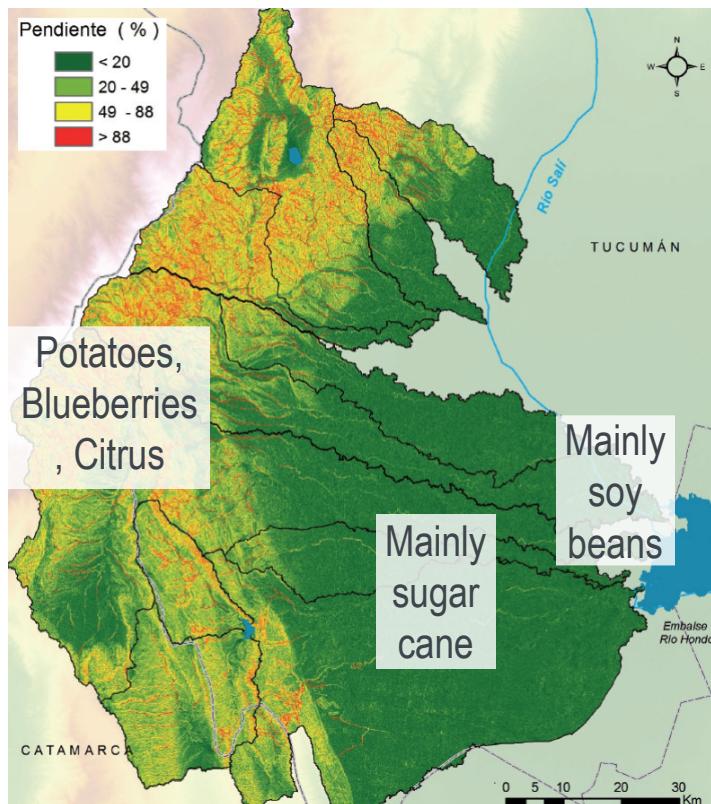
 Cat. A/B: No agricultural use

Sectors adjacent to native forests, in which different land uses must be integrated in such a way that they contribute to the conservation and mitigation of anthropogenic pressure (agricultural and urban areas).

Case study

Tucumán floods

- The watershed



Source: [Díaz-Gómez et al. \(2017\)](#)

Case study

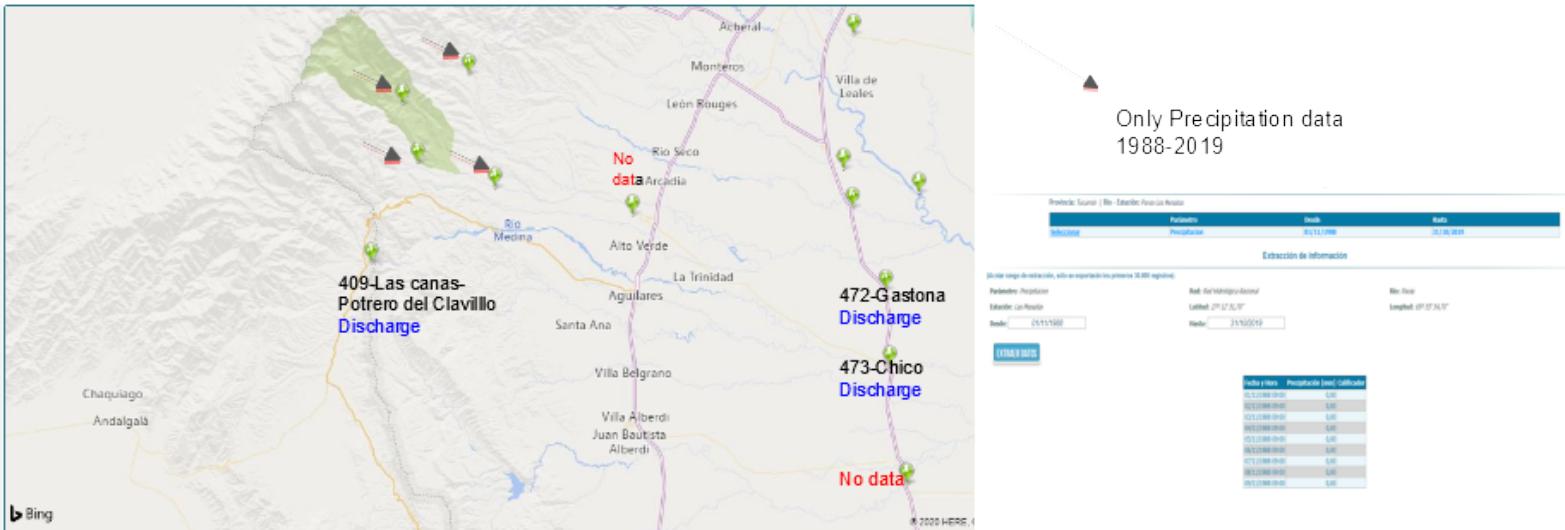
Tucumàn floods

Data available at <https://github.com/sschwindt/rominas-case/archive/master.zip>

- Geodata
 - DEM (m a.s.l.) – geodata/dem.zip/dem.tif
 - Land use & cover – geodata/landuse_cover.zip/landuse_cover.shp
 - Rivers ([Strahler ordered](#)) – geodata/rivers_strahler.zip/rivers_strahler.shp
 - Annual [soil loss rates](#) – geodata/soil_loss.zip/soil_loss_m_per_year.tif
 - Watershed sub-zones – geodata/watershed.zip/watershed.shp
- Hydrological data (source: <http://bdhi.hidricosargentina.gob.ar/>)
 - 473_Chico_discharge.csv (flow + sediment 2004-2020, irregular intervals)
 - 472_Gastona_Atahona_discharge.csv (flow + sediment 2004-2020, irregular intervals)
 - 409_Las canas_Potrero_del_cavillo_discharge.csv (flows 1986-2019, irregular intervals)
- Other data: Refer to literature cited above and in the repository

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