

# Local People's Contributions to the Conservation of Biological Diversity

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# What we know

## Local communities

- are often seen as “the problem” rather than a part of the solution (Andersson, 2002; Gibson et al 2000; Agrawal 2005).
- can manage their natural resources sustainably (Ostrom, 1990; Balland and Platteau, 1994; Agrawal, 2000; Acheson, 1994)
- often perform better than national governments in conserving natural resources (Somanthan et al, 2009; Hayes and Ostrom, 2005; Phelps et al 2010; Porter-Bolland 2012)

# Question

- How can local people's contributions to biodiversity conservation be measured?

# Premise

Natural resources may be protected by

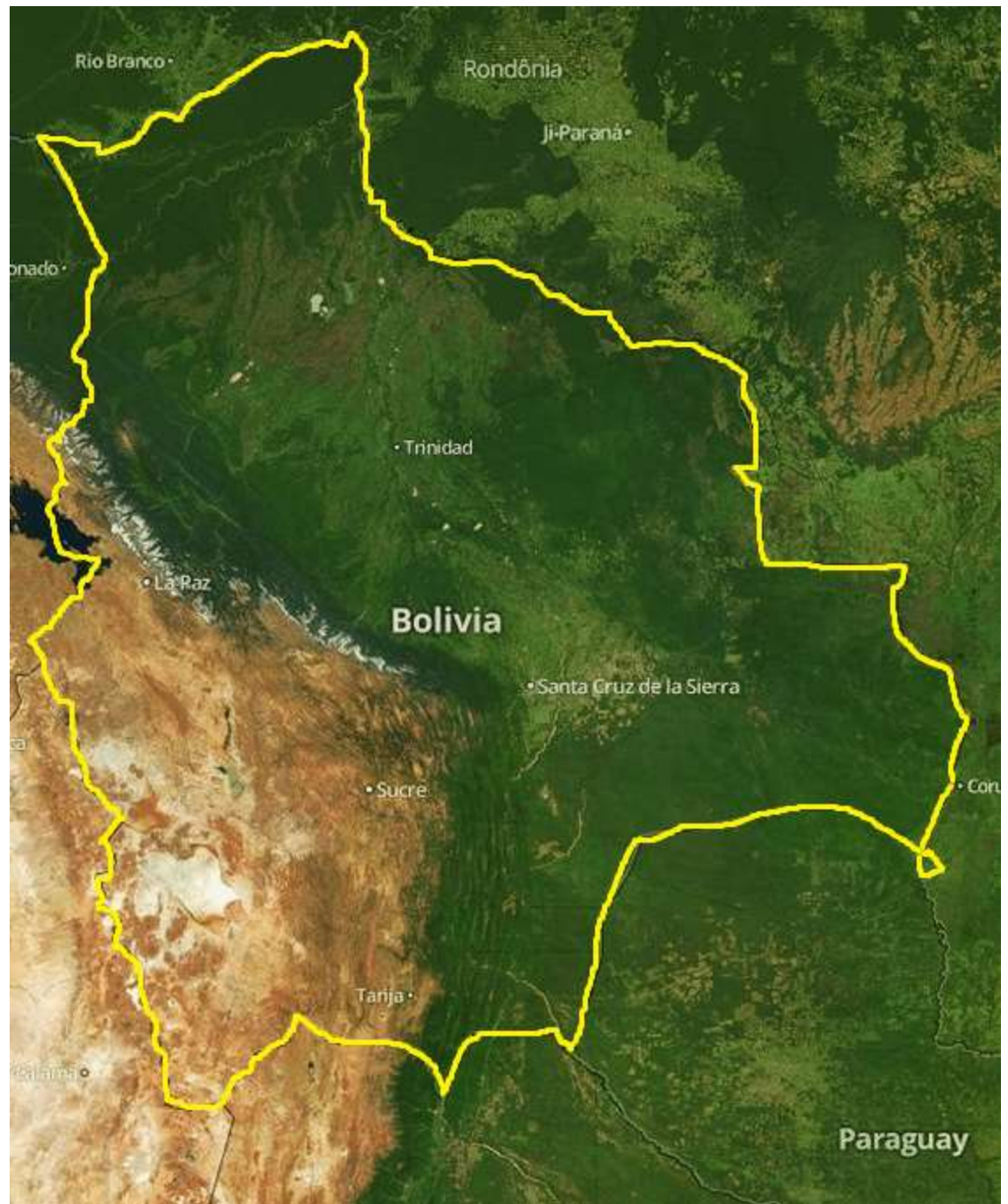
- Official protected-area designation
- Geographical remoteness, inaccessibility
- Collective actions of local user groups

# Proposal

- Using existing GIS data to identify areas protected by local communities
- Modelling approach: Landscape “anomalies”  
(Andam et al 2008; Ferraro et al 2009; Pfaff et al 2008)
- Estimating indicator:
  - Area protected by local communities
- **How?**

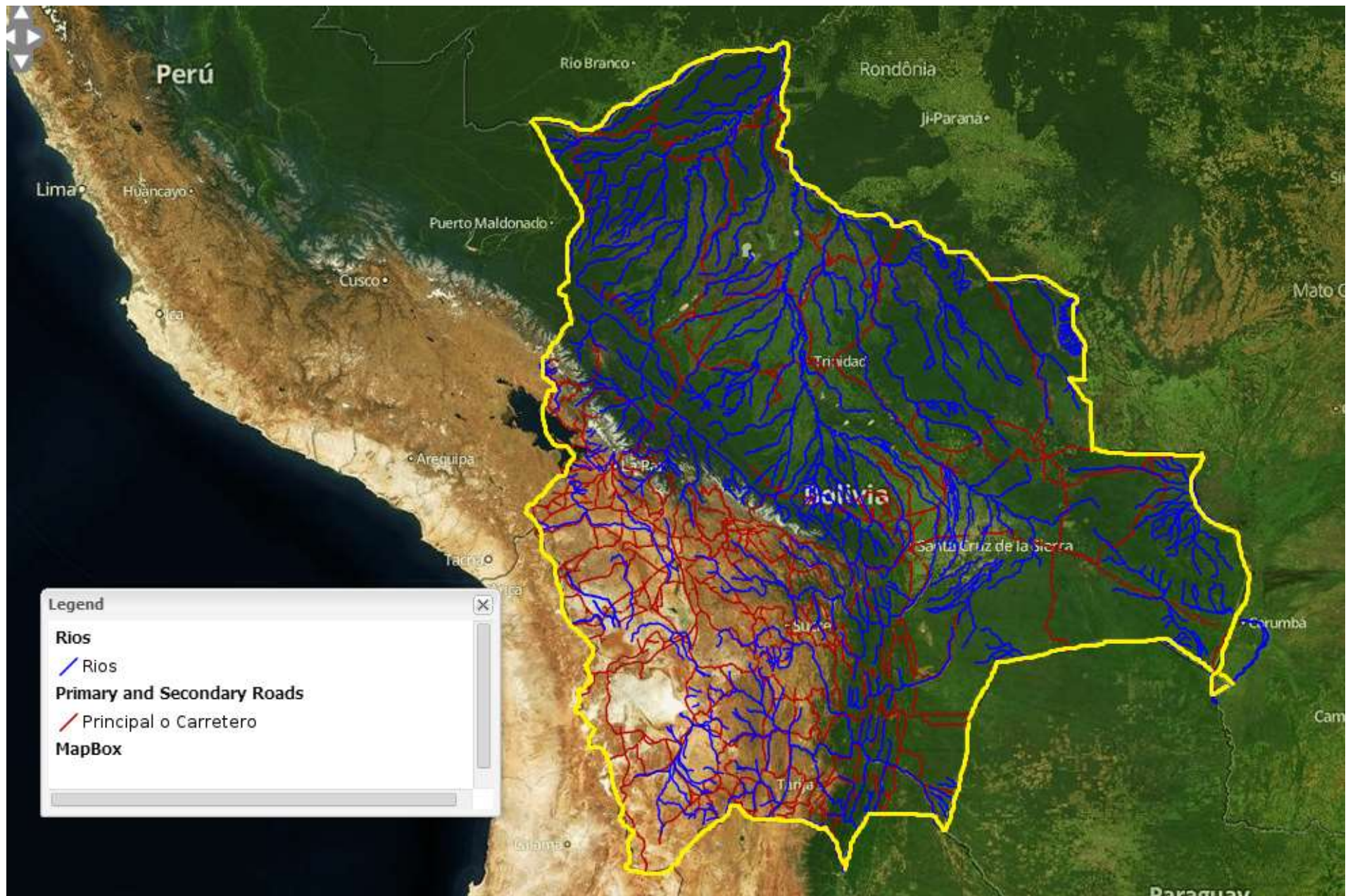
# Satellite images of Bolivia

Source: GeoBoliva  
(<http://geo.gob.bo/mapfis>  
happ/)



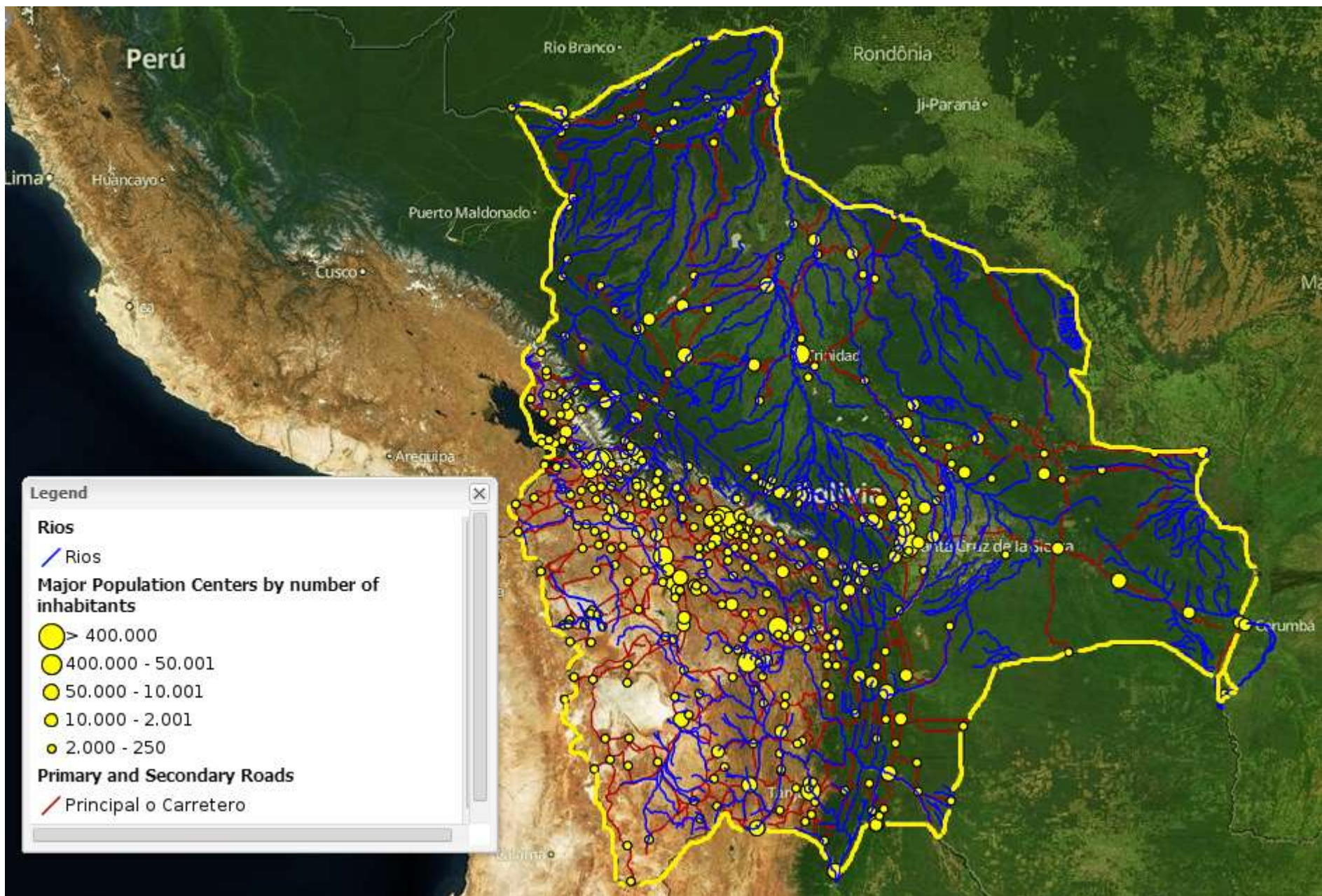


# Roads & Rivers



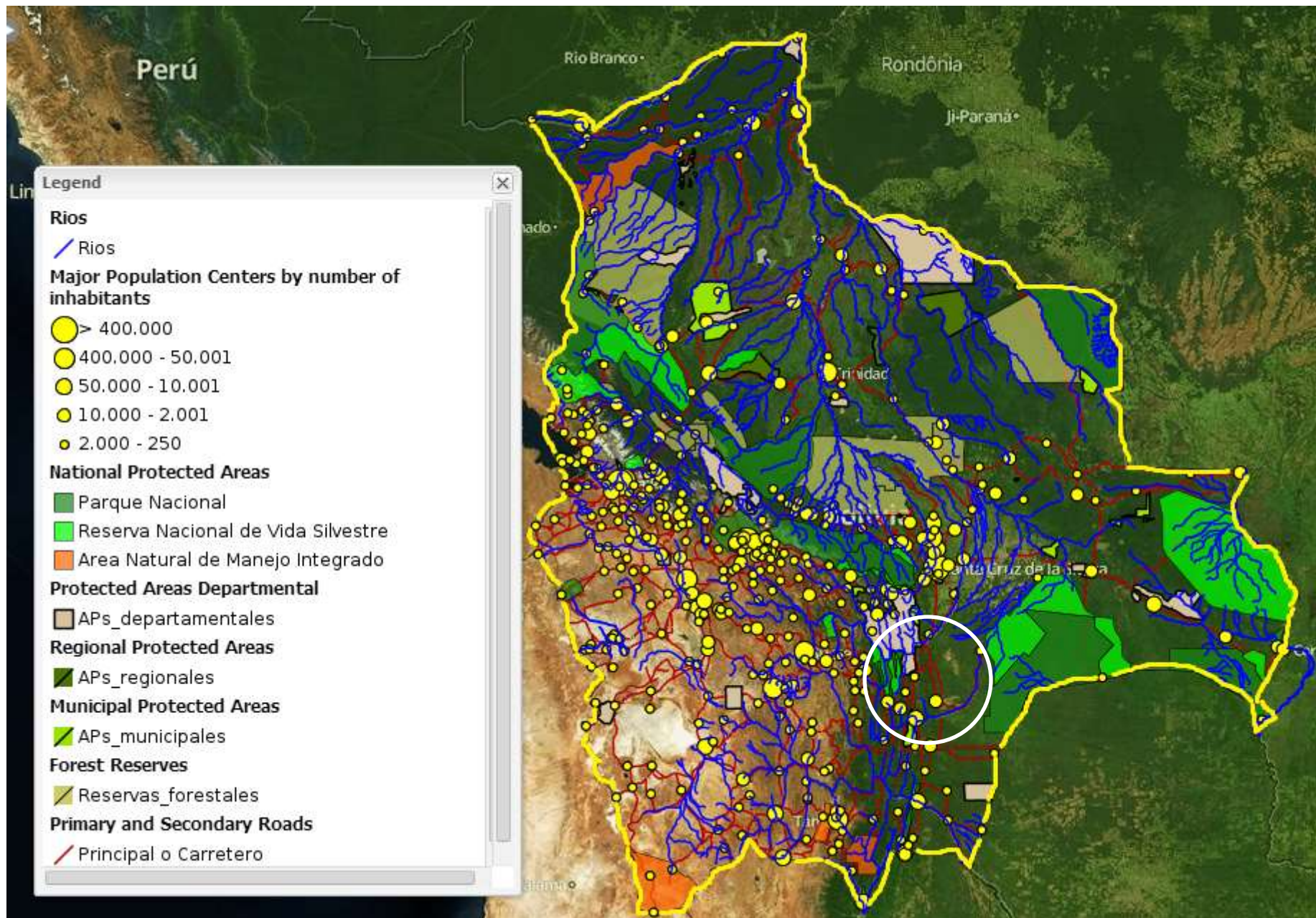


# Plus population density





# Plus formal protected areas

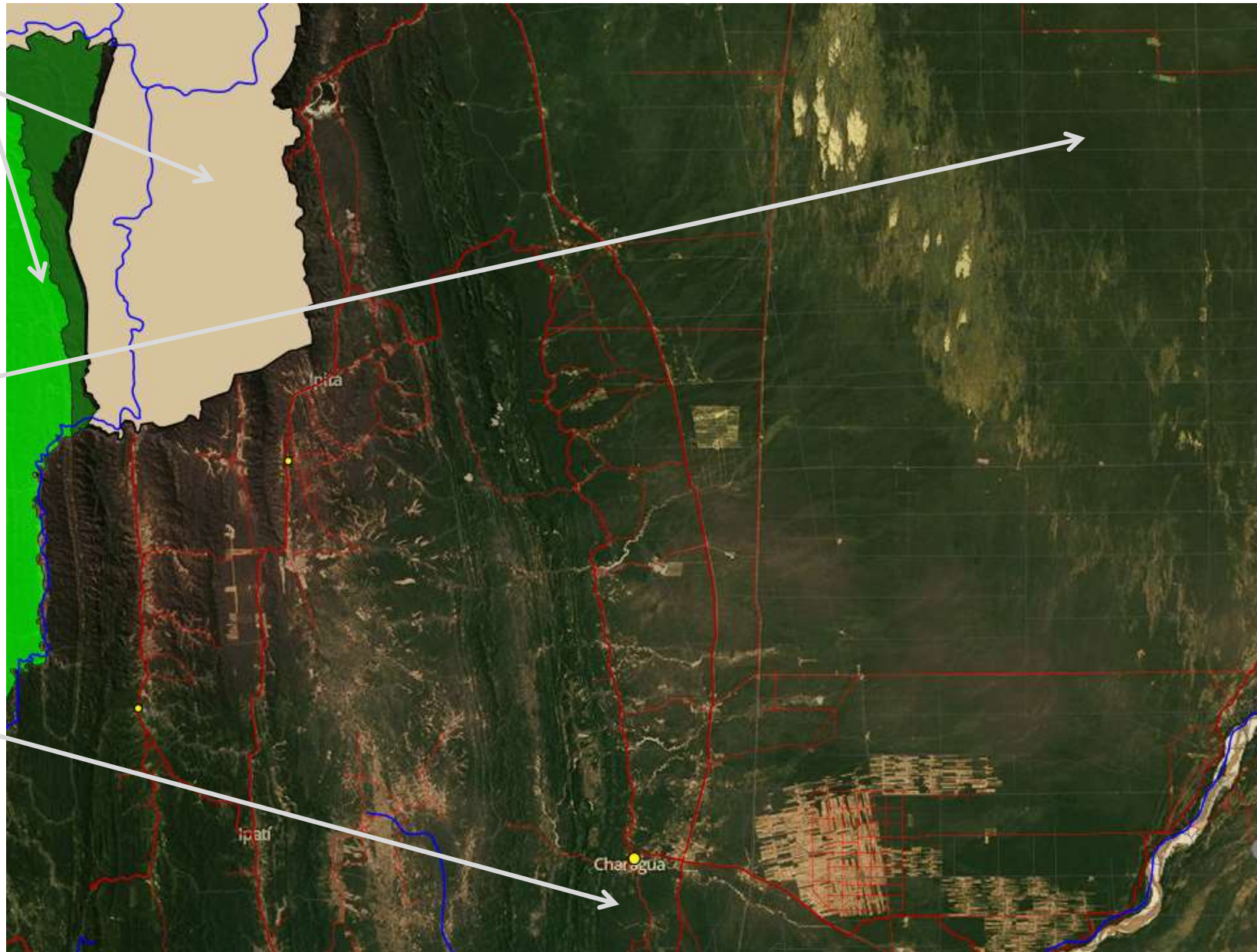




Protected  
by **parks**

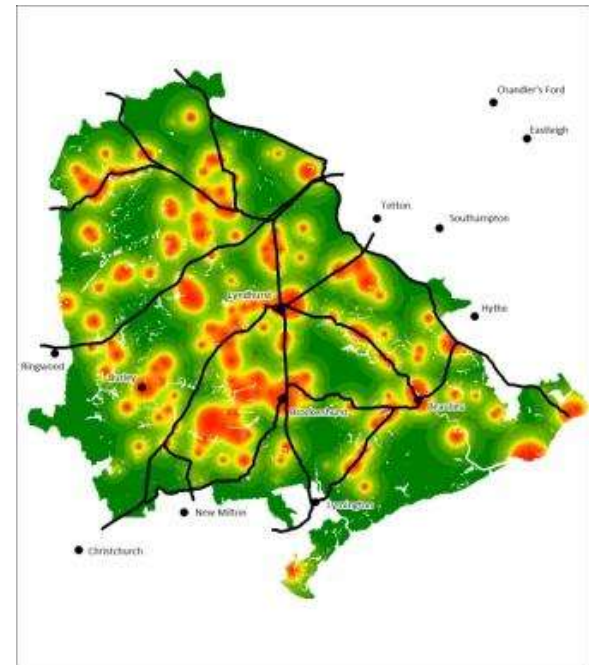
Protected  
by  
**remote-  
ness**

Protected  
by  
**collective  
actions?**



# Future work

- Do the analysis!
  - modelling exercise
  - estimate indicators
- **Validate** the estimates with existing field data
- **Challenge**: Gauge role of collective action *within* PA



# For more information

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# Bonus slides

# Indicators collective actions

- Indirect measures
- Compare local community lands official PAs to estimate
  - Relative resource condition
  - Relative value of protection
    - For example, what public investments have been made in personnel and other resources to manage an official PA that is comparable to local community lands?)
- Consider reporting indicators in national reports

# Ideas for gauging CA *within* PA

- Estimate the pressure on each area
- Measure effort by PA admin through govt record and surveys to the 22 admins about the role of local communities in the protection effort
- Infer what the contribution is of the CA by comparing parks with similar pressure, similar staffing but different levels of engagement with LCs

# Ideas for gauging the contribution of CA in areas *outside* of parks

- Identify LC's boundaries and plausible area of influence
- Estimate, through the modeling, pressure on the natural resources
- Generate baseline predictions about the land cover changes on community lands
- Carry out residual analysis to estimate the contribution of collective action for the conservation of the community land (that is if the model predicts that there will be 20 % forest cover in a community, and the observed value is 80%, there is an additional 60% of forest conserved thanks to the collective action of the community).