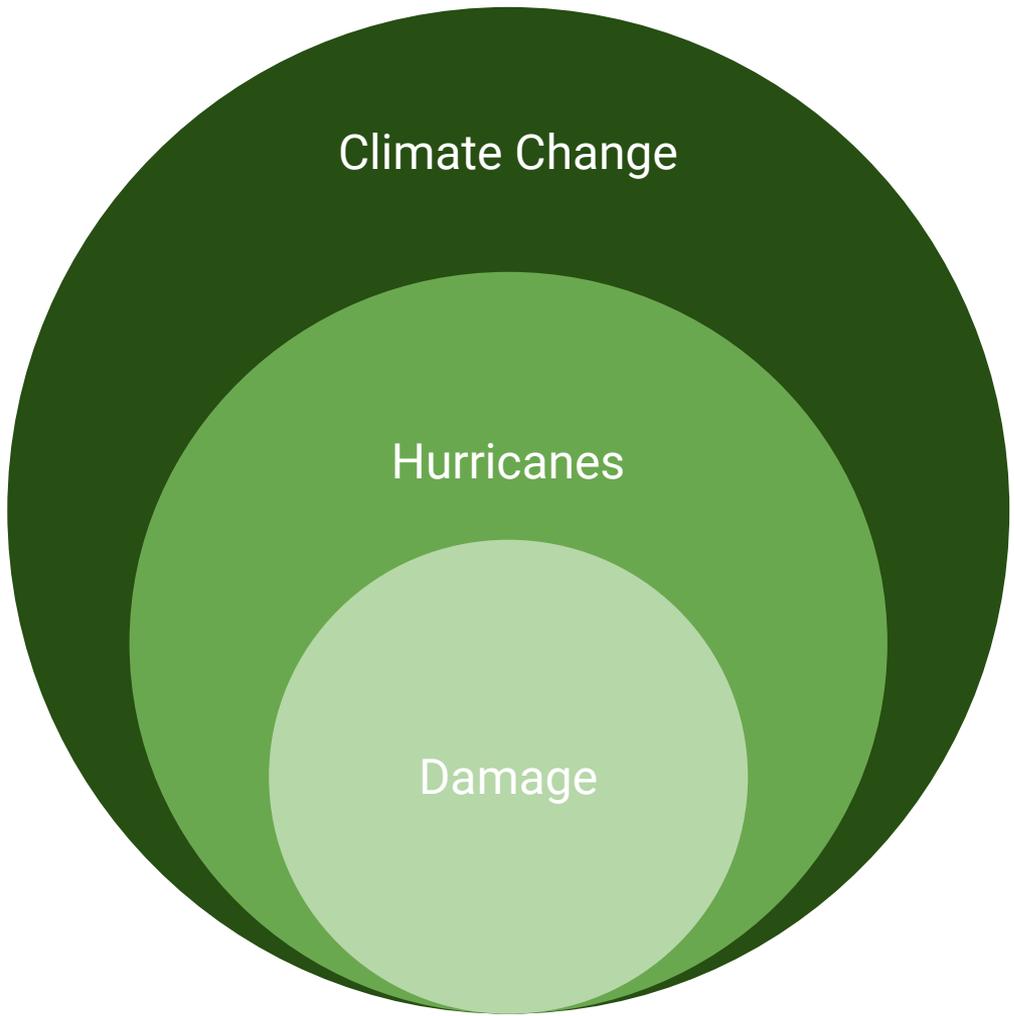


Restoration in El Yunque National Forest: Riparian Corridor Assessment and Prioritization

Jared DeMaio, Jason King, Matt Schmitt, Steve Wood



WPI

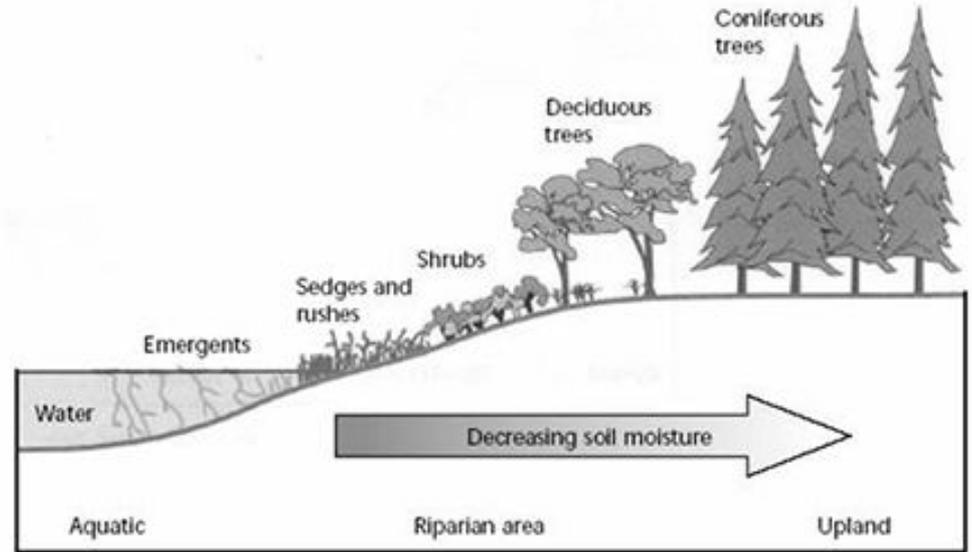


Climate Change

Hurricanes

Damage

Riparian Corridors



Riparian Health vs. Hurricane Impact

- What makes them healthy?
- How exactly are they affected by hurricanes?

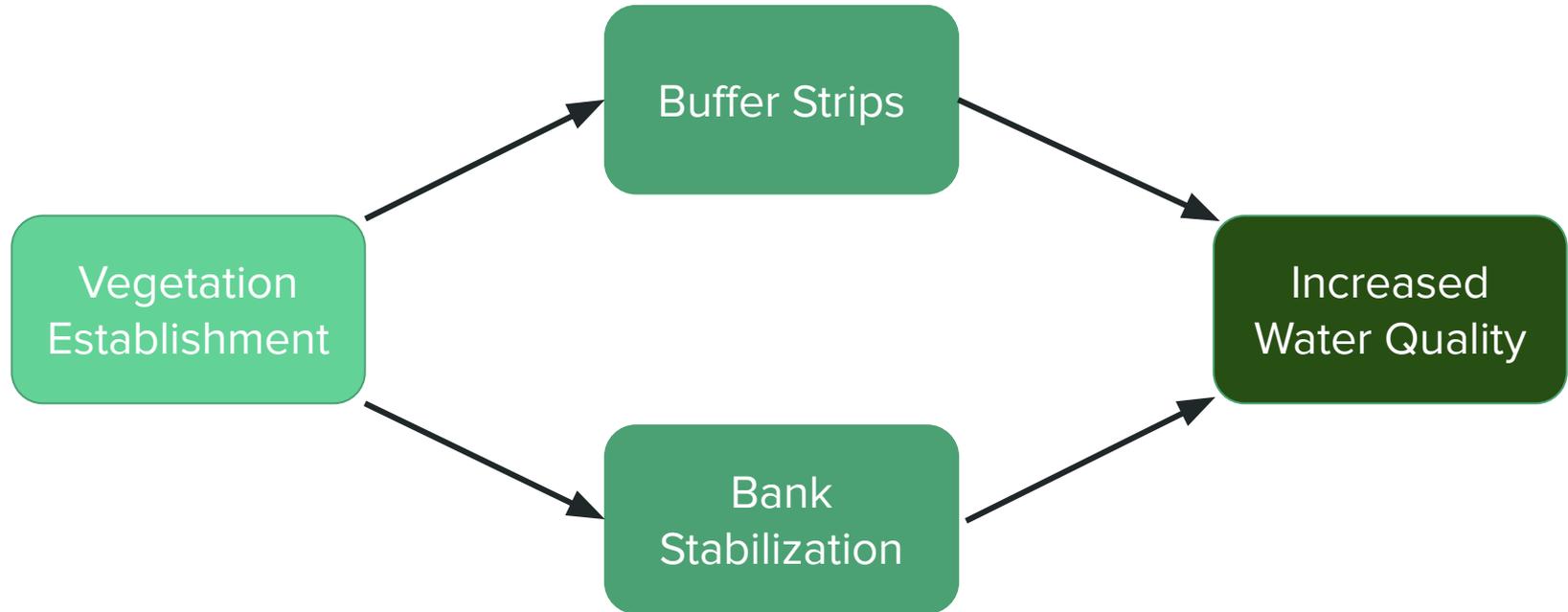


Image Source: www.ndhealth.gov



Image Source: <https://www.radionz.co.nz>

Riparian Restoration Efforts



Assessment Protocols

Procedures used to assess primary stream and riparian functions in a particular riparian area by evaluating its physical habitat, water quality, and channel morphology.



Community Input



Image Source: www.landequity.com.au

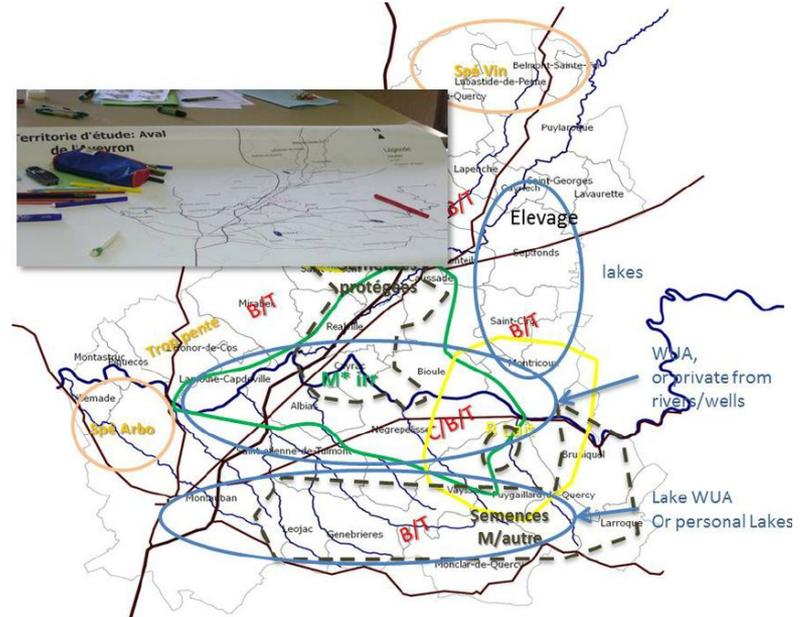
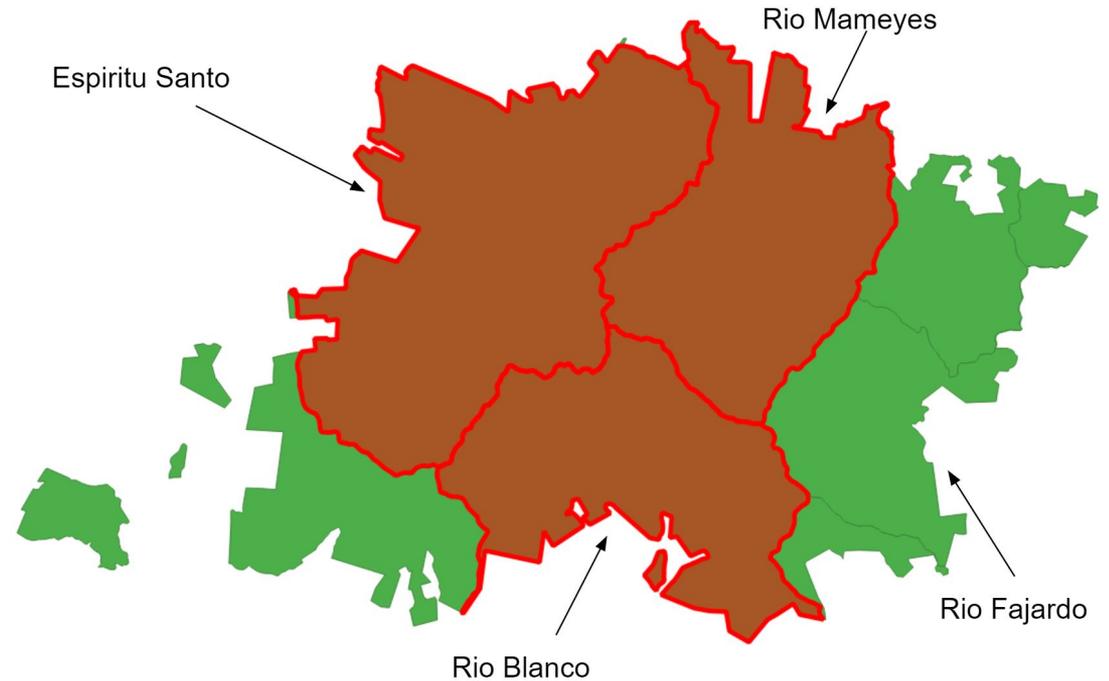


Image Source: www.researchgate.net

El Yunque National Forest

- Contains 2,100 acres of Riparian Zones
- Severely damaged by Hurricanes Irma and Maria



El Yunque (Cont.)

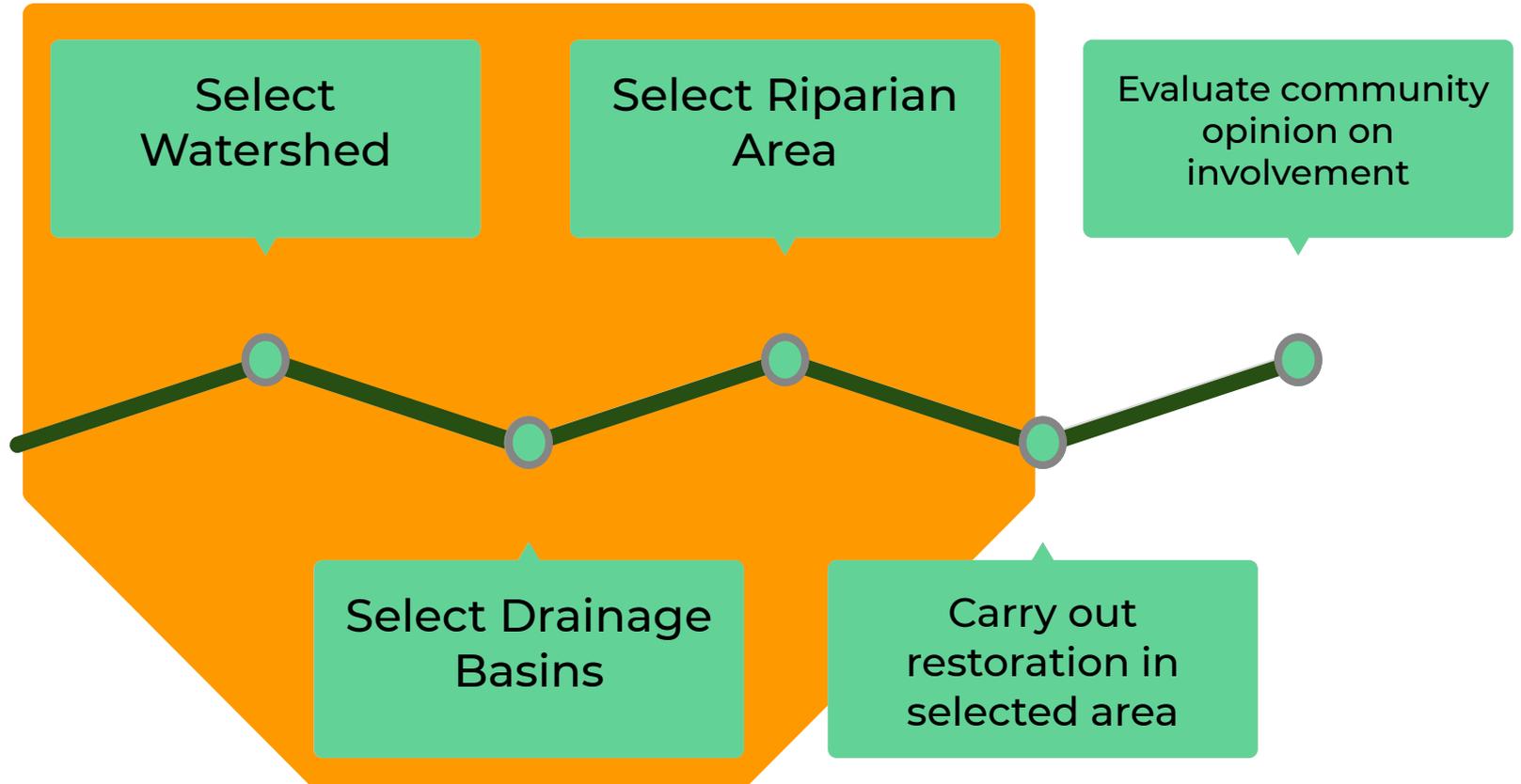
- Community Benefits
- Past Shortcomings
- New Revised Land Management Plan

Our Goal

We plan to develop a guide that supplements the technical components of an existing assessment protocol through inclusion of community input

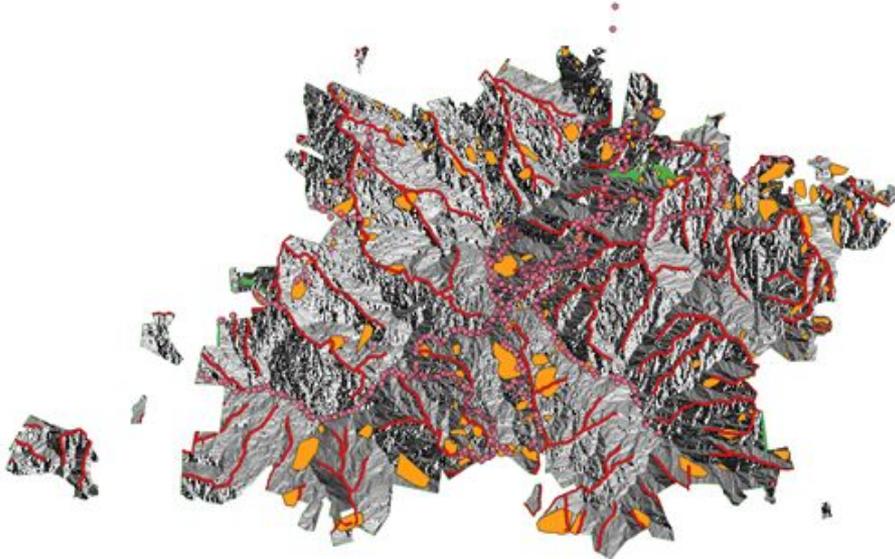
*Can be used globally in restoration of riparian areas
in tropical environments*

Objectives

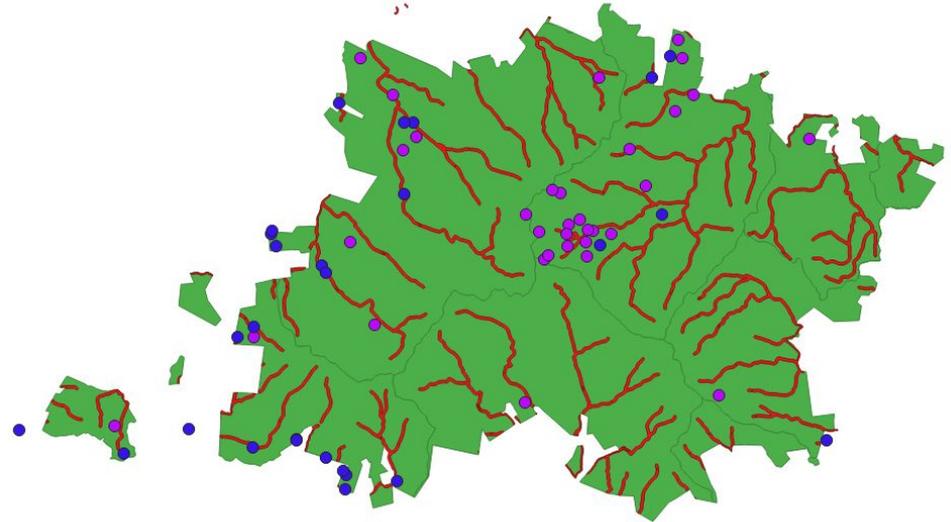


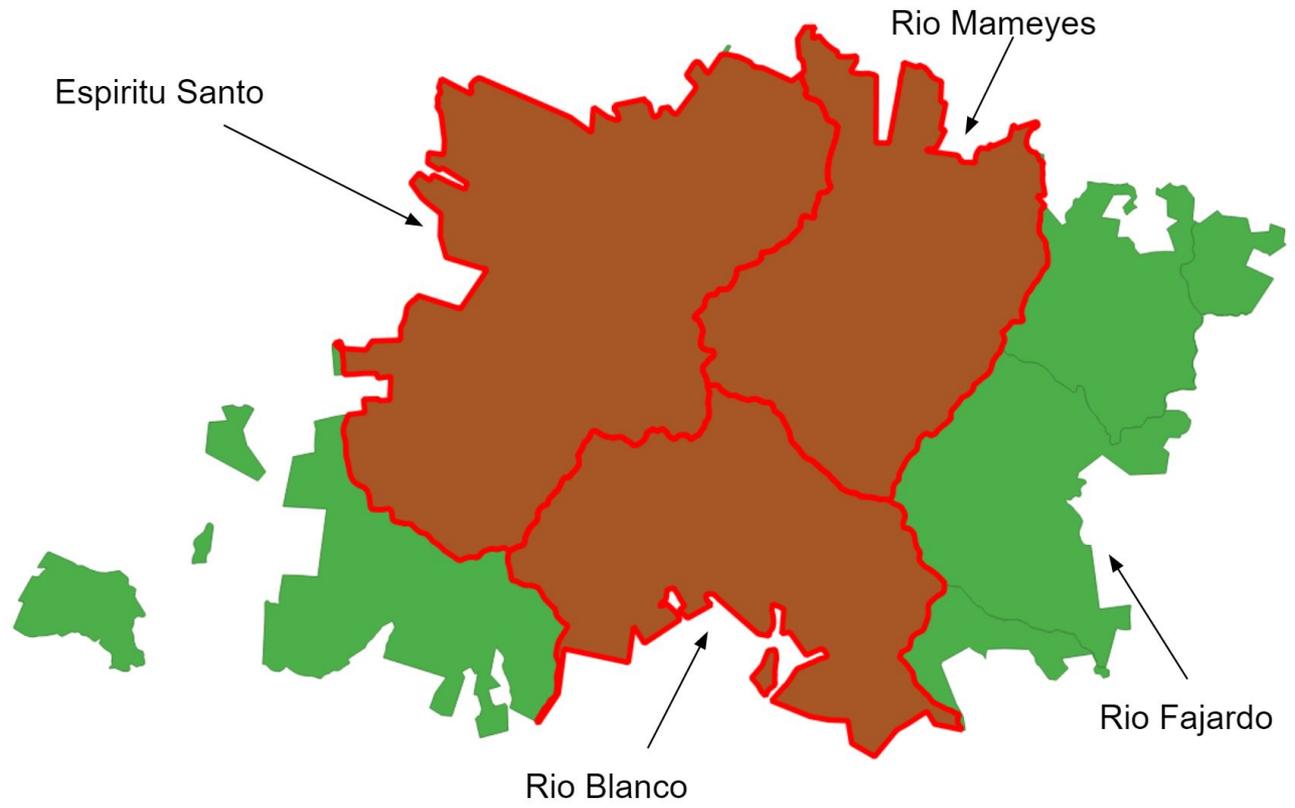
Watershed - GIS Mapping

Ecological Data



Socio-economic Data





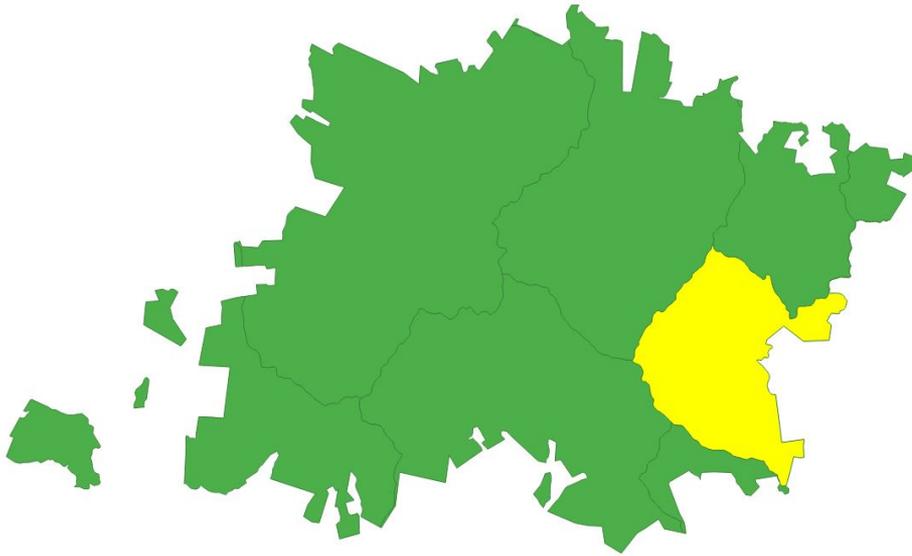
Espiritu Santo

Rio Mameyes

Rio Blanco

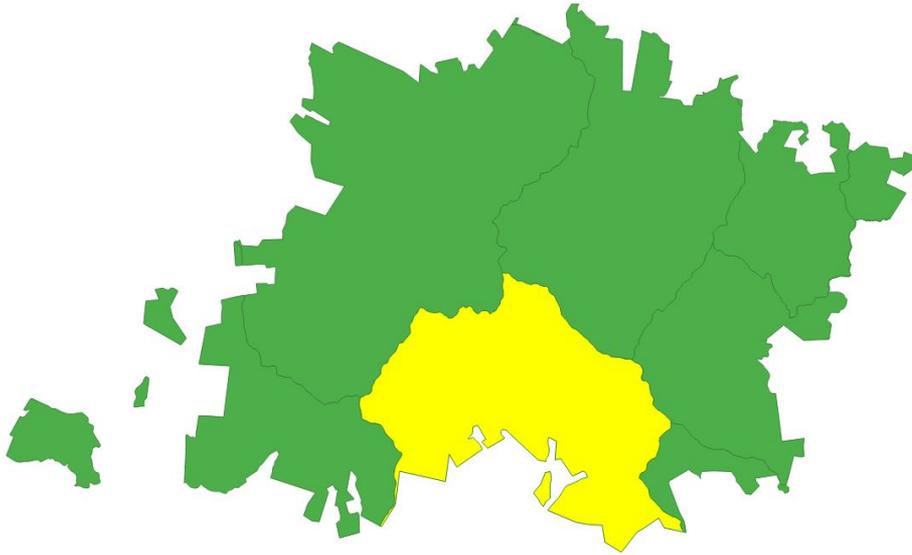
Rio Fajardo

Rio Fajardo



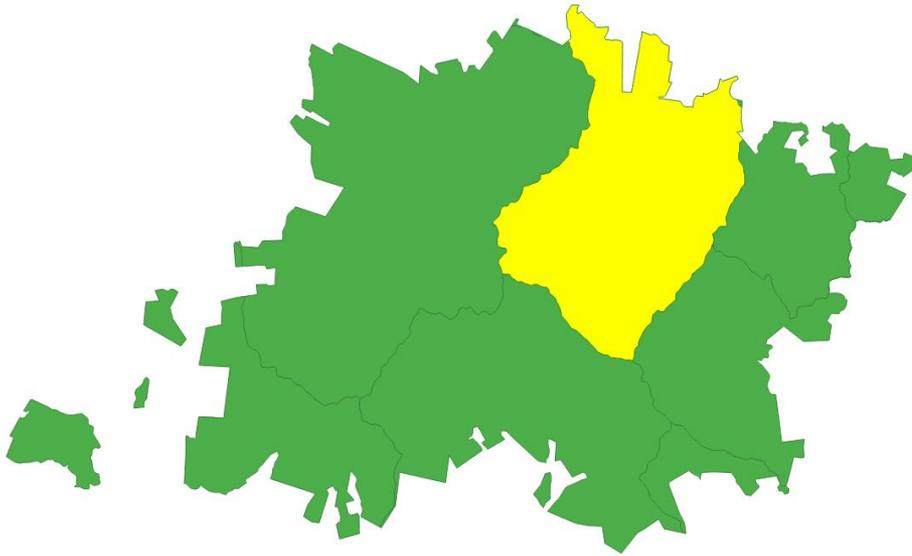
- + PLN's favored watershed
- Not "Functioning at Risk"
- 17% of watershed is under Forest Service jurisdiction

Rio Blanco



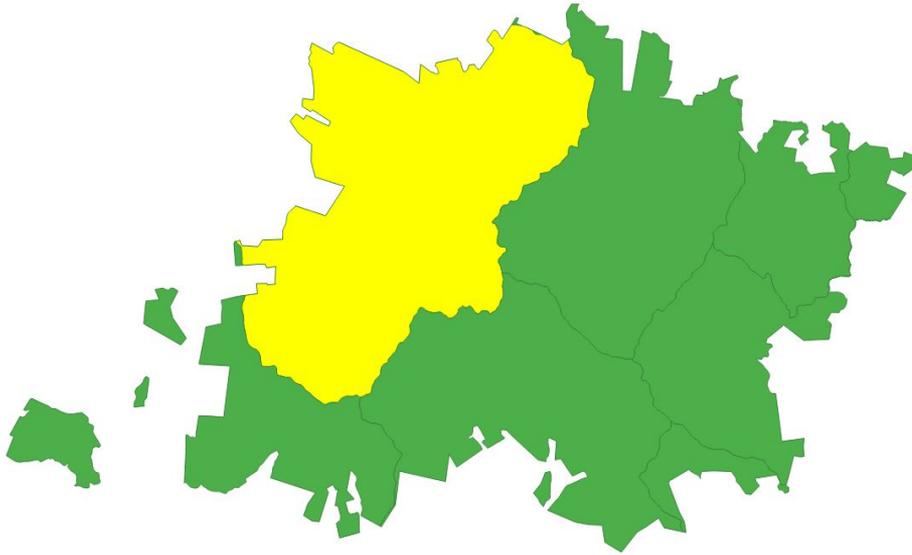
- + Most seriously damaged
- Road access blocked by landslide
- Quartz Diorite

Rio Mameyes



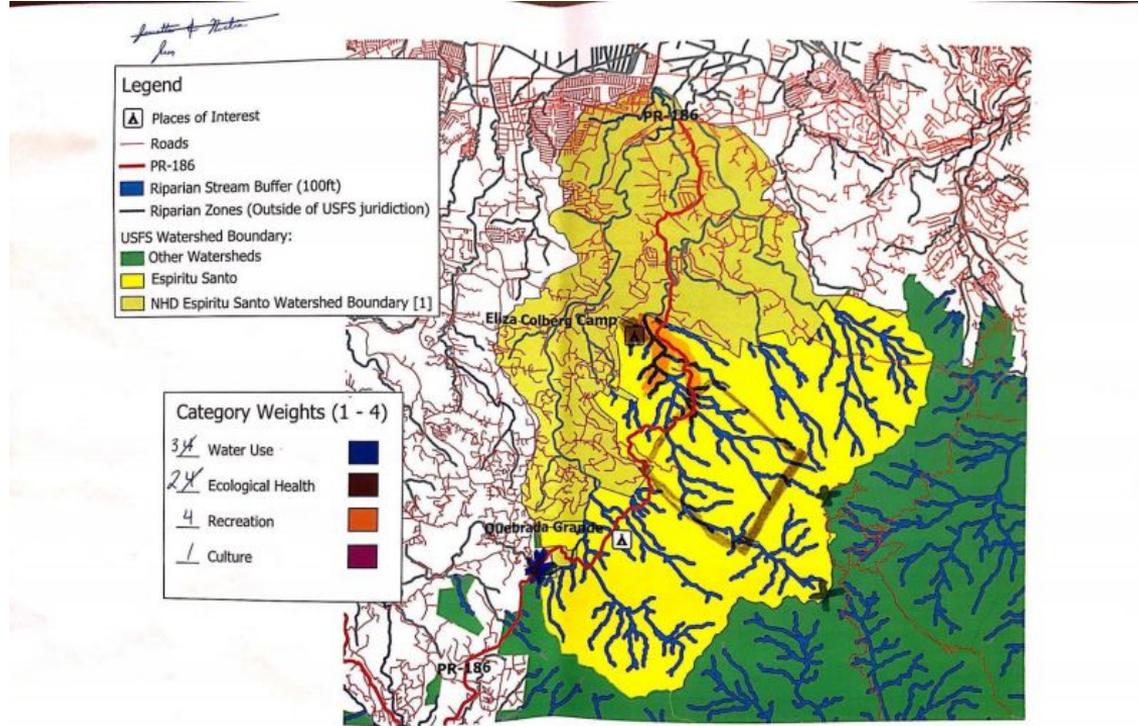
- + Highest tourism significance
- + Access via PR 191
- Will see restoration attention due to high tourism

Rio Espiritu Santo

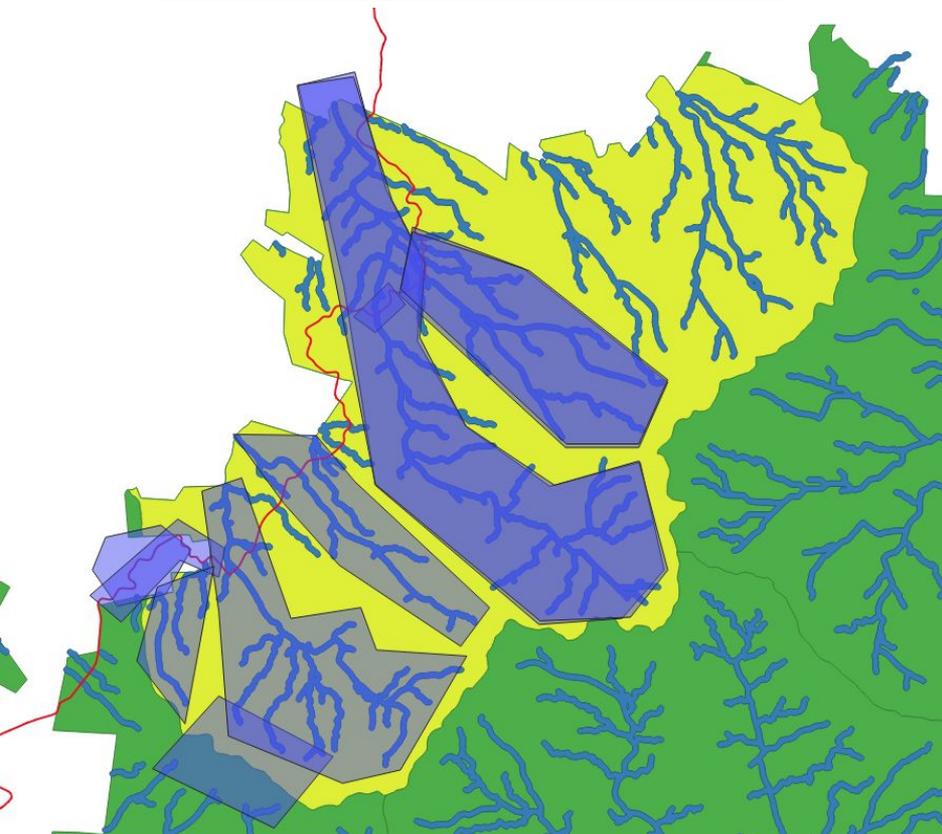


- + Close proximity to communities
- + 9 water intakes
- + Access via PR 186
- Not in NEPA

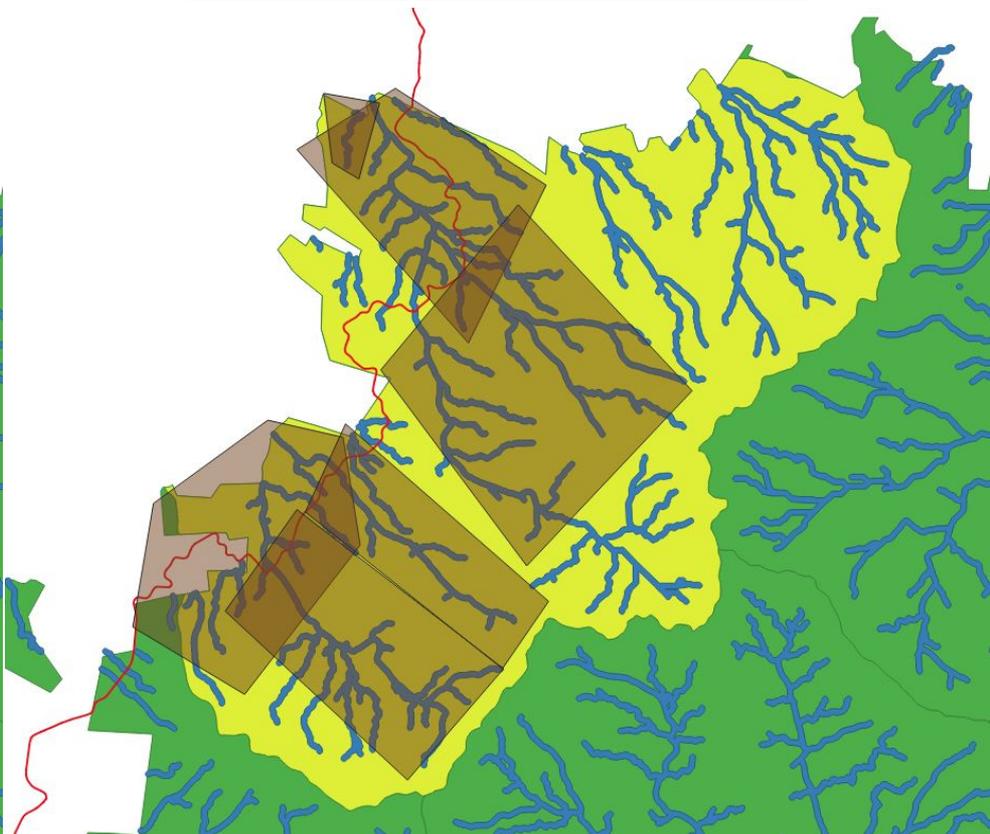
Interviews & Participatory Mapping



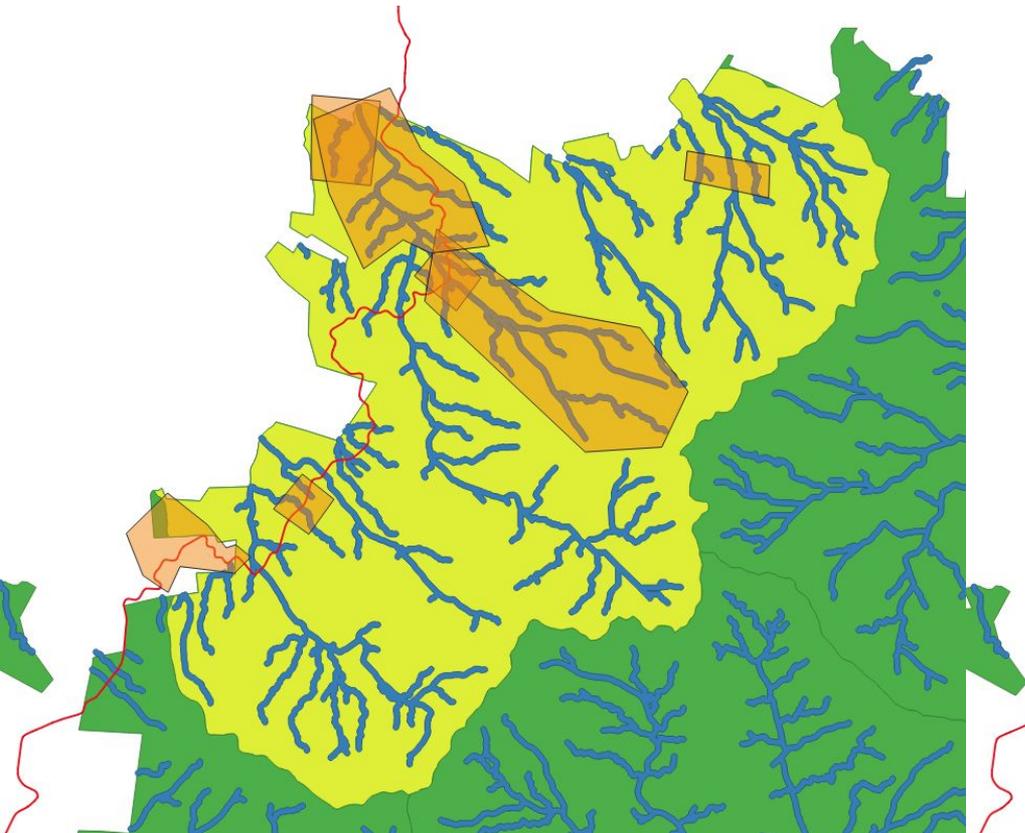
Water Usage



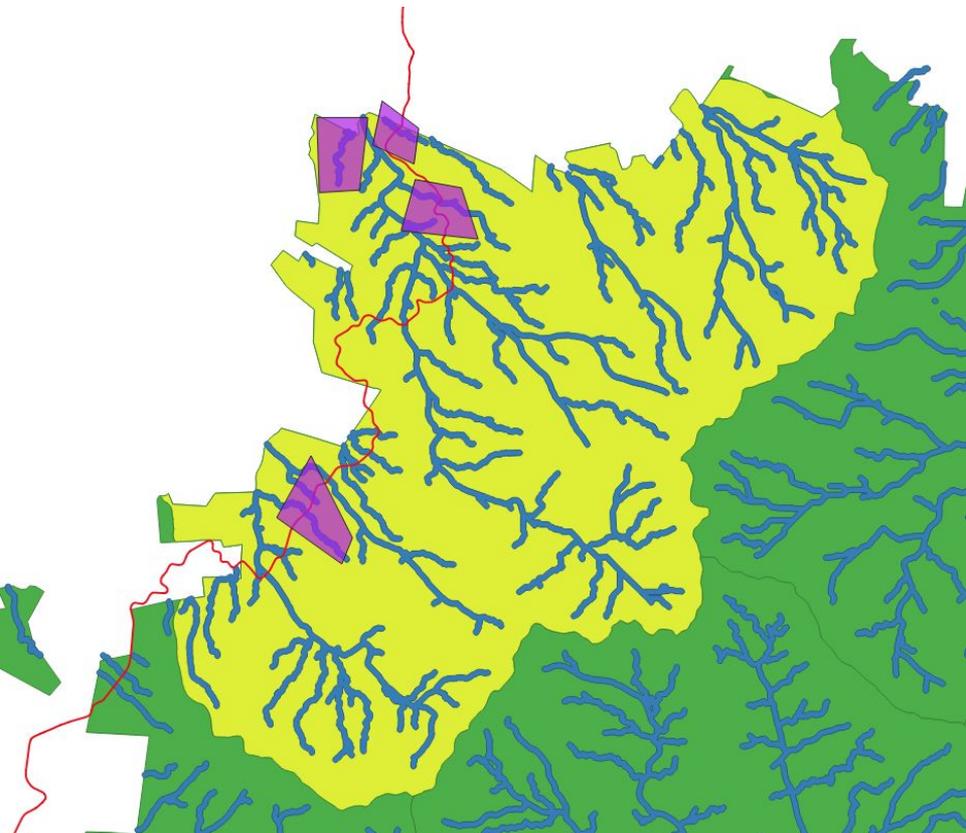
Ecological Health



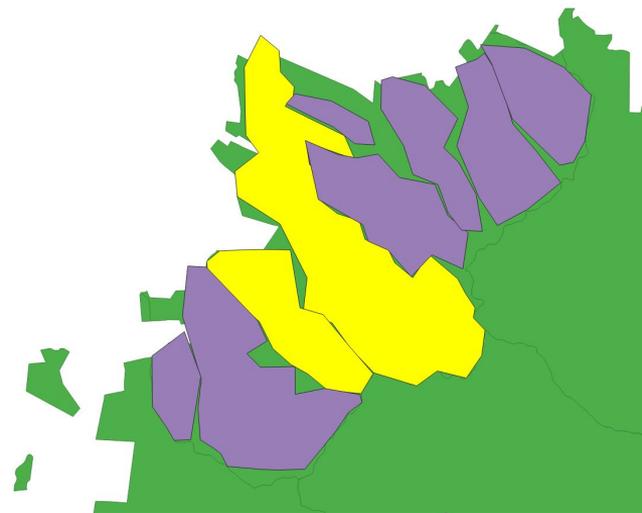
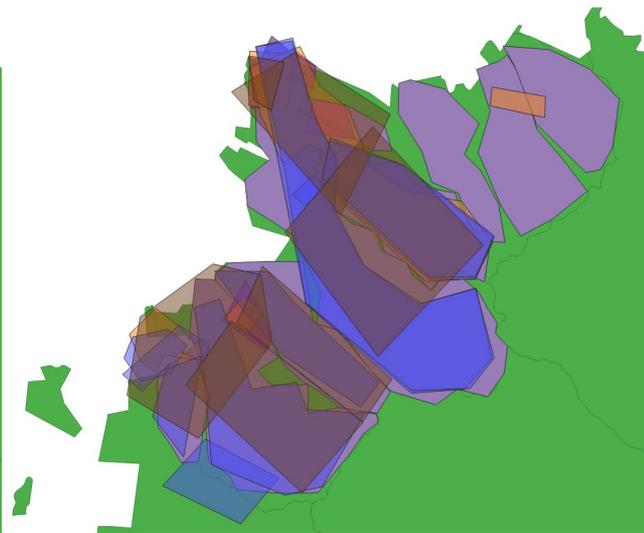
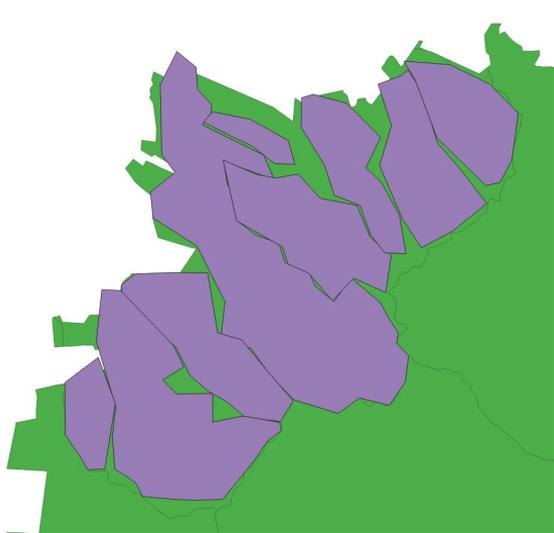
Recreation



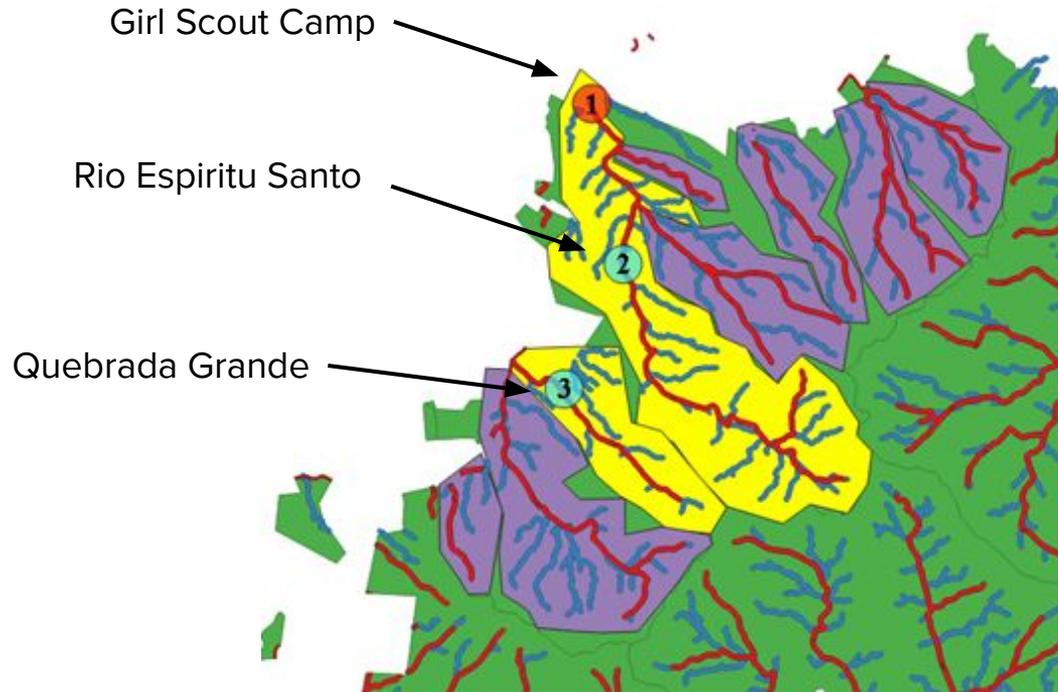
Culture



Basin Selection



Riparian Assessment Sites



Riparian Area Assessment

- Generated protocol with expert help
- Implemented at three locations



Girl Scout Camp



Rio Espiritu Santo



Quebrada Grande

2:36 PM Wed Apr 17 LTE 66%

My Survey

vegetation diversity

yes

no

dominant_type

Tree dominated

Shrub dominated

Herbaceous dominated

No dominant vegetation type

% shrubs

%_forbs

%_grasses

%_trees

% canopy cover

canopy cover levels dominant

<3 ft

3-5 ft

>5 ft

canopy_condition

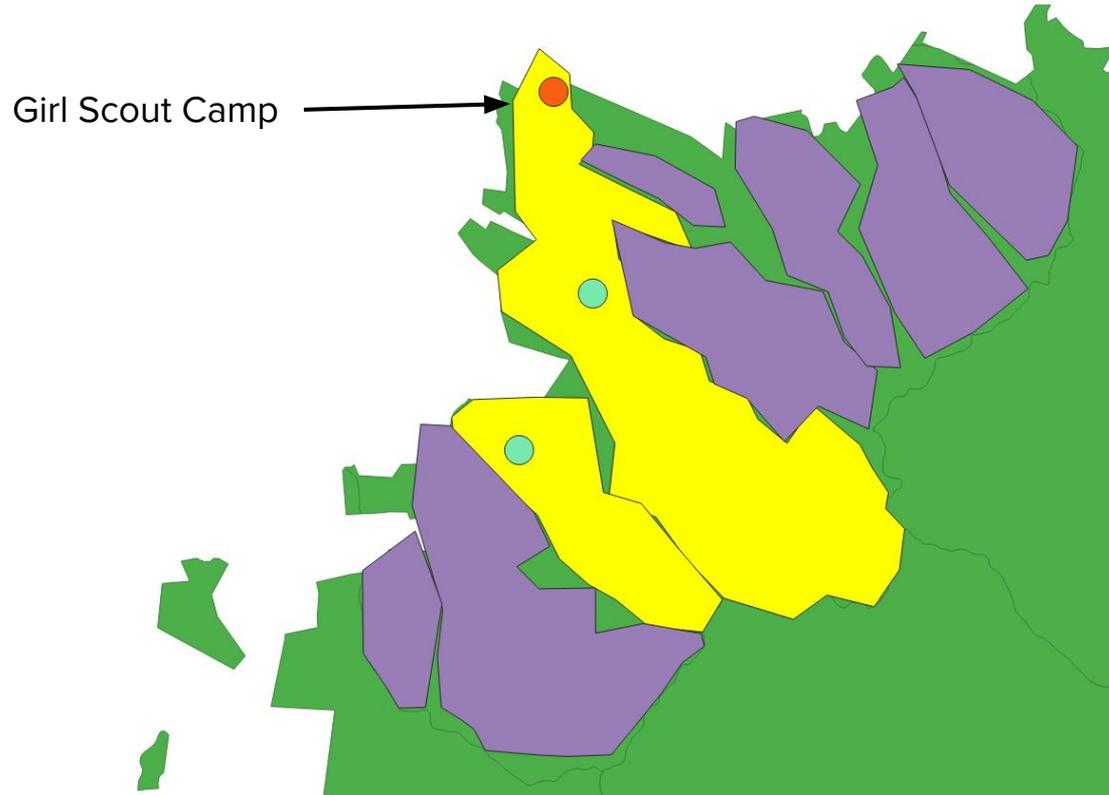
stressed

vigor

revegetation signs

✓

Riparian Area Selection



Restoration Project



Keeping Community in the Loop

- Community members wanted to know how their input ended up being used
- Sent out briefing to all those interviewed
- Input will be used to improve our recommendations and guide

Recommendations

- Introduce a preliminary info session
- Broaden scope of information gathered to entire watershed
- Partner with outside organizations
- Gather feedback and keep community updated after project

Acknowledgements

Pedro Rios

Dr. Lizandra Nieves-Rivera

Dr. Ricardo Santiago

Robertito

Bobby

Victor

Baby

Dr. Nick Williams

Questions?
