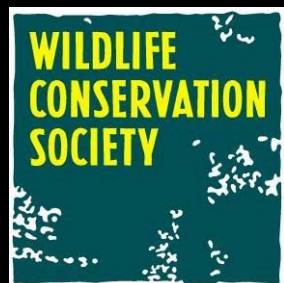


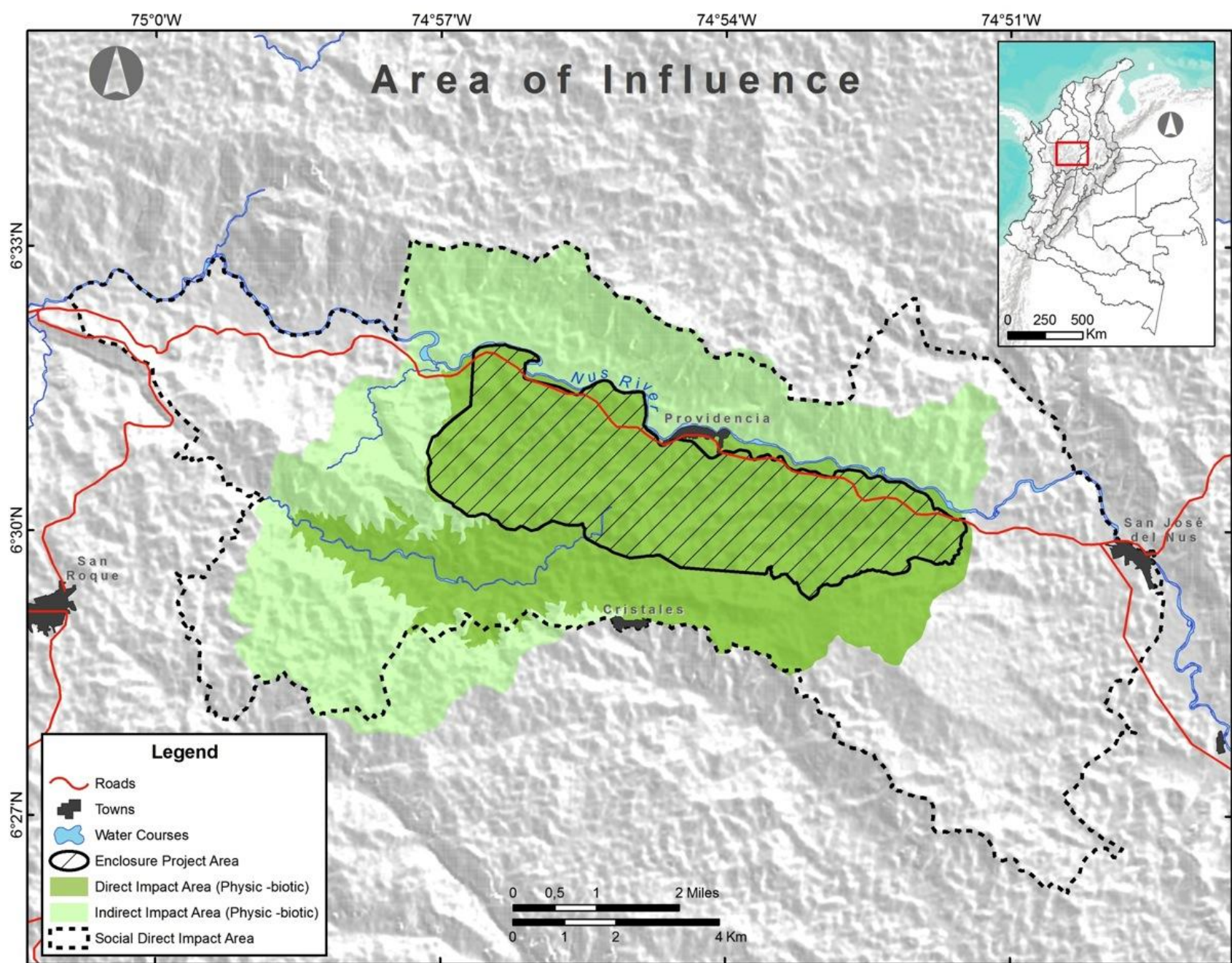


Biodiversity Offsets Design

Gramalote Project, Colombia

June 2014





Gramalote area of influence, depicting the project enclosure area, direct and indirect impact areas.



Rationale for the Offset

- New regulations by the Colombian Government:
 - Aimed at **No Net Loss of Biodiversity** as a result of major development projects.
- Gramalote is committed to adhere to IFC Performance Standards on Environmental and Social Sustainability, as well as other international standards such as BBOP.



Predicted Impacts

Mine footprint ~ 2,400 ha

30% covered by Lower
Montane biome with ≠
qualities + complex
mountain riverine system

70% already impacted
by agriculture, mining
and livestock farming

Major Impacts due to:

- Residue stockpiles
- Monja's pit
- Tailings



**Minimization and avoidance
strategies
to be applied to the affected
forest fragments.**



Local Environment

- Mine located at the **Lower Montane Andean Biome** within the great Tropical Humid forest biome
- Average altitude 1200 m.a.s.l
- Steep hills and undulated landscape
- **Highly depleted area** – extensive agriculture, farming and mining activities.



Fragmented forest



Mosaic



Pastureland

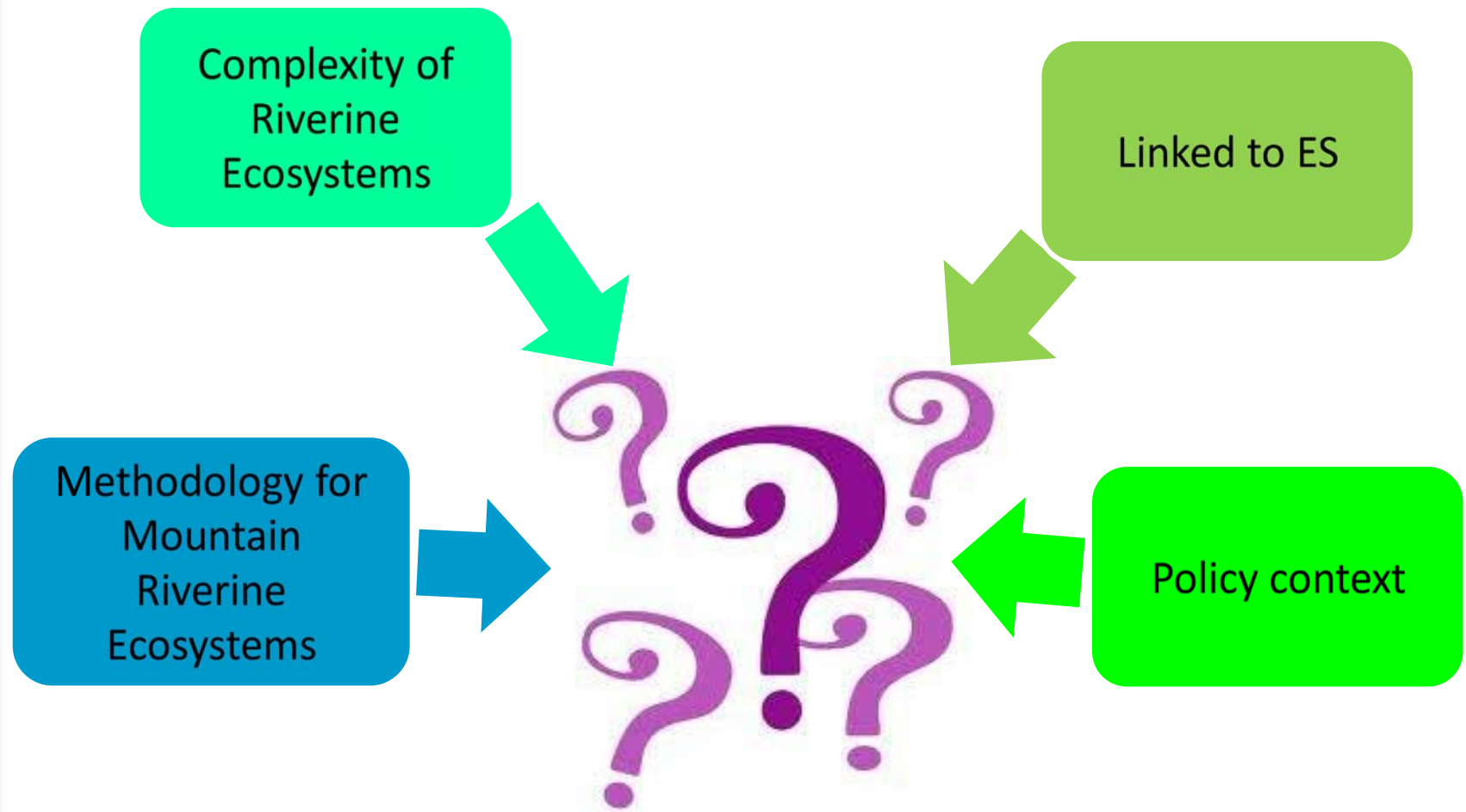


Sugarcane

Same ecosystem with different qualities



Aquatic environment – Challenges and Opportunities



Traditionally offsets focus on reforestation

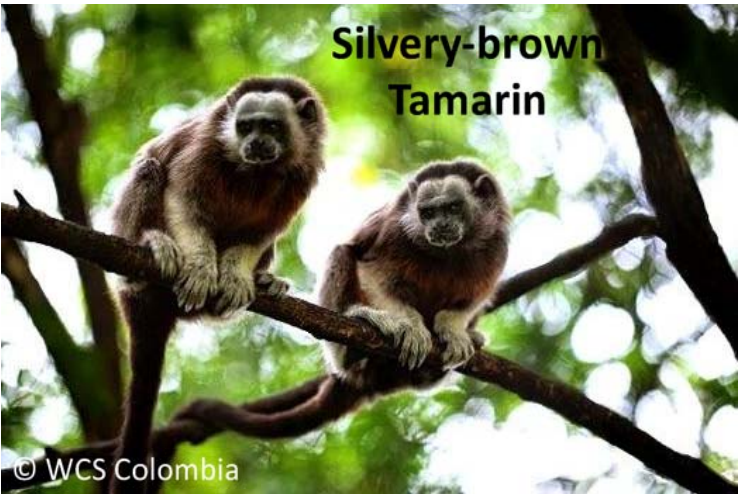
Key Biodiversity Components (KBCs)

FOUR
MAMMALS

ONE ENDEMIC
AMPHIBEAN

THREE ENDEMIC
BIRDS

TEN PLANT
SPECIES



Silvery-brown
Tamarin

© WCS Colombia



Glass
frog

© WCS Colombia



Cedar



White-mantled Barbet

© Nick Athanas / Tropical Birding



Ocelot

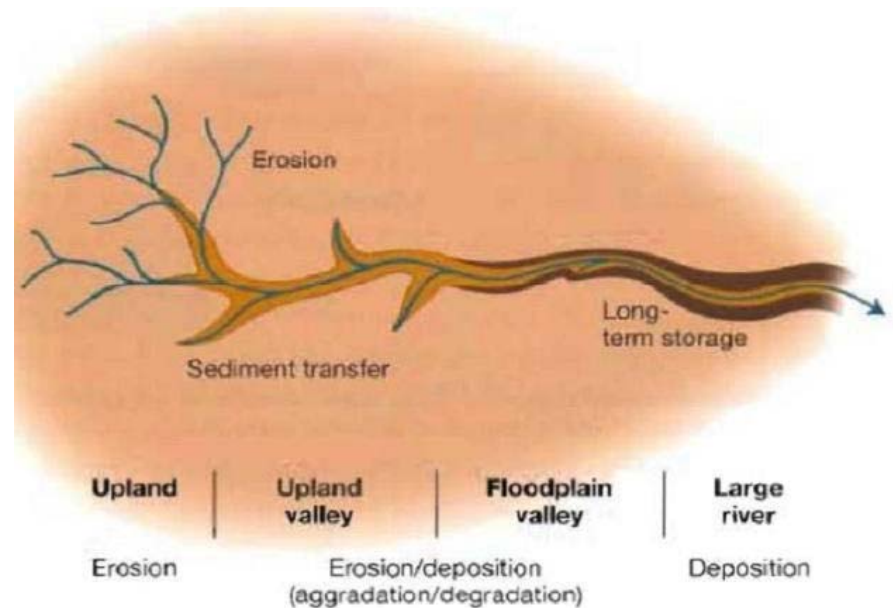


Bromeliad

© WCS Colombia

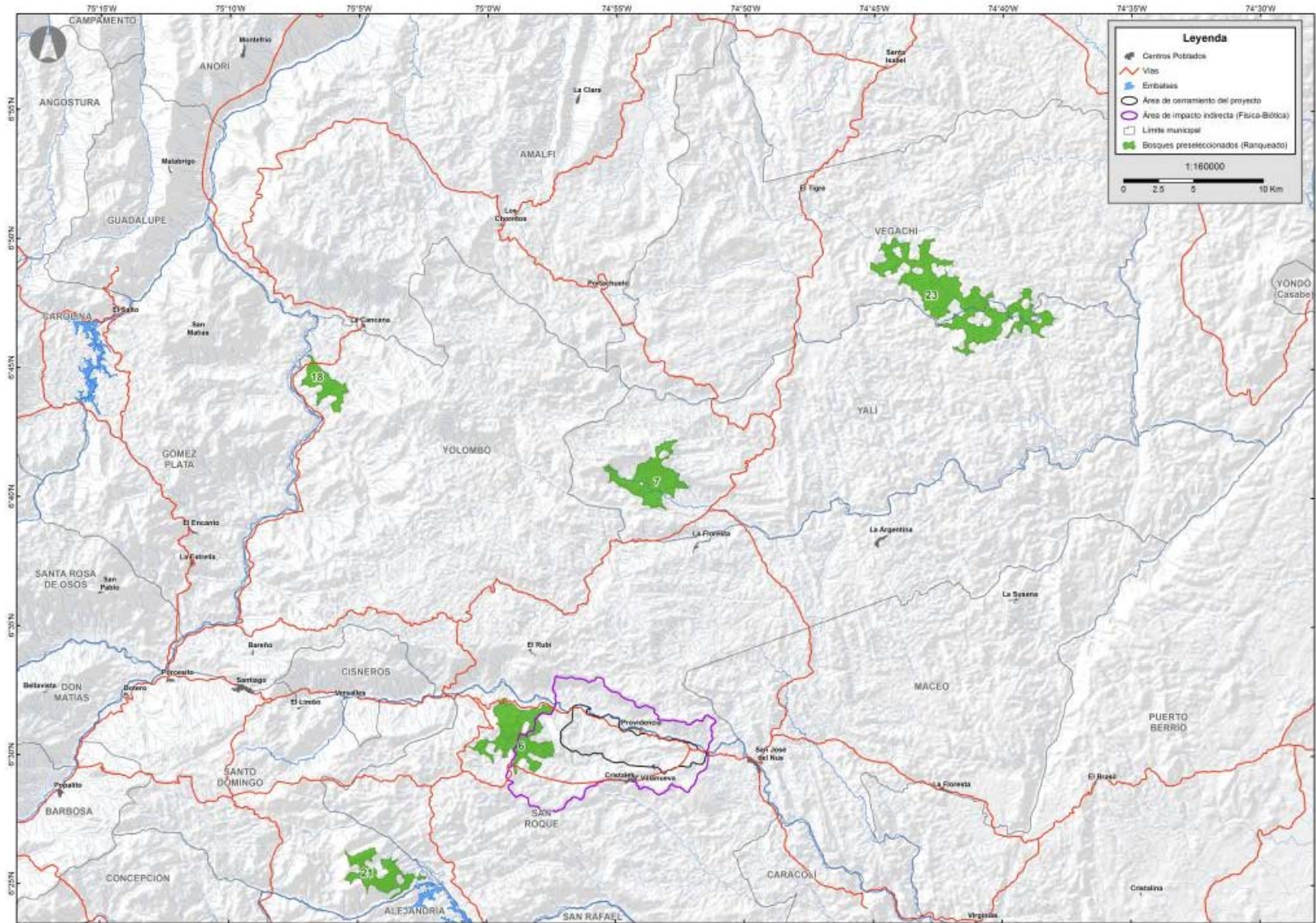
Aquatic KBCs

- Erosion zones
- Transport zones
- **Deposition zones**
- Macroinvertebrate assemblages
- Fishes





Potential Offset sites



5 potential offset areas - 39.7 km to 7.7km of distance from the mine site



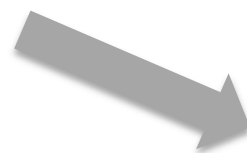


Next steps

Fieldwork to assess benchmark/offset areas will begin late June/2014.



Calculation of loss and gain in habitat hectare



Selection of offset sites

Selection of offset activities

Ensure a No Net Loss of Biodiversity and preferably a net gain



Design the biodiversity offset plan



Acknowledgements

