

Mapping of Key Natural Infrastructure in the Colombian Orinoco River Basin - Lessons Learned



Fomentado por el:



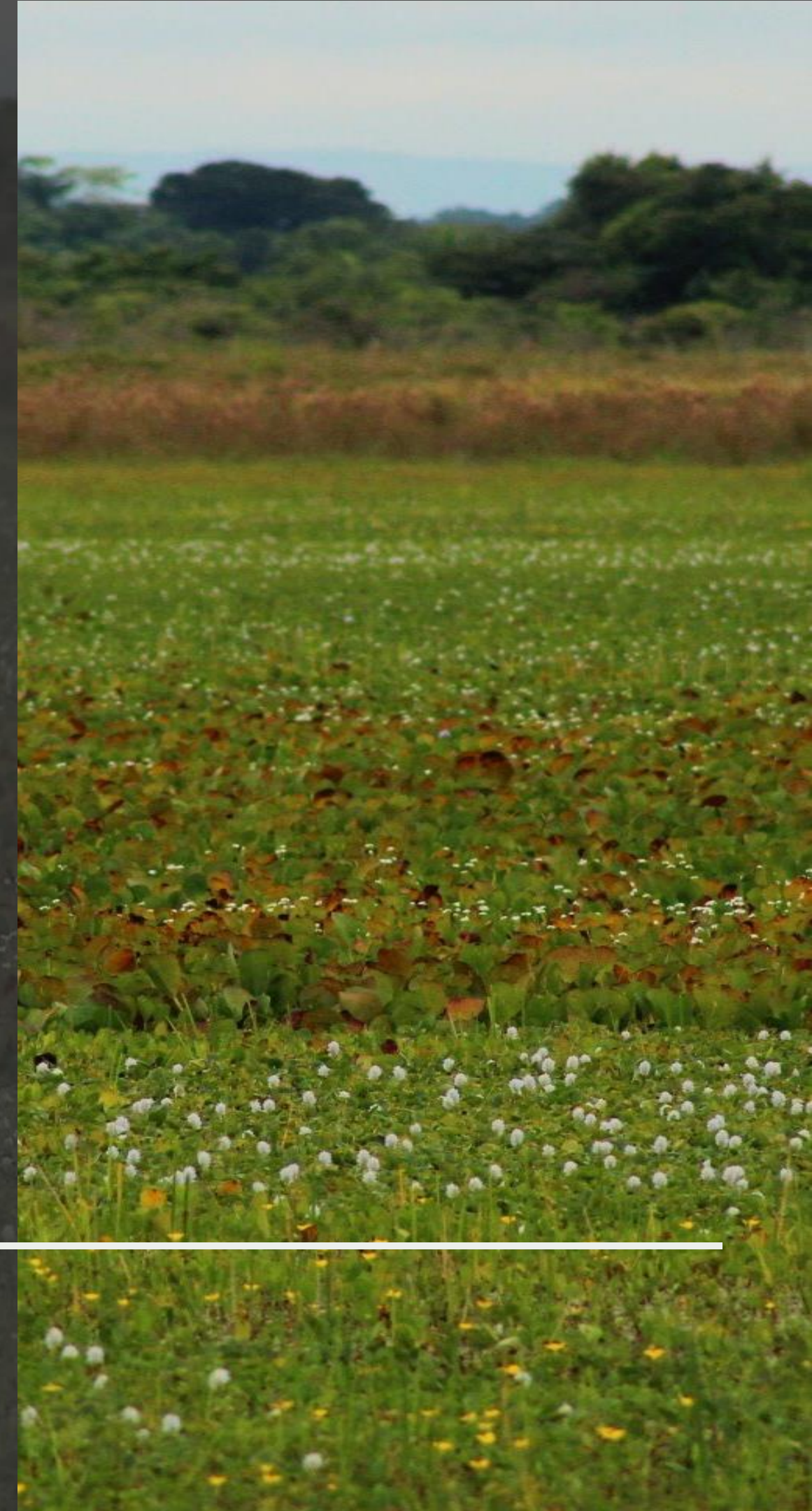
Ministerio Federal
de Medio Ambiente, Protección de la Naturaleza
y Seguridad Nuclear

en virtud de una resolución del Parlamento
de la República Federal de Alemania



METHODOLOGICAL UPDATE AND ADJUSTMENT

- Biodiversity and ecosystem services (water and carbon) indicators
 - Generation of updated information
 - Integration of the Key Natural Infrastructure (KNI) concept
-



CONSTRUCTION OF THE SULU METHODOLOGY

Responds to joint work of WWF with partners and key stakeholders in the region

Previous exercises

- Sulu 1
- MADS & IDEAM KNI Proposal (2014)
- Humboldt Research Institute's experiences with decision trees

Construction and integration of biodiversity and ecosystem services of models based on updated information

Incorporation of field data in national systems (e.g. IFN, SiB Colombia)

PARTNERS



KEY NATURAL INFRASTRUCTURE

IDENTIFICATION FACTORS

Legal and regulatory aspects

Watershed planning instruments

Protected Areas and OECMs

Community territories

Riparian buffer zones

Connectivity

Terrestrial

Hydrological

Ecosystems

Strategic Ecosystems

Integrity

Rarity

Ecosystem services

Water availability and regulation

Carbon storage (Aerial biomass and soils)

Species richness by biotic unit

Andes

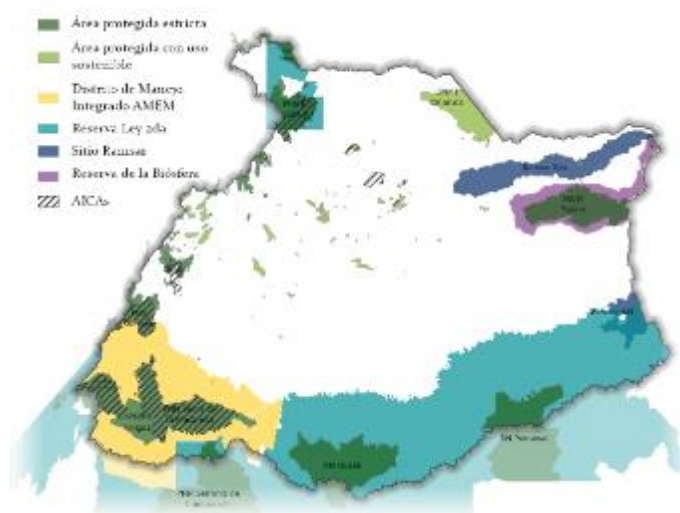
Piedmont

Flooded savannahs

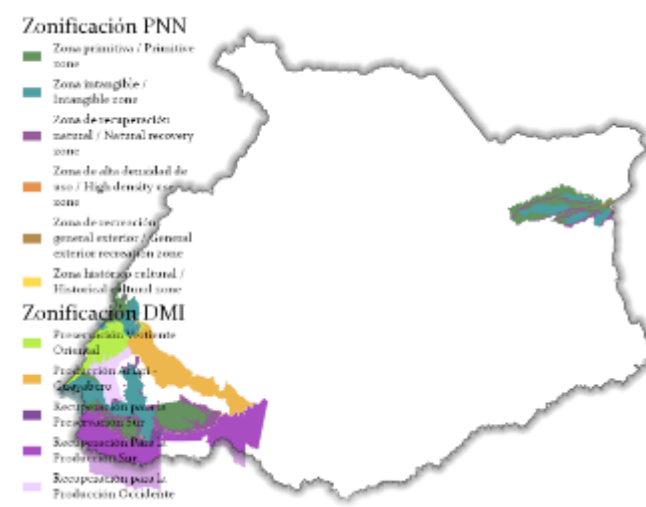
Highland savannahs

Transitional forests

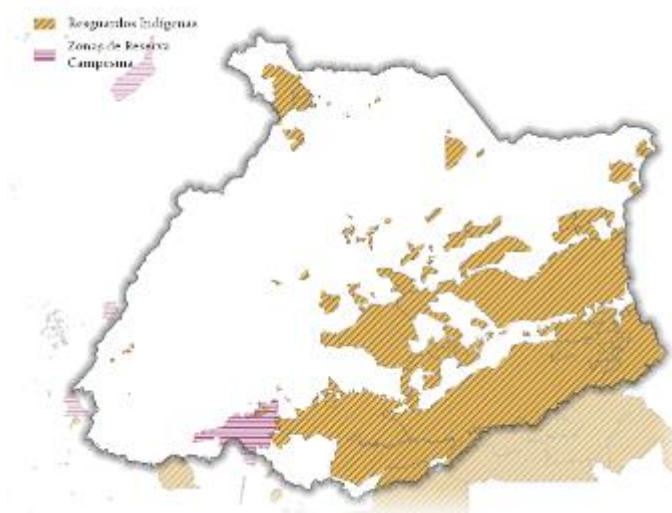
BASE INFORMATION



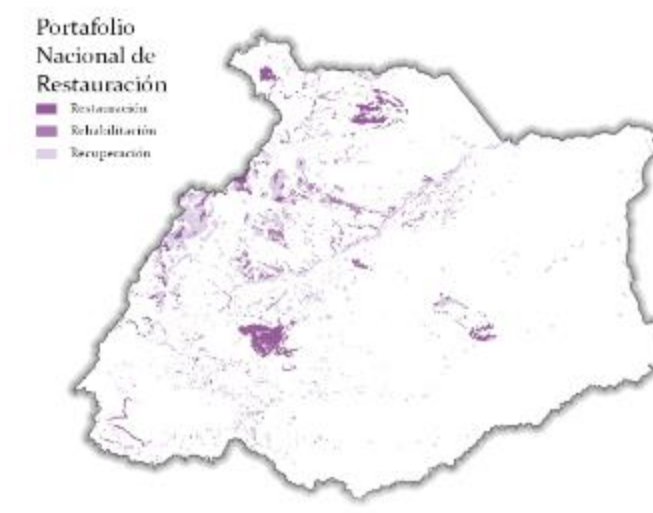
Conservation strategies



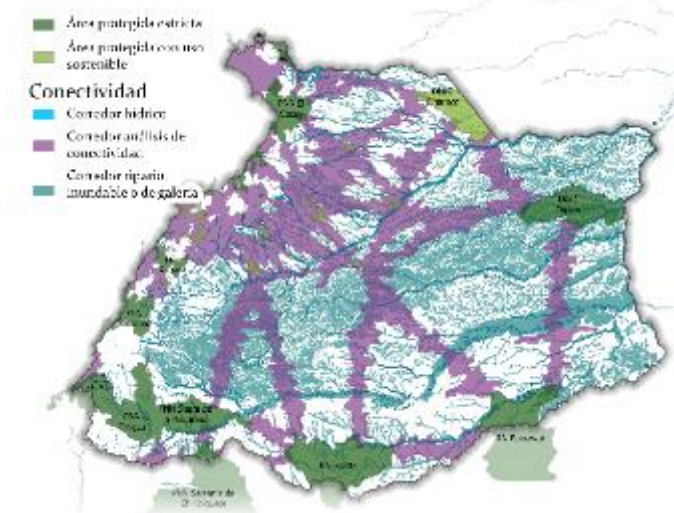
Zonning plans



Community territories



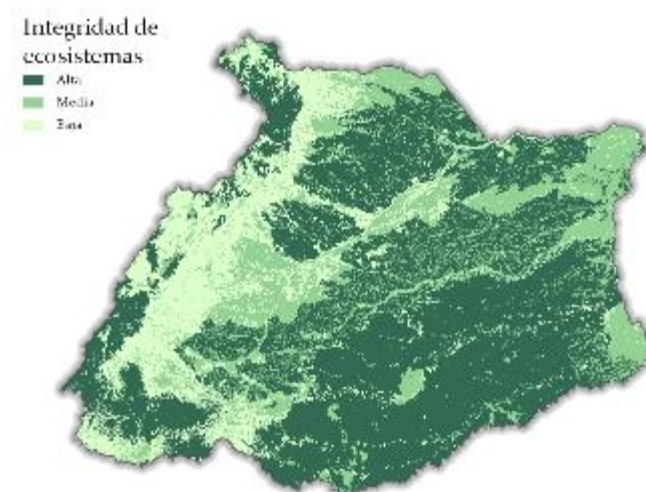
Restoration priorities



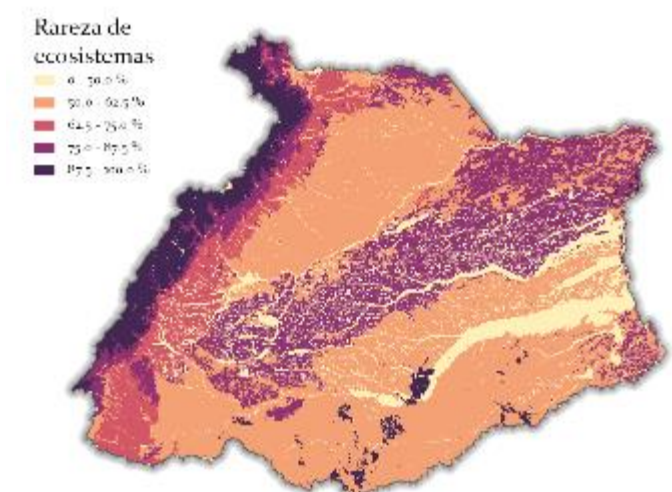
Connectivity



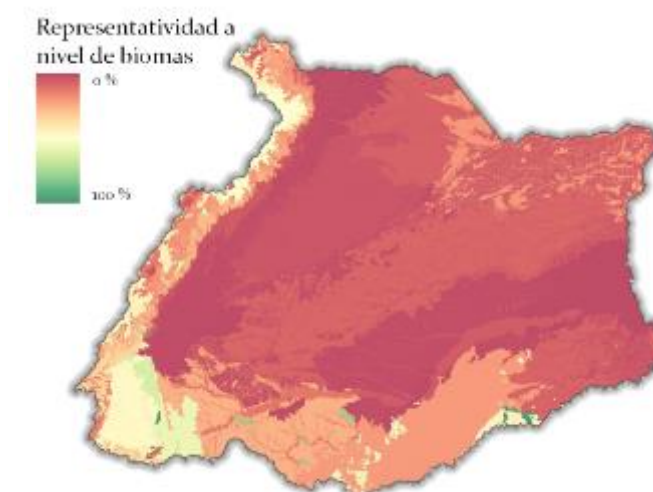
Strategic ecosystems



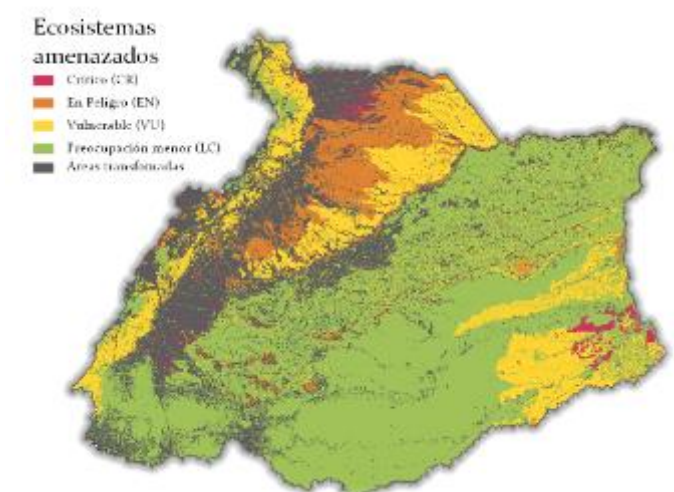
Ecosystem integrity



Ecosystem rarity



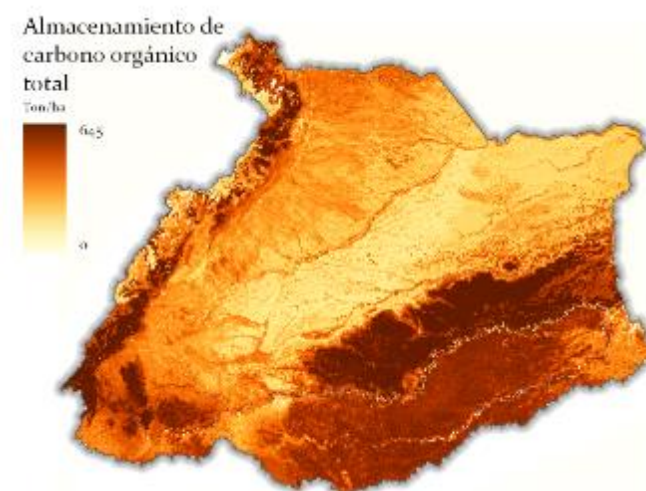
Ecosystem representativity



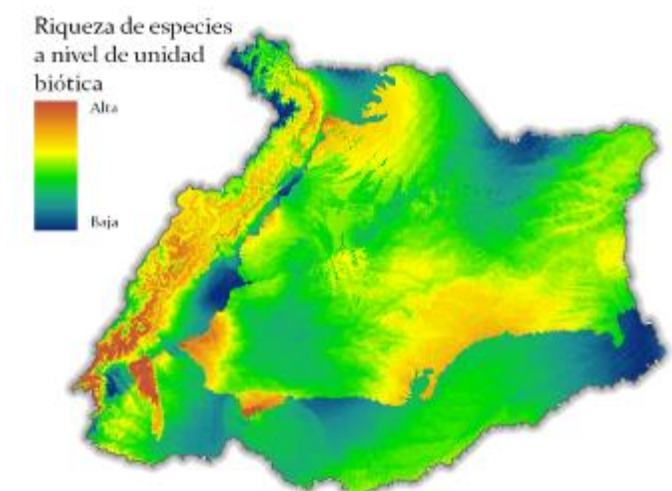
Threatened ecosystems



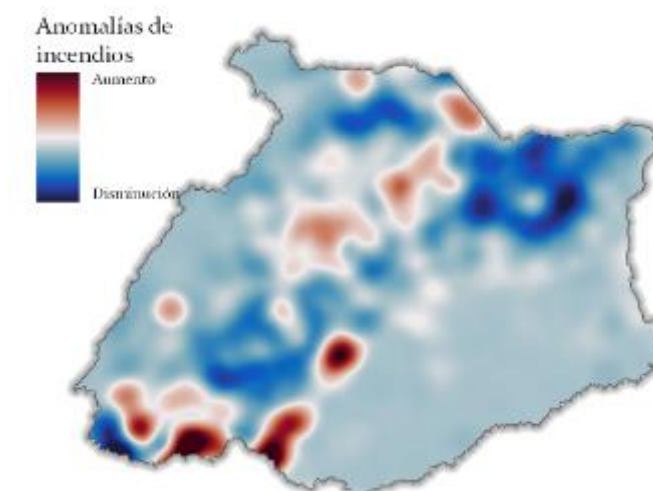
Hydrological factors



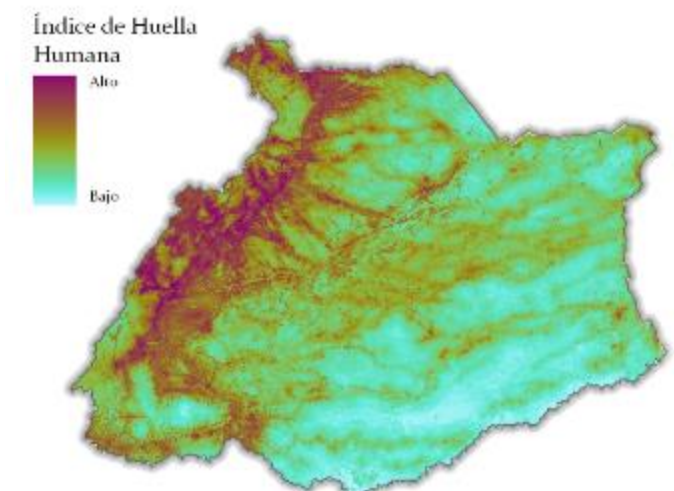
Carbon storage



Species richness



Fire anomalies



Human footprint



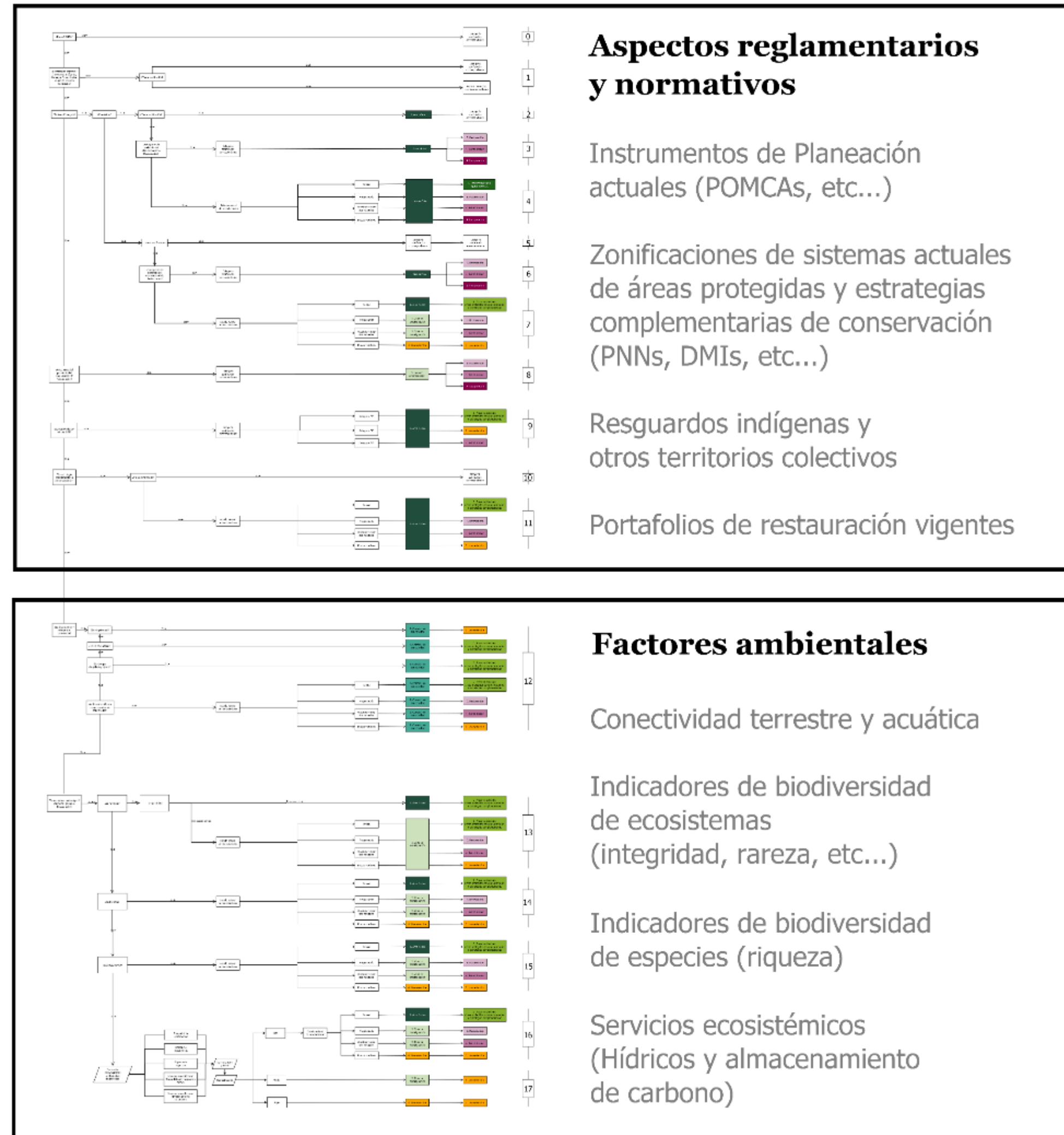
VARIABLE INTEGRATION

The methodology was based on the implementation of a decision tree

Two evaluation modules:

- Regulatory and normative aspects
- Environmental factors

Dynamic and adaptable tool, allowed the hierarchical integration of information



A savanna landscape under a clear sky. In the foreground, a group of hippos are partially submerged in a body of water. On the left, a herd of white cattle stands on a grassy plain. A flock of bright red birds is in flight on the left side, while several white birds fly in the center. A large, leafy tree stands on the right. A semi-transparent dark grey rectangle is centered over the image, containing the word "RESULTS" in white.

RESULTS

KNI CATEGORIES

CORE AREAS

- High ecological quality in relation to a wider landscape
- The conservation of biodiversity is of primary importance
- They are often part of a system of protected areas

CONNECTIVITY CORRIDORS

- Maintain ecological or environmental connections
- Indispensable for matter and energy flow
- They facilitate the movement and genetic exchange between organisms

BUFFER ZONES

- Transition zones around core areas and corridors
- Protection function against external disturbances

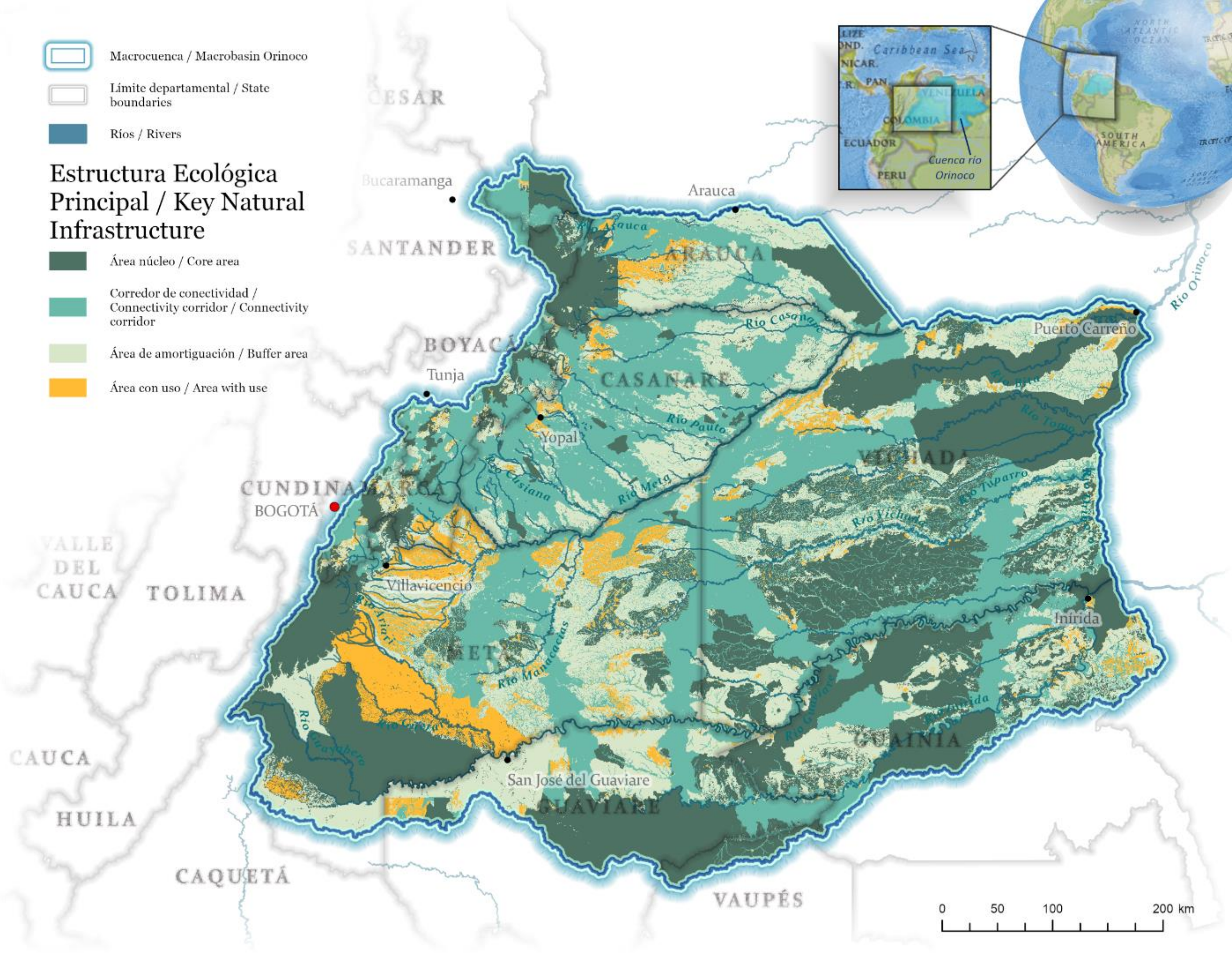
AREAS WITH USE

- Offer opportunities for the sustainable use of natural resources and the maintenance of ecosystem services
- Important to harmonize occupation models towards more sustainable uses

KEY NATURAL INFRASTRUCTURE

The KNI is made up of:

- Core areas
- Connectivity corridors
- Buffer areas
- Areas with use



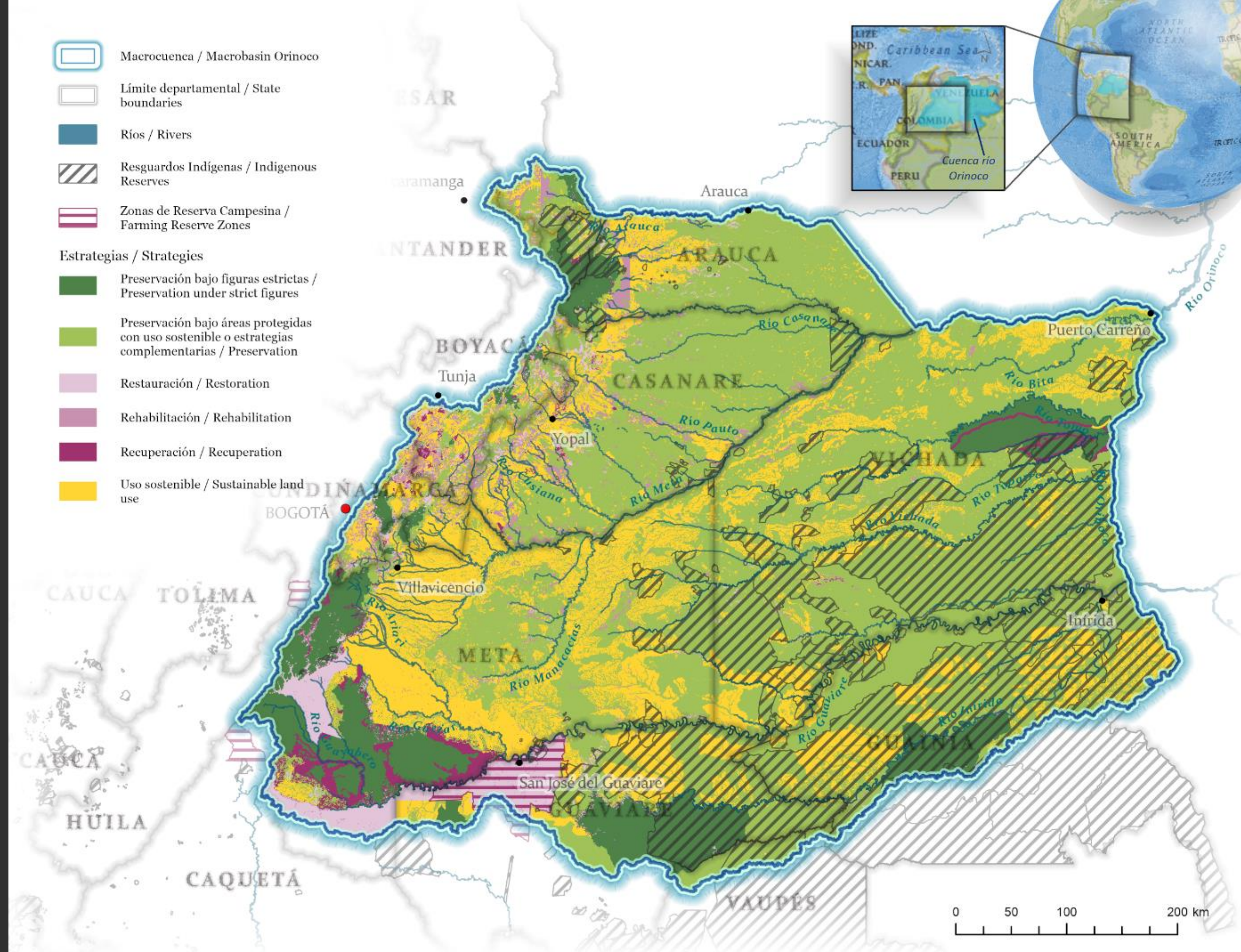
Category	Elements	Goal	Strategy
Core areas	Strict protected areas; areas in natural cover in protected areas with sustainable use, in complementary conservation strategies or in strategic ecosystems; and areas in natural cover with high levels of ecological integrity (in terms of biodiversity, rarity, provision of ecosystem services).	Preserve the ecological integrity, biodiversity and functionality of ecosystems to guarantee the provision of ecosystem services.	Preservation under strict figures; preservation in protected areas with sustainable use and complementary conservation strategies; restoration, rehabilitation and recovery; improve effective PA management
Connectivity corridor	Main rivers; gallery / riparian and floodable forests; floodplains; and areas of structural connectivity between protected areas.	Conserve, maintain and consolidate essential ecological connections for the flow of matter, energy and genetic exchange.	Preservation in protected areas with sustainable use and complementary conservation strategies (OECMs); restoration, rehabilitation and recovery; sustainable use with emphasis on the implementation of landscape tools that increase connectivity
Buffer zones	Fragmented natural covers in protected areas with sustainable use, in complementary conservation strategies or in strategic ecosystems; areas established within the national restoration plan; and areas in natural cover with intermediate levels of ecological integrity (in terms of biodiversity, rarity, and provision of ecosystem services, among others).	Mitigate anthropic impacts around core areas and areas of connectivity corridors with natural ecosystems.	Restoration, rehabilitation and recovery; Sustainable use; and preservation; zero deforestation-ecosystem conversion management agreements with private sectors; good agricultural and livestock practices (e.g. conservation-production models)
Areas with use	Areas with agricultural activities, areas with agricultural coverage in protected areas with sustainable use, in complementary conservation strategies, or in strategic ecosystems; and areas with low levels of ecological integrity (in terms of biodiversity, rarity and provision of ecosystem services, among others).	Develop sectoral activities within the framework of sustainable use, and with attention to the maintenance of ecosystem services.	Sustainable use; restoration, rehabilitation and recovery

TERRITORIAL PLANNING STRATEGIES AT LANDSCAPE LEVEL

Categories of:

- Preservation
- Restoration
- Sustainable use

Strategies within
collective territories
are subject to the
self-determination
of their inhabitants



PRIORITY

Ecosystems

Representativity

Threatened
ecosystems

Transformation drivers

Human footprint

Fire anomalies

Ecosystem Services

Water availability and
regulation

Carbon storage
(Aerial biomass and
soils)

Species richness by biotic unit

Andes

Piedmont

Flooded savannahs

Highland savannahs

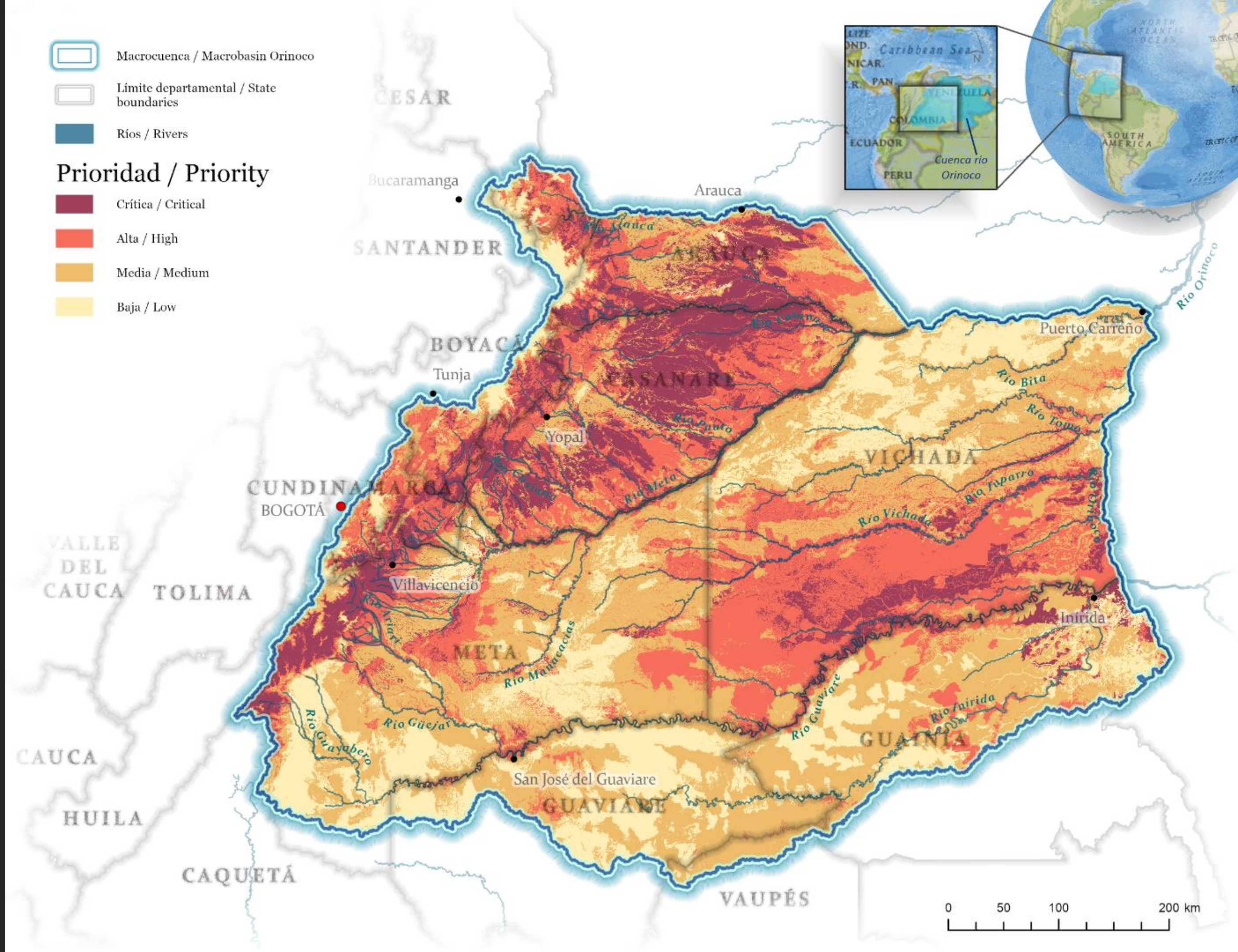
Transitional forests

INVESTMENT PRIORITIES

Priority level is given by:

- Ecosystems
- Transformation and threat factors
- Ecosystem services
- Biodiversity

Guidance for defining strategies to maintain ecosystem functionality



FINAL COSIDERATIONS

- The Sulu methodology provides a reference framework for regional planning based on regulatory aspects and environmental factors.
- Key input for processes of updating environmental determinants, POMCAs, and definition of incentives for production-conservation, among others.
- It incorporates the most up-to-date geographic information available
- Adaptable to different contexts
- Aids the articulation between local, regional, and national governments and institutions
- Offers key guidelines for the integration of protected areas in territorial ordering and sustainable development planning



¿QUESTIONS?

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MORE INFORMATION

<https://sulu-panda.hub.arcgis.com>