

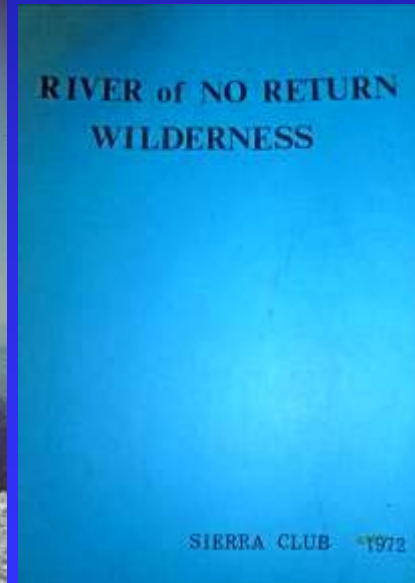
# Exploring conservation opportunities in Argentina and Chile with a perspective from North America



# How the project started



Volcan  
Lanin  
Argentina  
1984

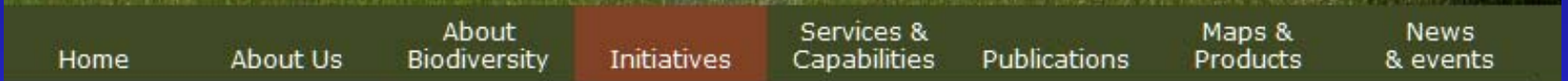


Idaho  
1972



A taste of the  
BIG WILD

# Latin American Conservation Science Support



## Initiatives Index

- Marine Mammals
- Western Gray Squirrel
- Latin America
- Wildlands Mapping
- Beavers
- Conservation Priorities
- Endangered Species
- Fire Ecology
- Wildlife Modeling
- Agriculture & Biodiversity
- Invasive Plants
- State Parks
- Arid Lands
- Parent Page



## Latin American Conservation Science Support

¿Habra español? [Click aquí](#) para más información del sobre nuestro proyecto de Tierras silvestres y su biodiversidad en América del Sur.


We are working with several conservation partners in Latin America to promote biodiversity conservation in some of the premier biodiversity hotspots on the planet.

[Find out about our new South America Wildlands and Biodiversity Mapping Initiative.](#)

➤ [Learn more about citizen science volunteer work mapping South American Wildlands.](#)

**Explore some of our first webmaps of large wildland complexes in Argentina and Chile**

 [Area Silvestre Sierra de Famatina - Ojos del Salado Webmap](#)

 [Area Silvestre Rio Parana \(Rosario to Corrientes\) Webmap](#)

 [South American Wildlands - Laguna Blanca to Nevados de Cachi](#)

# Tierras silvestres y su biodiversidad en América del Sur



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## Tierras silvestres y su biodiversidad en América del Sur

Las tierras silvestres son lugares donde los ecosistemas aún se caracterizan por los procesos naturales y la biodiversidad nativa se encuentra en su máxima expresión. Áreas silvestres se definen como áreas sin autopistas y que presentan un mínimo desarrollo humano. Las zonas silvestres de América del Sur constituyen uno de las áreas de reserva más importantes de la diversidad biológica en la Tierra. Hemos iniciado un programa de mapeo sistemático de tierras silvestres y una evaluación de su contribución a la biodiversidad regional y global. Uno de los objetivos principales del proyecto es identificar y caracterizar las áreas silvestres que son vulnerables a la fragmentación, desarrollo y la pérdida de biodiversidad debido a cambios en el clima, la economía, la energía, la población y la globalización. Nuestro objetivo es proporcionar una rica fuente de información sobre áreas silvestres protegidas y la diversidad biológica relacionada que podría informar a las iniciativas de conservación a nivel local, nacional y mundial. Esto se logrará por una colaboración con los asociados al nivel local, nacional y mundial, y a través de voluntarios entusiastas y cualificados.

[Más información del proyecto de Tierras silvestres y biodiversidad \(Adobe PDF\).](#)

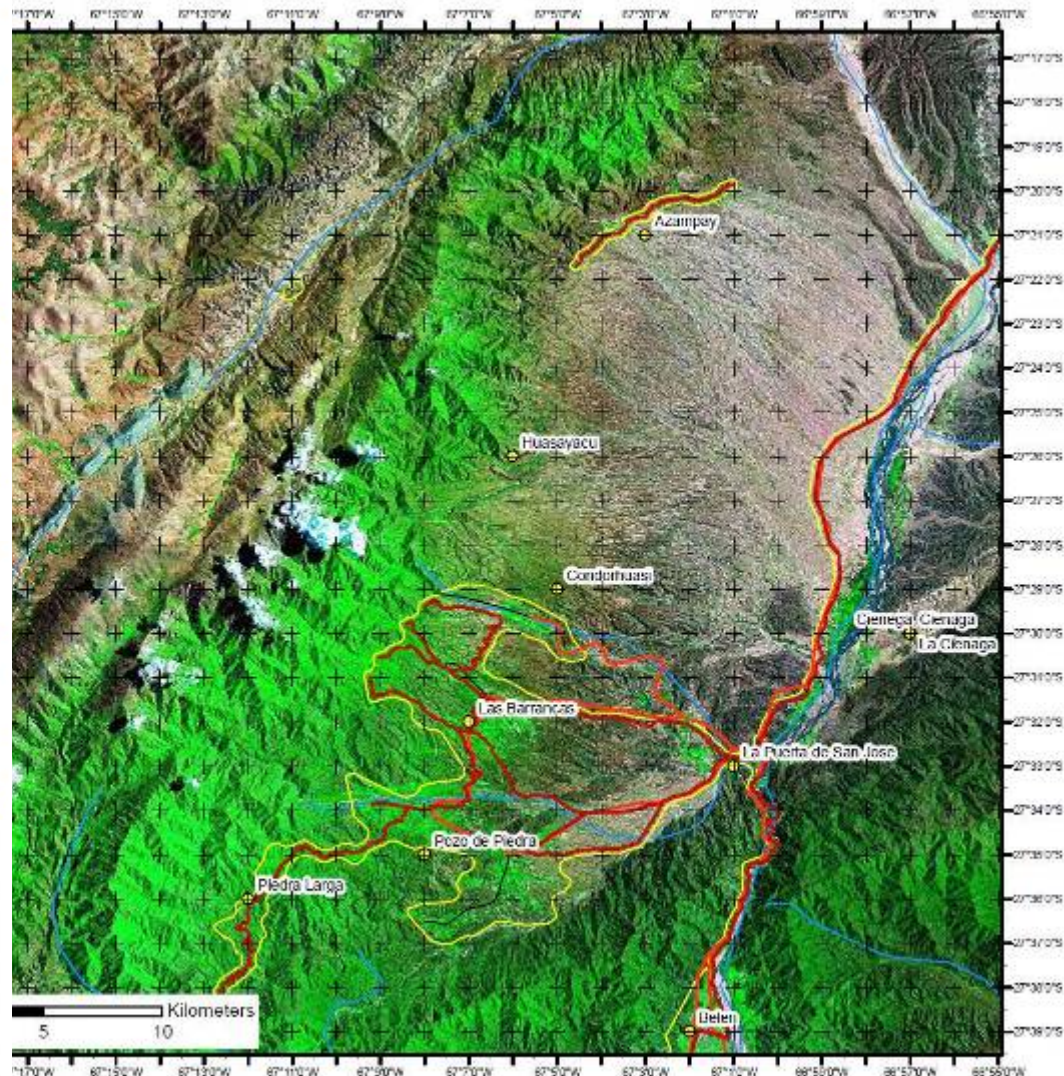
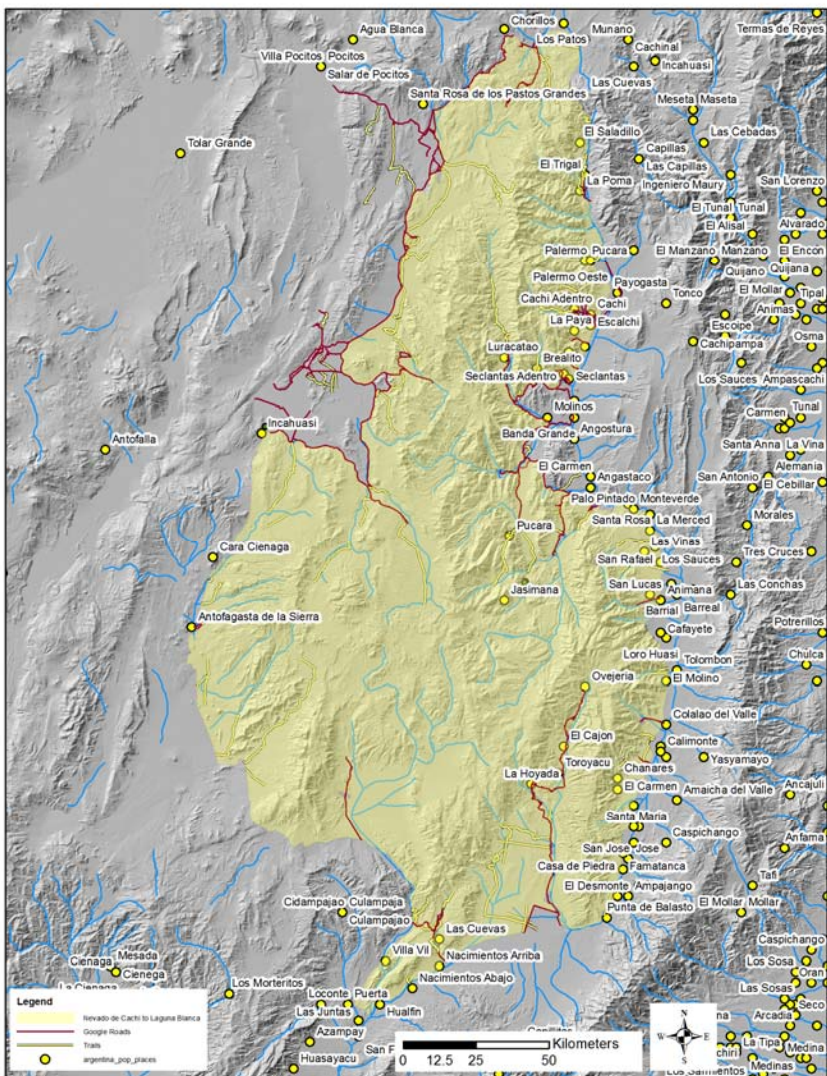


## ¿Por qué áreas silvestres?

Wildlands are places where ecosystems are still characterized by natural processes and where native biodiversity finds its fullest expression. Wildlands are defined as areas without roads and containing only very minimal human development. The wildlands of South America present one of the most important reservoirs of biodiversity on the Earth.



We have begun a program of systematic mapping of wildlands and an assessment of their contribution to regional and global biodiversity. A primary goal of the project is to identify and characterize wildland areas that are vulnerable to fragmentation, development and biodiversity loss due to changes in climate, economy, energy, population and globalization.



Our goal is to provide a rich source of information on wildlands and related biodiversity that can inform conservation initiatives at local, national and global scales. This will be accomplished through close collaboration with partners at local, national and global levels and through tapping into a reservoir of enthusiastic and skilled volunteers.



South America still has immense wildland and biodiversity resources that are unparalleled in today's world – but the wildlands that harbor much of this biodiversity are disappearing rapidly due to human development and resource extraction.





# Publicaciones de PBI sobre areas silvestres y áreas sin caminos



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## Wildland Studies

Pacific Biodiversity Institute has been studying and mapping wildlands since 1993. These reports are in PDF format.



We provide these reports to you without charge. However, please donate

## Publications on Wildlands and Roadless Areas

### Wildlands of the United States of America

[Wildlands of the United States, 2001.](#)

[Return of the Wild, 2001](#)

### National Monument proposals

[Scientific justification for Columbia Mountains National Monument, 2000.](#)

[Scientific justification for Proposed Medicine Mountain National Monument, 2000.](#)

[Landscape Analysis of Proposed North Cascades National Monument, 2000.](#)

### Roads and Roadless areas in the Great Lakes Region

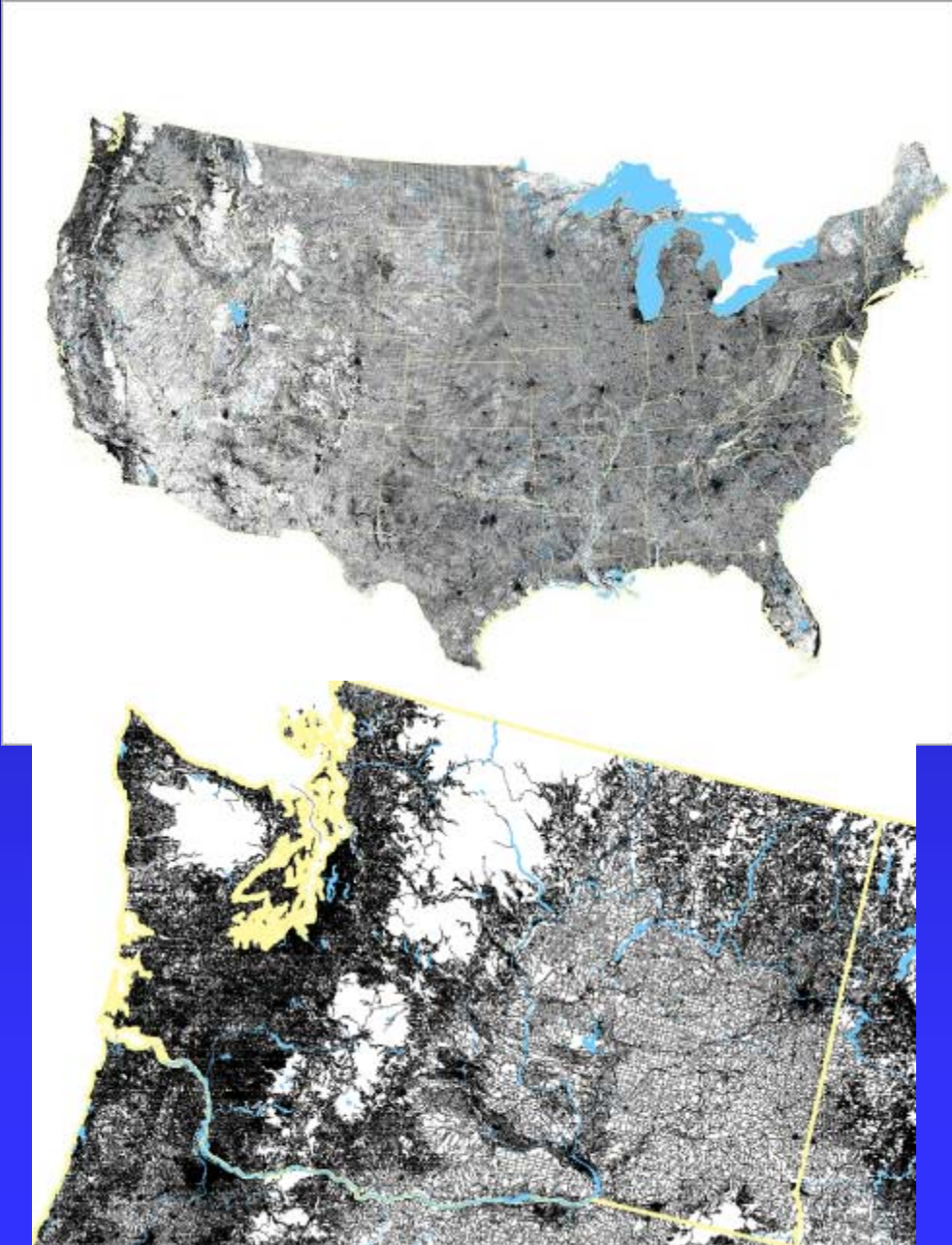


These reports are based on field studies, GIS analysis and remote

# Wildlands of the United States



# Perspectives on roads and wildlands from the USA



In the USA, we have lost most of our wildlands. Roads that can be driven by a normal automobile cover a large part of the landscape. We are working fast on paving the planet. As a result, the remaining wildlands are few and generally small and **very highly fragmented** by roads and development. We have very few wild areas left that are over 1,000,000 hectares in size. As a result, many animals and plants that depend on wild nature have disappeared from the landscape.

# Wildlands over 100,000 hectares in size in the coterminous USA



- The coterminous USA has an area of 620 million ha (almost twice the size of Argentina and Chile combined)
- But, it only contains 3 wild areas  $\geq$  1 million ha. (compared to 30 in the southern cone)
- The biggest area in the coterminous USA is 1.6 million ha. (Sierra Nevada wilderness complex)
- These 3 areas comprise 3.9 million ha total.
- It contains 157 areas between 1,000,000 ha and 100,000 ha (comprising an additional 33 million ha)
- In all, there are about 37 million ha in areas  $\geq$  100,000 ha, or only less than 6% of coterminous USA.

# Wildlands over 100,000 hectares in size in Chile and Argentina

## IN CONTRAST TO THE USA

- Argentina and Chile have a combined area of 352 million hectares (about ½ the size of coterminous USA)
- There are 30 wild areas  $\geq$  1,000,000 ha. (compared with 3 in the 48 states)
- The largest wild area is over 8 million ha.
- These 30 areas comprise about 63 million ha in total area.
- There are 317 areas between 1,000,000 ha and 100,000 ha
- These 317 areas comprise an additional 84,000,000 ha
- In all, there are more than 147 million ha in areas  $\geq$  100,000 ha. **41% of the 2 countries is BIG WILD!**



Map of wildlands over 1 million ha on all ownerships

# Explore these wildland areas using PBI web maps

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**New Initiatives:**



Wildlands and Biodiversity in South America

**Welcome**

**Science to support conservation**

Pacific Biodiversity Institute conducts conservation science research and provides consulting and data management services to organizations concerned with natural resource management and biodiversity conservation. We are a non-profit organization dedicated to using the best available science to enhance natural resource planning and management decisions. [More...](#)

**Webmaps:**



Check out our webmaps powered by Google Maps API!

**Project Highlights:**



[http://www.pacificbio.org/webmaps/about\\_webmaps.html](http://www.pacificbio.org/webmaps/about_webmaps.html)

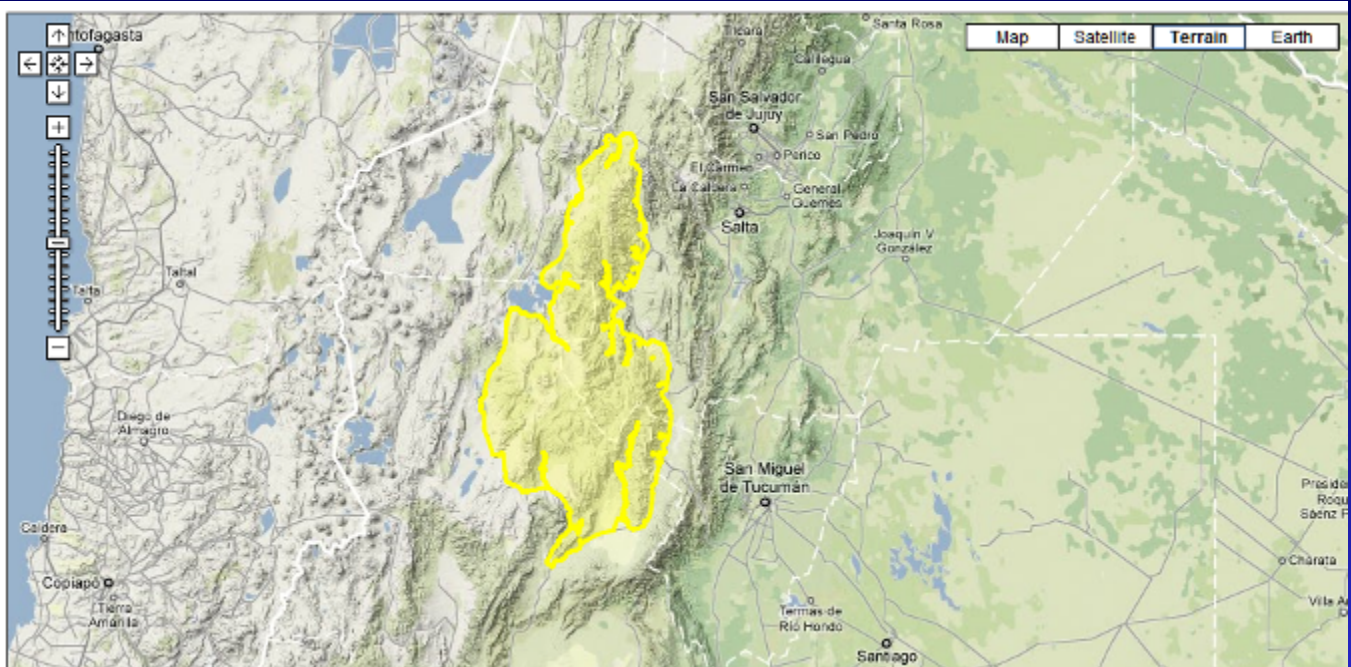
## Area Silvestre: Laguna Blanca to Nevados de Cachi

We have mapped a wildland area extending between Nevados de Cachi in the north and Laguna Blanca Natural Reserve in the south. This area is bounded by San Antonio de los Cobres in the Salta Province and Hualfin in the Catamarca Province

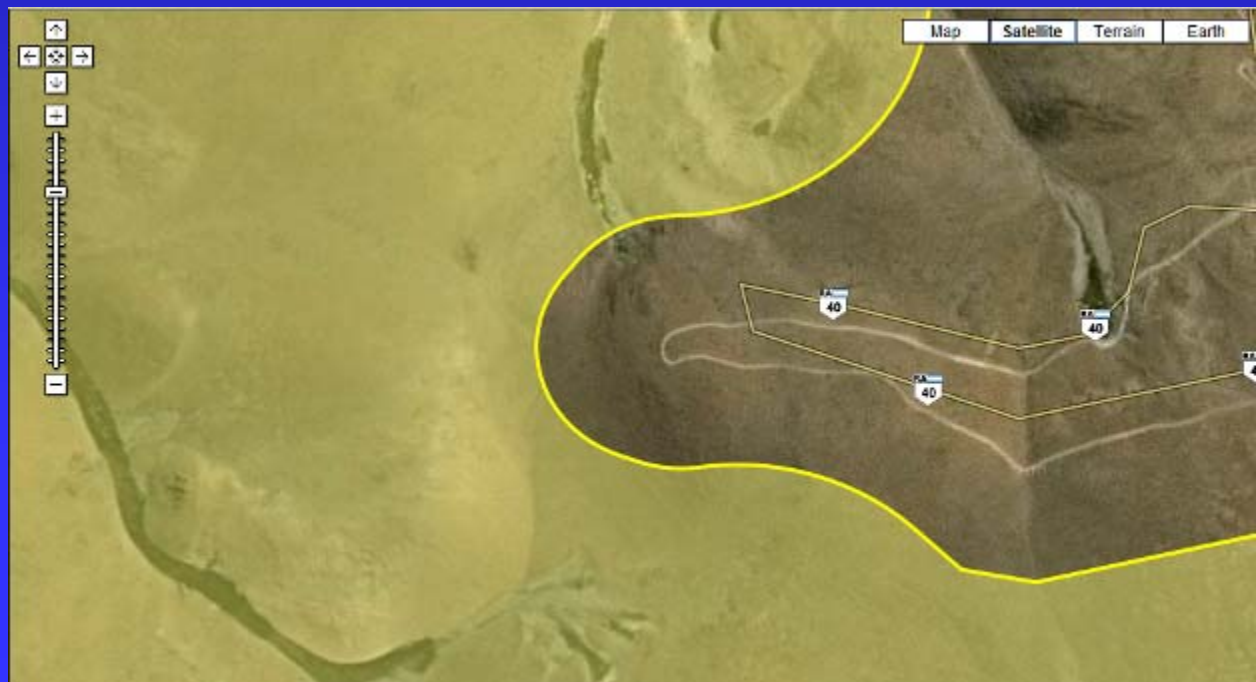
The mapping of roads and developed areas was done using Google Earth. The wildland delineation was accomplished with an ESRI Model Builder model implemented in ArcGIS.

### The following describes some of the features of this wildland area:

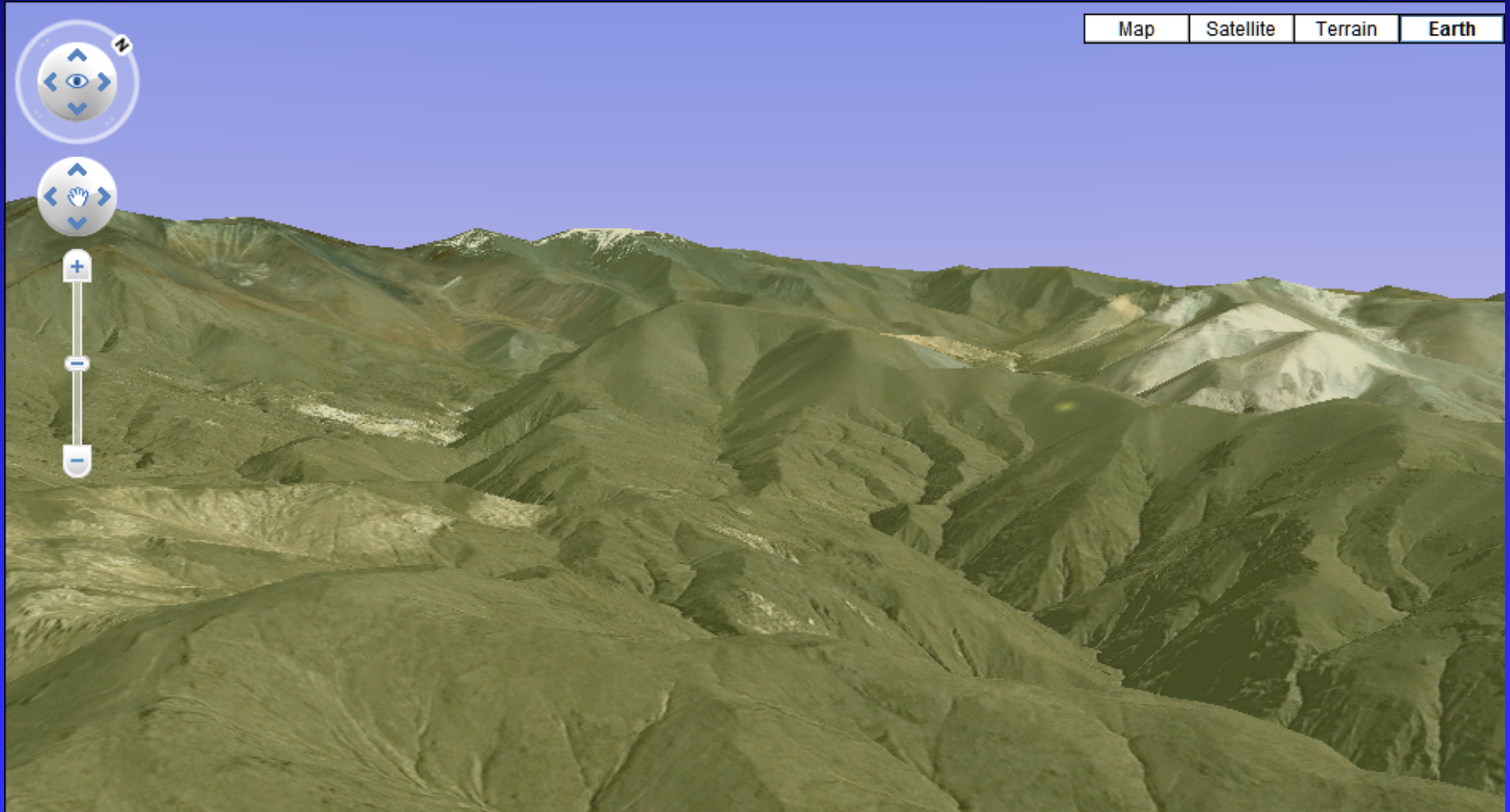
This large wildland area is located in northwestern Argentina. The total size of this roadless area is over 2,675,000 hectares. It's big! It does contain some dirt tracks, trails and other routes that are periodically traversed by 4WD or other all-terrain vehicles. But even these are minimal.



## Webmaps:

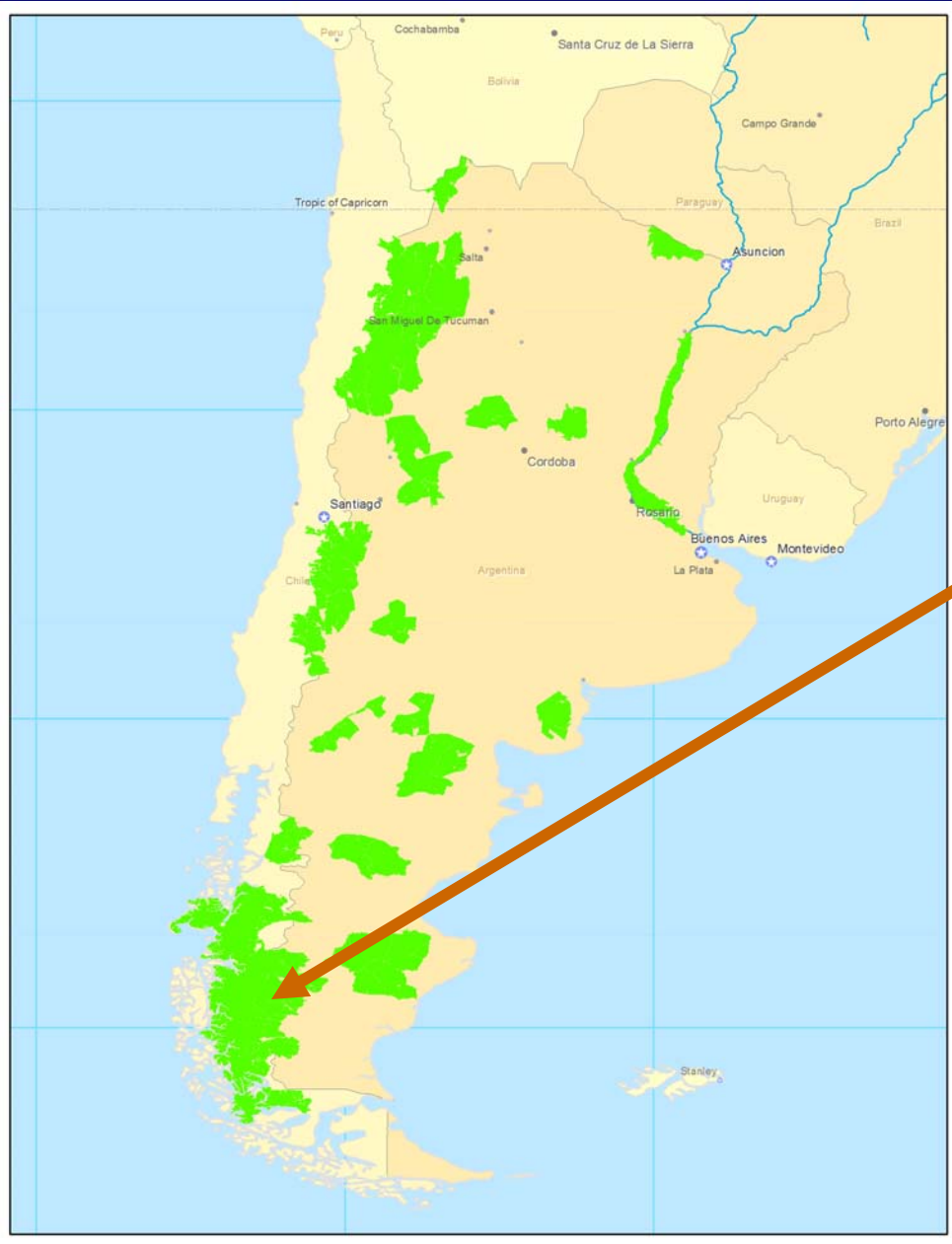


# Explore these areas in Google Earth





# Area Silvestre Muchísimo Grande Sur





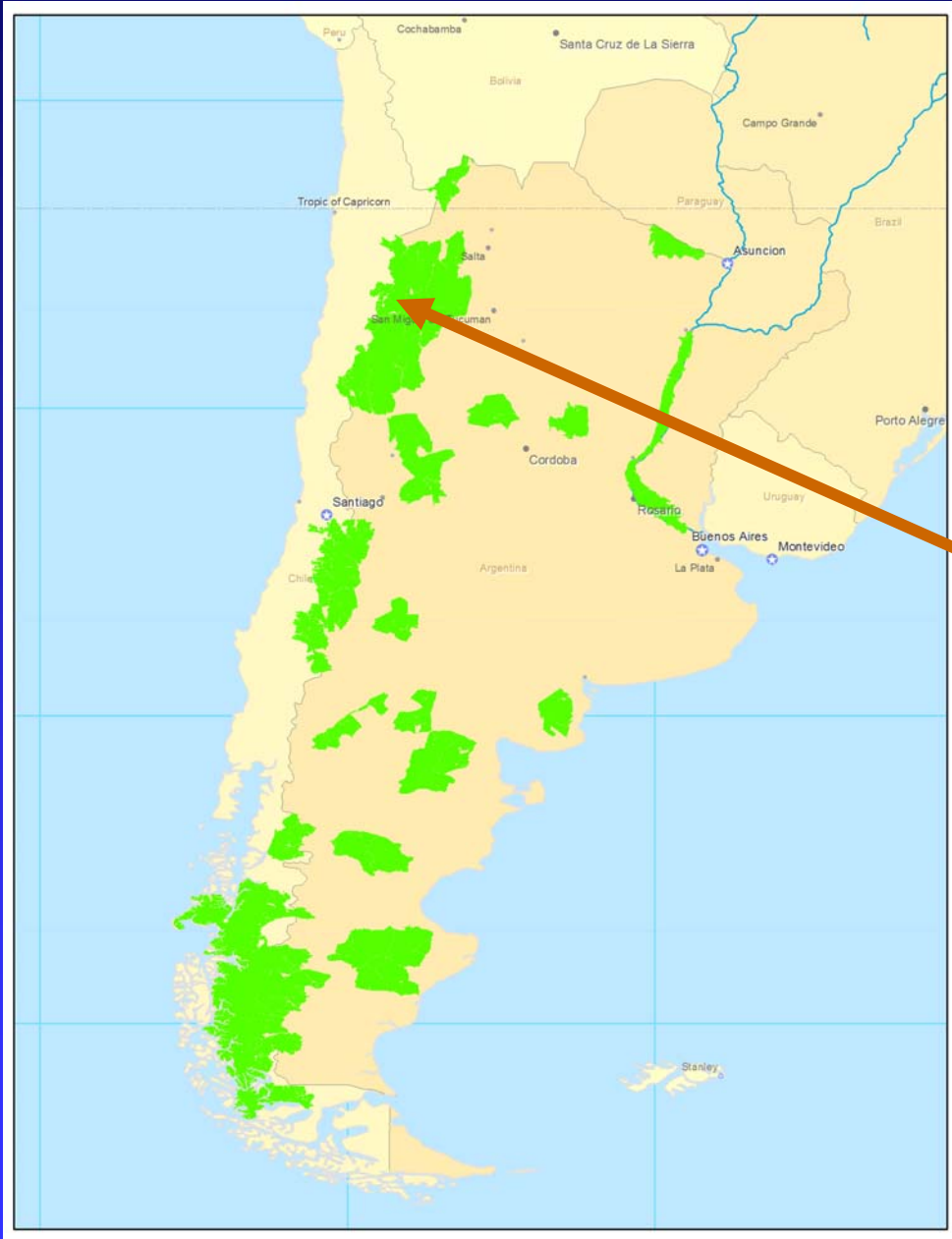
# Area Silvestre Muchísimo Grande Sur



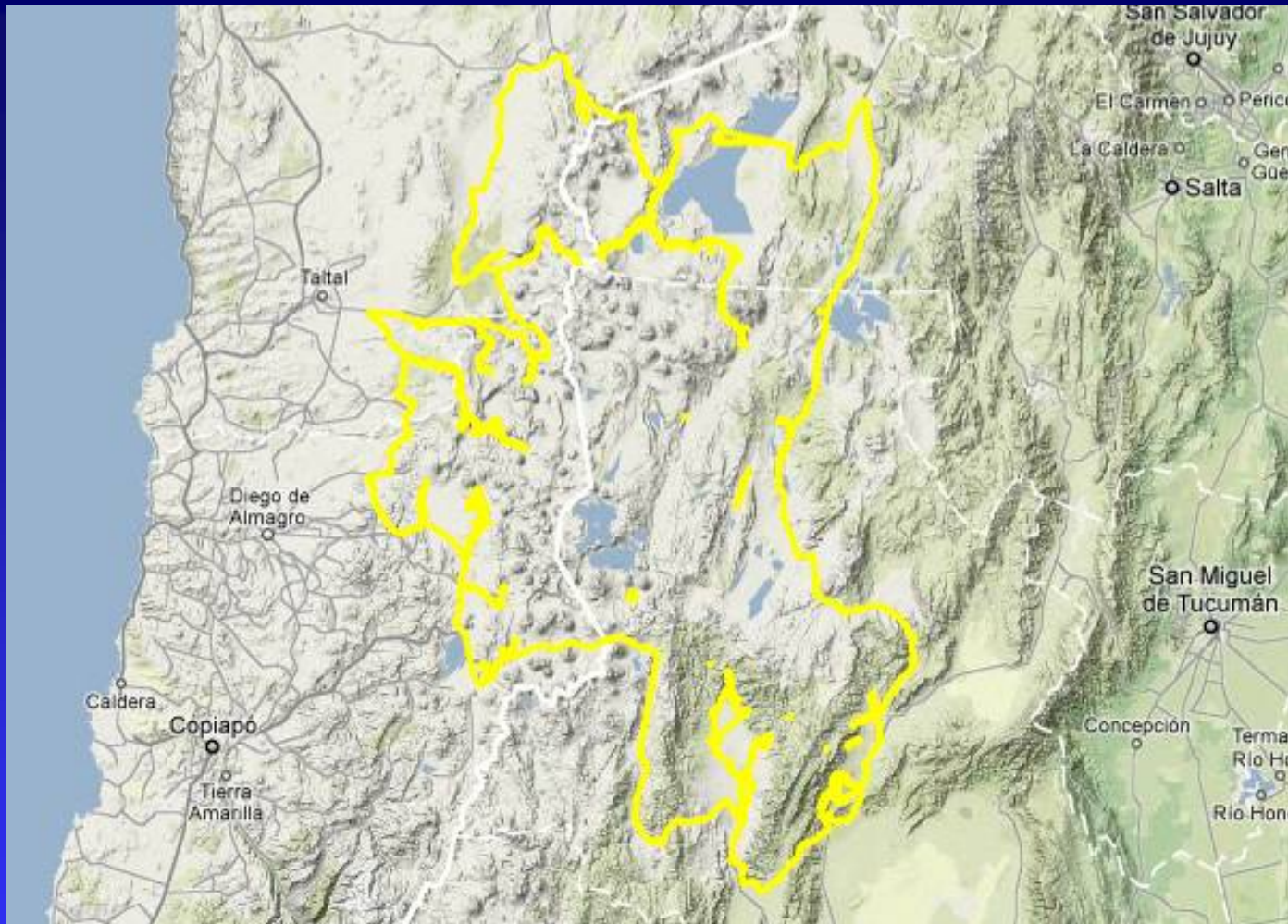
# Area Silvestre Muchísimo Grande Sur



# Area Silvestre: Valle de Fiambala to Volcan Antofalla and Beyond



## Area Silvestre: Valle de Fiambala to Volcan Antofalla and Beyond



This is the second largest roadless area in the southern cone. It encompasses over 6.4 million hectares in Argentina and Chile with incredible ecological and biological diversity. This roadless area straddles the Andes and extends deep into northwestern Argentina. It includes the stratovolcano, Volcán Antofalla (6.437 m), Volcán Lulllaillaco (6.739 m) and 14 more summits over 6000 m. This area covers part of the Puna de Atacama, a high, dry plateau surrounding the Salar de Antofalla, a playa over 140km long. The southeastern part of the area contains subtropical moist forests, below 1200 m, while the western edge in Chile contains some of the driest mountains in the world.

# Area Silvestre: Valle de Fiambala to Volcan Antofalla and Beyond



# Area Silvestre: Valle de Fiambala to Volcan Antofalla and Beyond

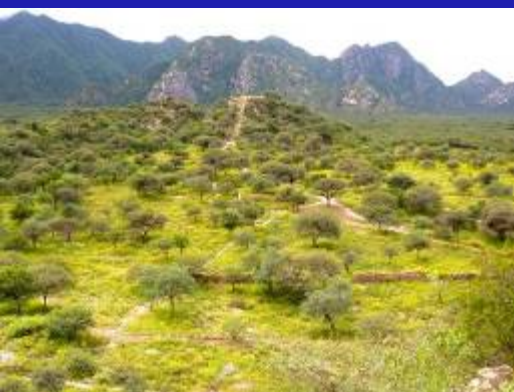




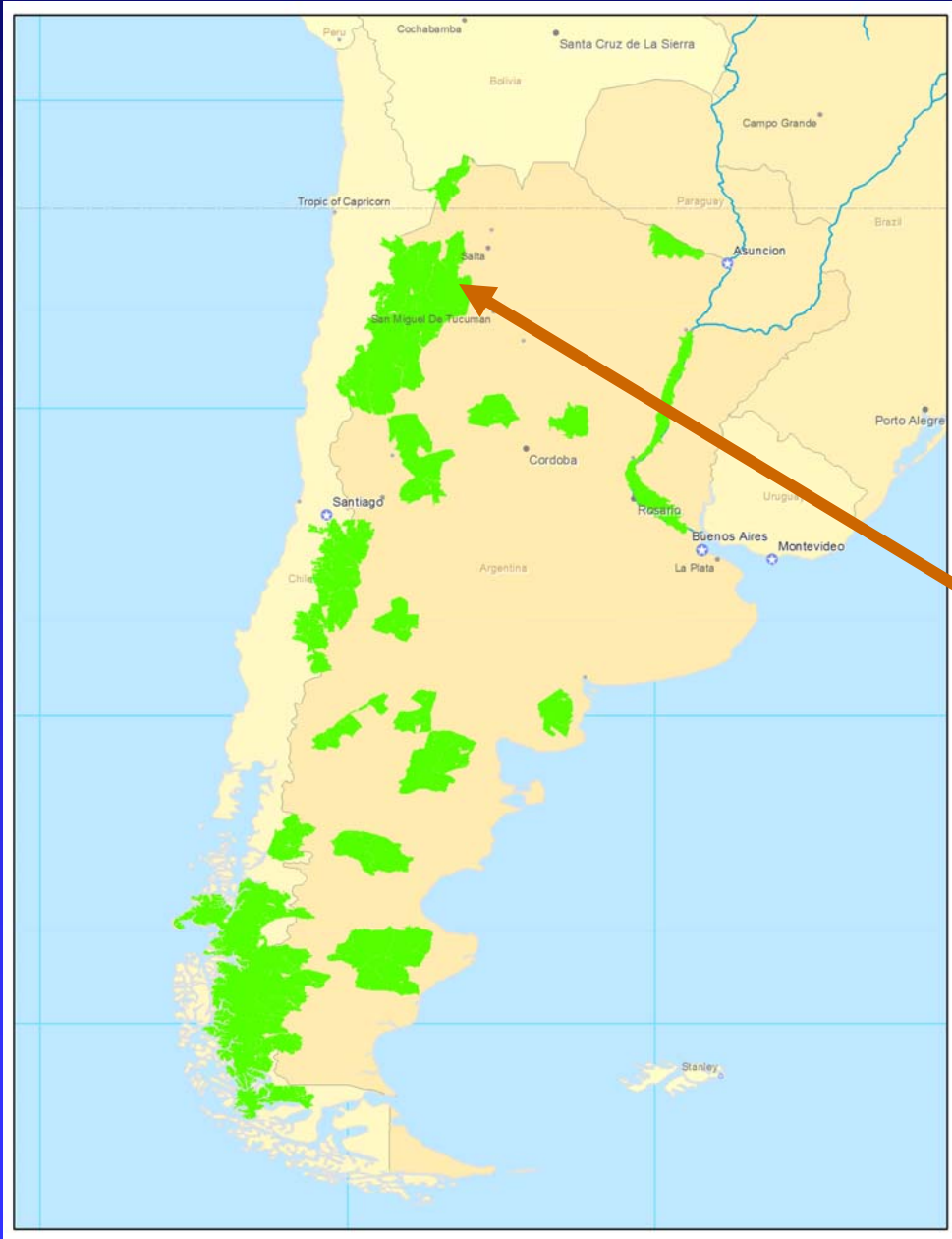
# Area Silvestre: Valle de Fiambala to Volcan Antofalla and Beyond



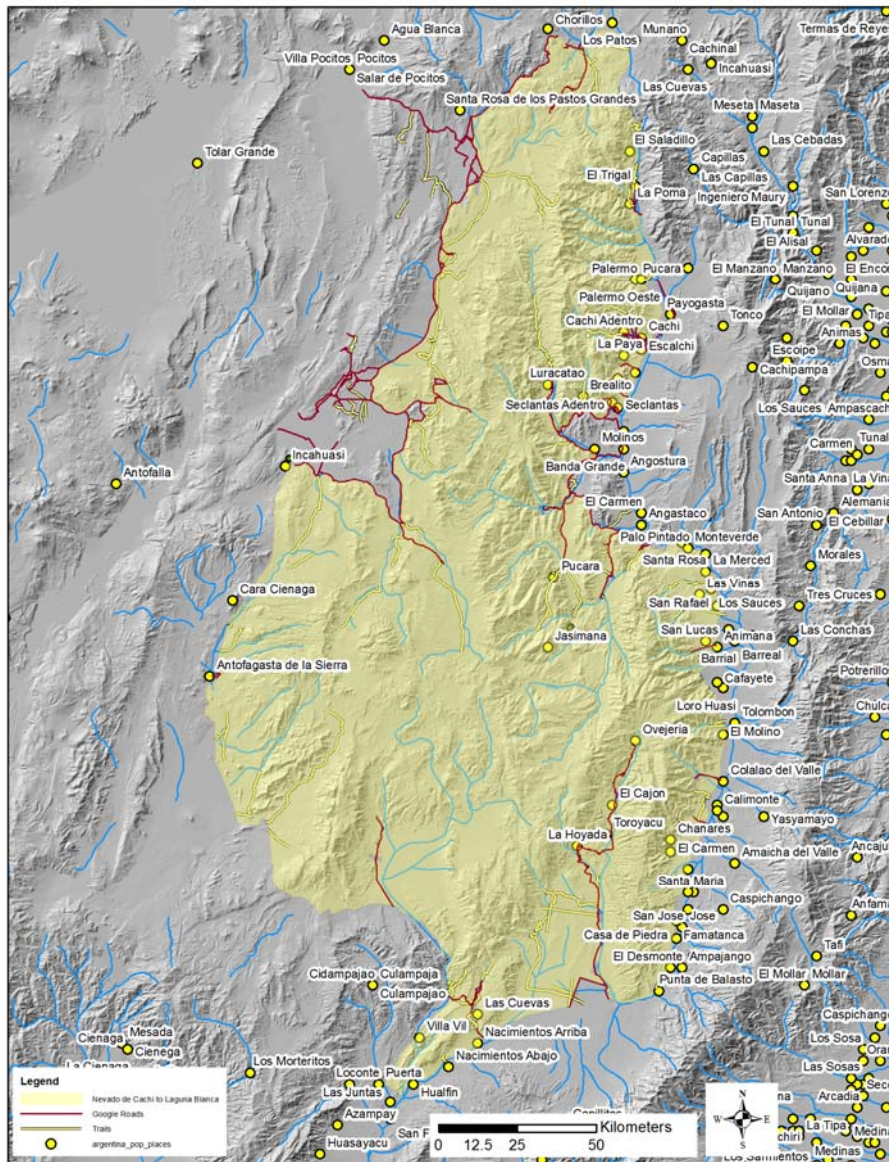
# Area Silvestre: Valle de Fiambala to Volcan Antofalla and Beyond



# Area Silvestre: Rio Santa Maria, Laguna Blanca, Nevados de Cachi and Beyond



## Area Silvestre: Rio Santa Maria, Laguna Blanca, Nevados de Cachi and Beyond



The Area Silvestre “Rio Santa Maria, Laguna Blanca, Nevados de Cachi and Beyond” contains over 2.6 million hectares of wild land. It is separated from the Area Silvestre Valle de Fiambala to Volcan Antofalla and Beyond by a narrow dirt road, which is impassible by most vehicles part of the time.

This area great diversity, ranging from lush low elevation deserts near the Rio Santa Maria, rare wetlands, large lakes, extensive high grasslands, salt flats and high mountain peaks with glaciers. This are contains 3 summits over 6000 m, culminating in Nevado de Cachi (6380 m). The lowest points in the area are west of Cafayate at about 1650 m.

## Area Silvestre: Rio Santa Maria, Laguna Blanca, Nevados de Cachi and Beyond



# Area Silvestre: Rio Santa Maria, Laguna Blanca, Nevados de Cachi and Beyond



# Area Silvestre: Rio Santa Maria, Laguna Blanca, Nevados de Cachi and Beyond

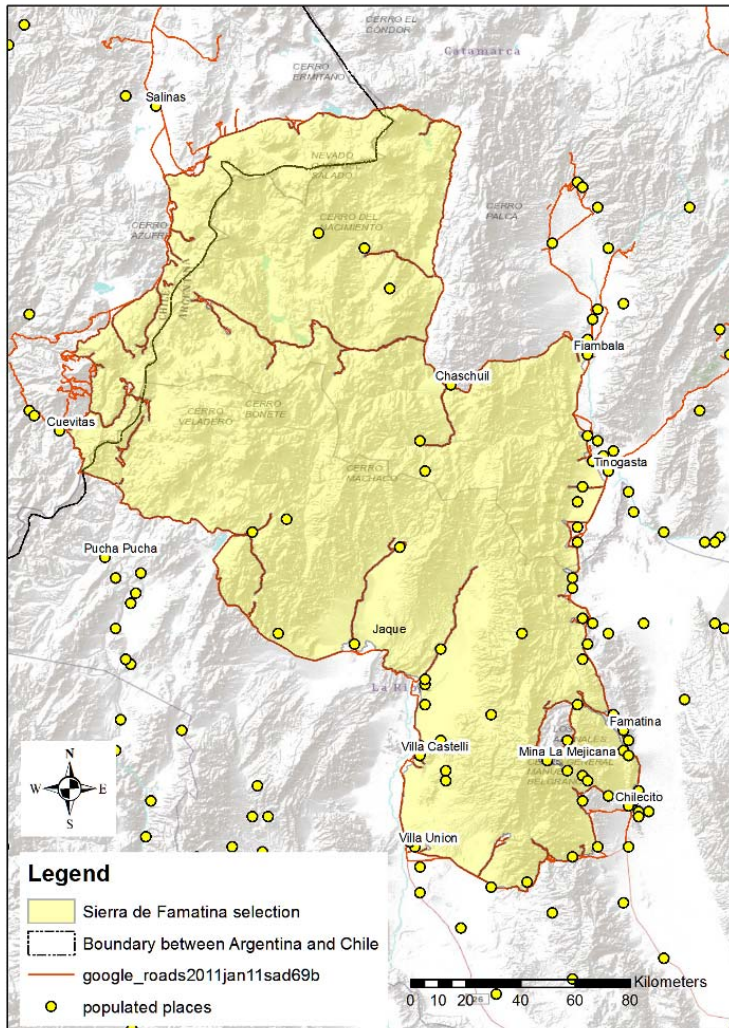


# The Sierra de Famatina – Ojos del Salado Área Silvestre





## Area Silvestre Sierra de Famatina to Ojos del Salado



The Sierra de Famatina – Ojos del Salado Área Silvestre is over 2.7 million hectares in size, without roads and developments, that extends from the town of Chilecito in central western Argentina to the edge of the Salar de Marichunga in Chile, west of Cerro Tres Cruces and Ojos del Salado on the Argentine/Chilean border. The area includes the second, third and fourth highest peaks in the western hemisphere, Nevado Ojos del Salado “snow-white eyes of the salt plains”, the highest volcano in the world (6893 m), Monte Pissis (6795 m) and Nevado Tres Cruces (6749 m). There are 15 other summits throughout the area over 6000-m elevation. While much of the area is high, the wildland boundary extends down to about 1000-m near Chilecito. Here the Chaco forests find one of their southern most expressions. There is tremendous biodiversity within this area

# The Sierra de Famatina – Ojos del Salado Área Silvestre



# The Sierra de Famatina – Ojos del Salado Área Silvestre



# The Rio Parana Wetland Wilderness - one of the largest wetland wilderness areas in the world



The Rio Parana delta covers an extensive area in Northeastern Argentina. It contains very few roads and very little development. The area is accessible by boat and many people visit the area for fishing, boating, kayaking, swimming, bird watching, nature studies and enjoyment of the wilderness.

The area is divided into two areas by a bridge which crosses the Rio Parana from Rosario to Victoria, a distance of nearly 60 km. We have mapped an Area Silvestre extending north from Rosario to the city of Corrientes. This area is 1.9 million hectares in size and extends a distance of over 640 km. South of the bridge, is another Area Silvestre of slightly over 1 million hectares, extending over 190 km to the outskirts of Buenos Aires. This is the area that I visited in April 2011.

# Exploring the edges of the Rio Parana Wetland Wilderness



An immense maze of lakes, wetlands and forests



with deep fractal dimensions



## Forests of the Rio Parana Delta





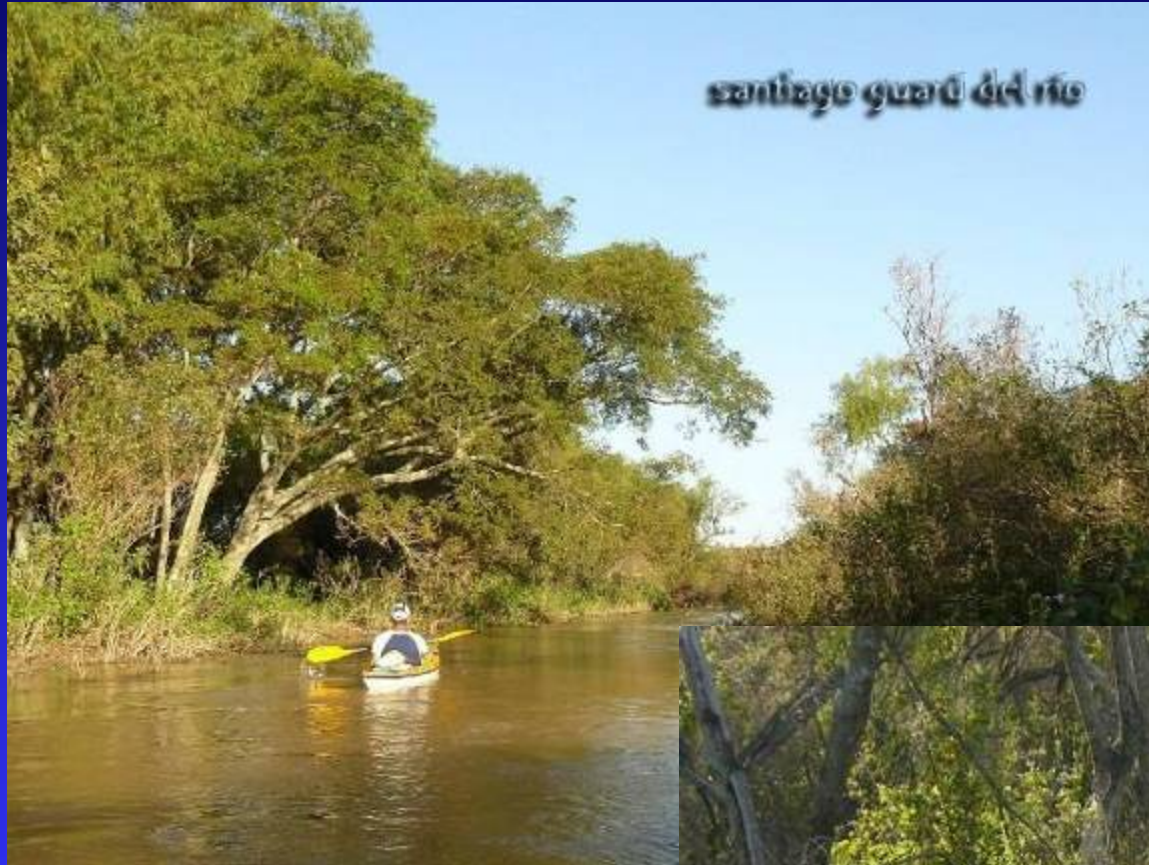
Looking back at Rosario – from the Rio Parana Islands



# A glimpse of the biodiversity of the Rio Parana Delta



# Kayaking the Rio Parana Wilderness

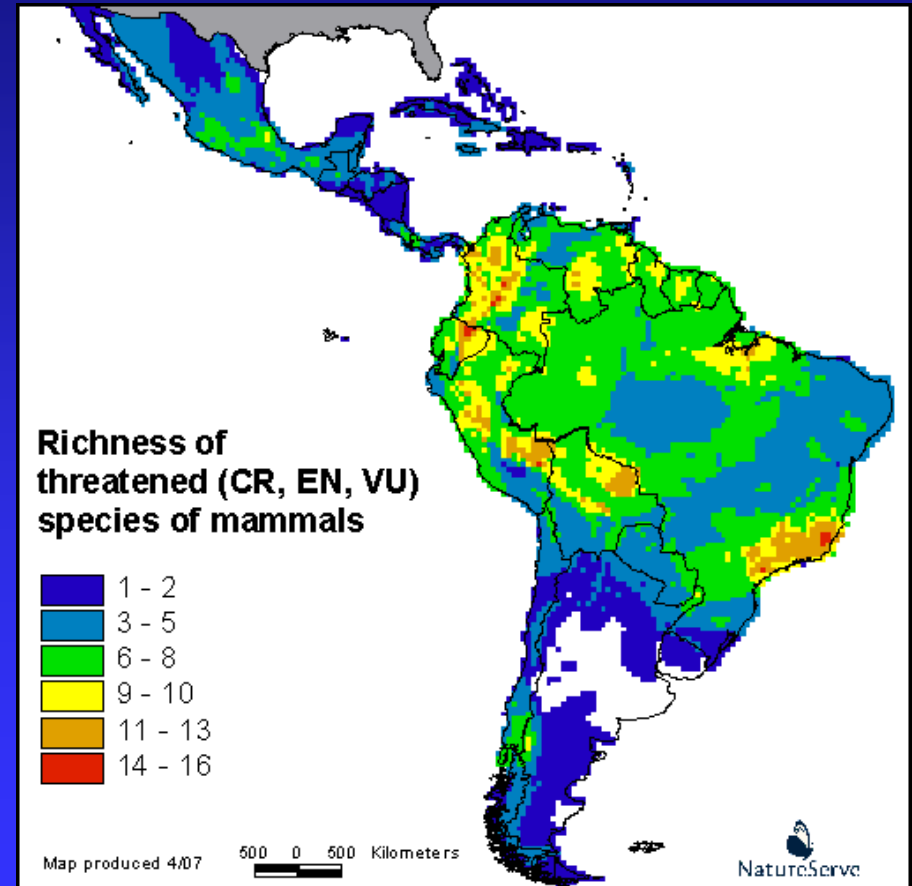
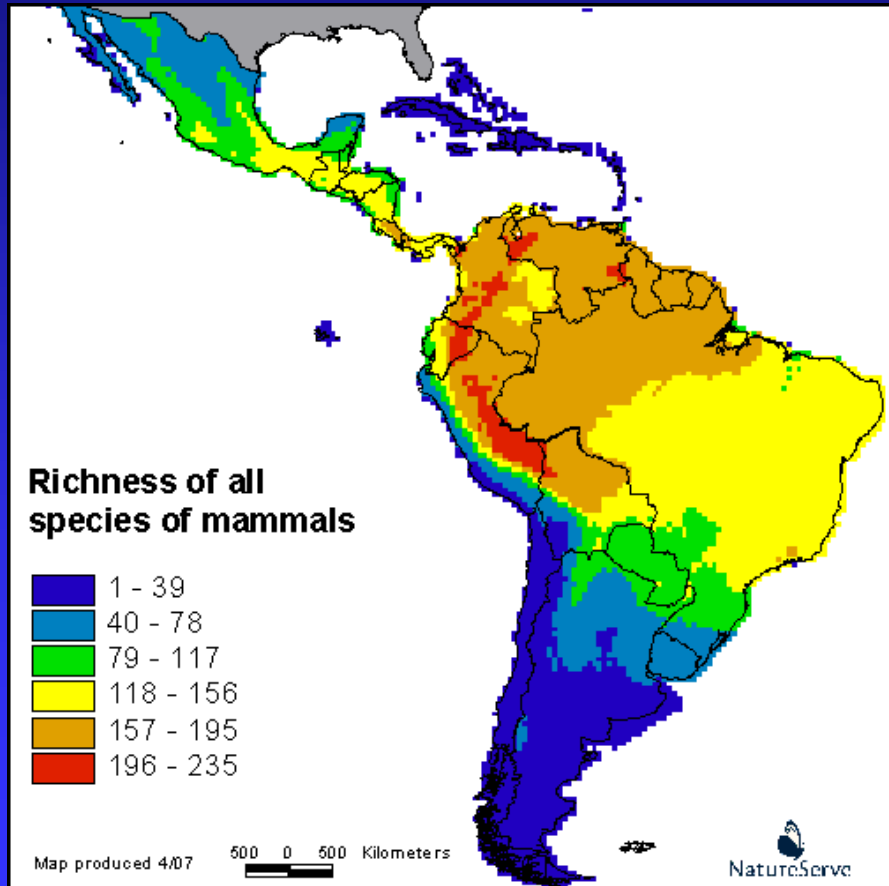


# Biodiversidad en Areas Silvestres

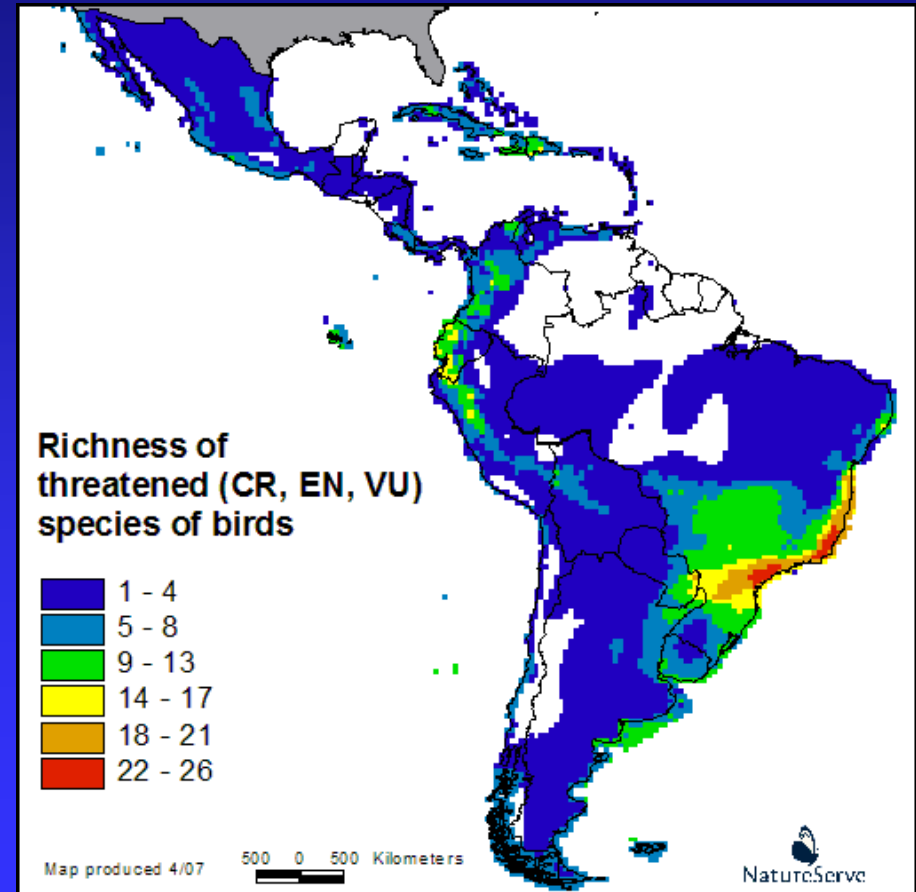
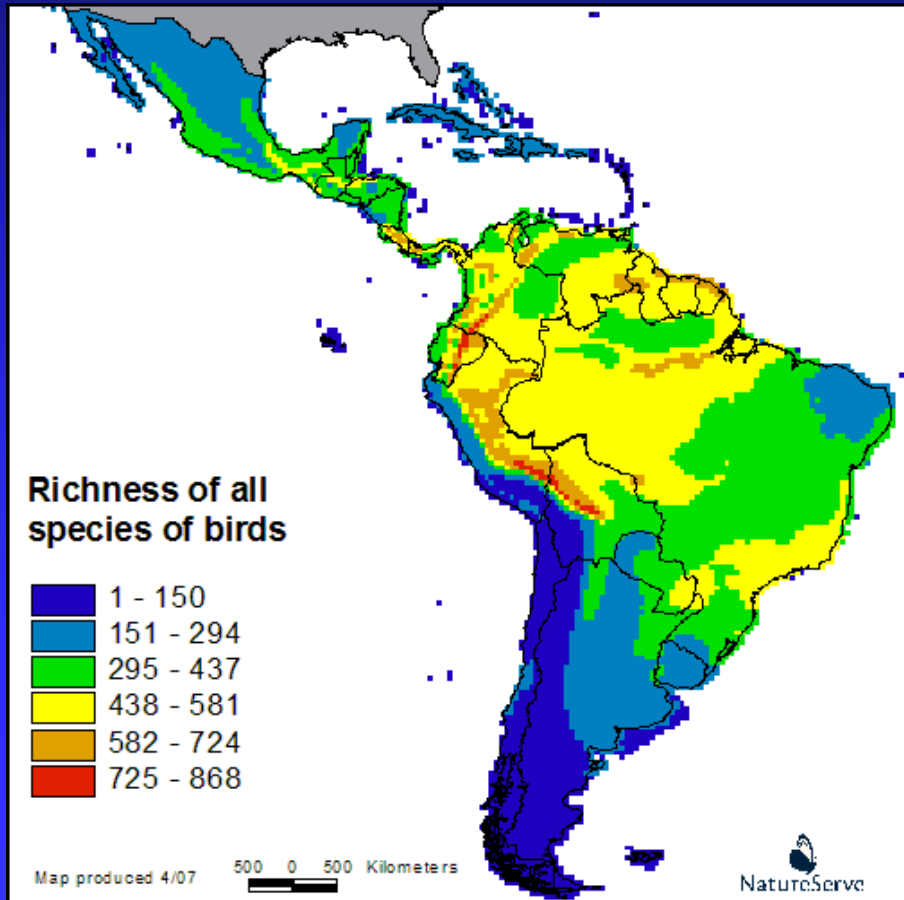
- We are using information from all available sources to document the biodiversity within each protected area.
- Volunteers are exploring these areas and finding new species and verifying current knowledge



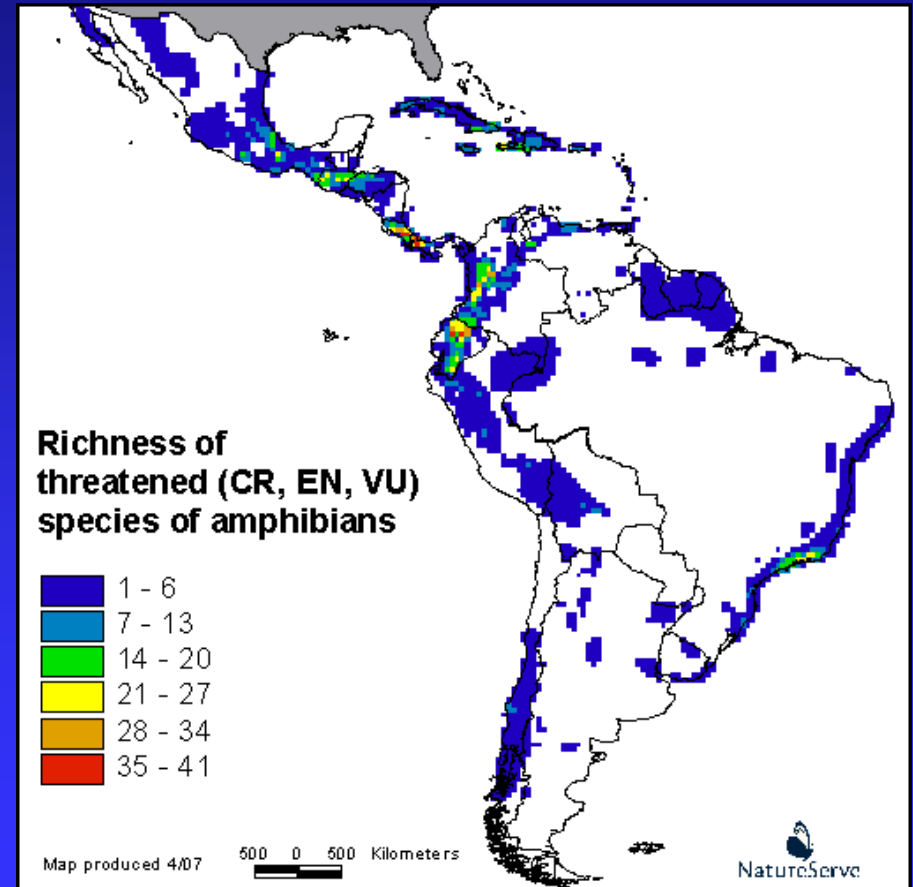
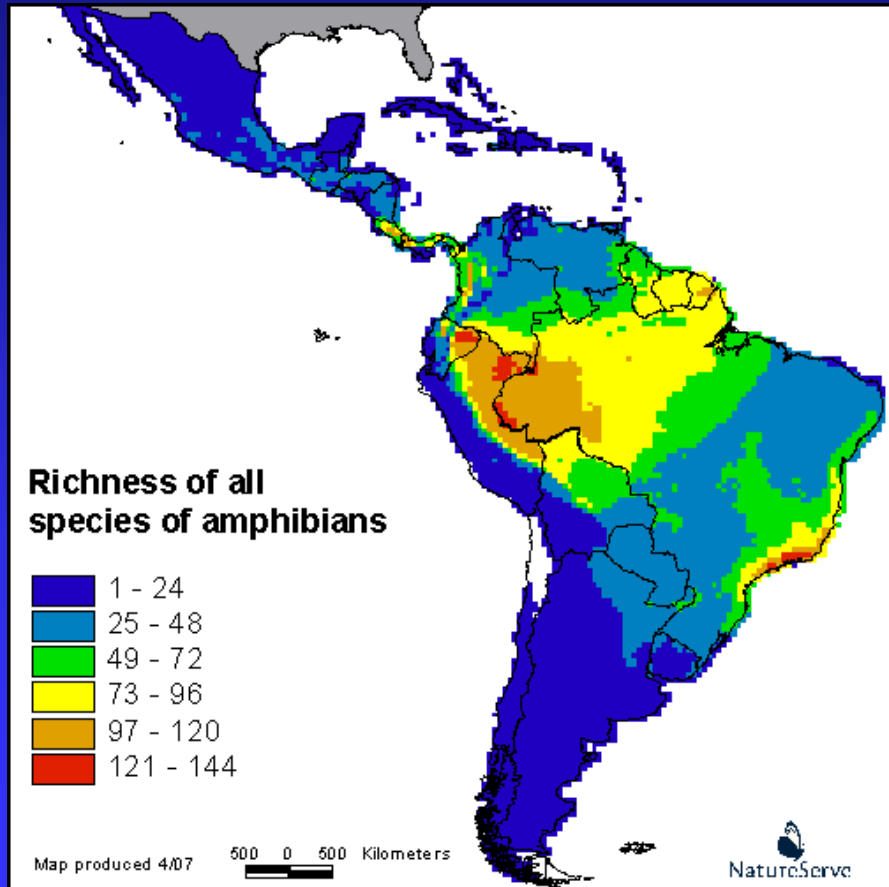
# La riqueza de especies de mamíferos



# La riqueza de especies de aves



# La riqueza de especies de anfibios



# Wildlife of the Area Silvestre Sierra de Famatina to Ojos del Salado



- We compiled a list of wildlife species whose known range includes all or part of this Area Silvestre. This information was obtained by querying wildlife species range maps compiled by NatureServe for species found within the area using an automated python-based GIS script.
- **Amphibians:** *Hypsiboas riojanus*, *Odontophrynus barrioi*, *Pleurodema nebulosum*, *Rhinella spinulosa*, *Telmatobius hauthali*
- **Reptiles:** *Homonota fasciata*, *Leiosaurus catamarcensis*, *Liolaemus dicktracyi*, *Liolaemus olongasta*
- **Mammals:** *Abrocoma cinerea*, *Abrocoma famatina*, *Abrothrix andinus*, *Calomys callosus*, *Calomys laucha*, *Chaetophractus vellerosus*, *Chinchilla chinchilla*, *Chlamyphorus truncatus*, *Conepatus chinga*, *Ctenomys fulvus*, *Ctenomys knighti*, *Ctenomys tucumanus*, *Desmodus rotundus*, *Didelphis albiventris*, *Dolichotis patagonum*, *Eligmodontia moreni*, *Eligmodontia puerulus*, *Eptesicus furinalis*, *Eumops perotis*, *Galea musteloides*, *Galictis cuja*, *Graomys griseoflavus*, *Hippocamelus antisensis*, *Histiotus macrotus*, *Histiotus montanus*, *Lagidium viscacia*, *Lagostomus maximus*, *Lama lama*, *Lasiurus blossevillii*, *Lasiurus cinereus*, *Leopardus geoffroyi*, *Leopardus jacobitus*, *Leopardus pajeros*, *Lycalopex culpaeus*, *Lycalopex griseus*, *Lycalopex gymnocercus*, *Lyncodon patagonicus*, *Microcavia australis*, *Molossus molossus*, *Myocastor coypus*, *Myotis atacamensis*, *Myotis levis*, *Neotomys ebriosus*, *Octodontomys gliroides*, *Octomys mimax*, *Pecari tajacu*, *Phyllotis xanthopygus*, *Puma concolor*, *Tadarida brasiliensis*, *Thylamys pallidior*, *Vicugna vicugna*, *Zaedyus pichiy*



- **Birds:** *Aeronautes andecokus*, *Agelaioides badius*, *Agriornis micropterus*, *Agriornis montanus*, *Anairetes parulus*, *Anas flavirostris*, *Anas georgica*, *Anthus correndera*, *Anthus furcatus*, *Asio flammeus*, *Asthenes modesta*, *Asthenes sclateri*, *Asthenes steinbachi*, *Athene cunicularia*, *Attagis gayi*, *Bubo virginianus*, *Buteo polyosoma*, *Calidris bairdii*, *Caprimulgus longirostris*, *Caracara plancus*, *Carduelis atrata*, *Carduelis crassirostris*, *Catamenia analis*, *Catamenia inornata*, *Cathartes aura*, *Chloephaga melanoptera*, *Chloroceryle americana*, *Cinclodes atacamensis*, *Cinclodes fuscus*, *Circus cinereus*, *Columba livia*, *Columbina picui*, *Coragyps atratus*, *Cyanoliseus patagonus*, *Diuca diuca*, *Elaenia albiceps*, *Falco femoralis*, *Falco peregrinus*, *Fulica cornuta*, *Geositta cunicularia*, *Geositta rufipennis*, *Geranoaetus melanoleucus*, *Heteronetta atricapilla*, *Hirundinea ferruginea*, *Hirundo rustica*, *Larus maculipennis*, *Larus serranus*, *Leptasthenura aegithaloides*, *Leptasthenura fuliginiceps*, *Lessonia oreas*, *Lophonetta specularioides*, *Metriopelia aymara*, *Metriopelia melanoptera*, *Metriopelia morenoi*, *Mimus patagonicus*, *Molothrus rufoaxillaris*, *Muscisaxicola albilora*, *Muscisaxicola capistratus*, *Muscisaxicola cinereus*, *Muscisaxicola flavinucha*, *Muscisaxicola frontalis*, *Muscisaxicola maculirostris*, *Muscisaxicola rufivertex*, *Nothoprocta ornata*, *Nycticorax nycticorax*, *Nycticryphes semicollaris*, *Ochthoeca leucophrys*, *Oreopholus ruficollis*, *Oreotrochilus leucopleurus*, *Oxyura ferruginea*, *Pandion haliaetus*, *Passer domesticus*, *Patagioenas maculosa*, *Patagona gigas*, *Phalaropus tricolor*, *Phalcoboenus megalopterus*, *Phegornis mitchellii*, *Phleocryptes melanops*, *Phoenicoparrus andinus*, *Phoenicoparrus jamesi*, *Phoenicopterus chilensis*, *Phrygilus atriceps*, *Phrygilus fruticeti*, *Phrygilus gayi*, *Phrygilus plebejus*, *Phrygilus unicolor*, *Phytotoma rutila*, *Pitangus sulphuratus*, *Poospiza ornata*, *Poospiza torquata*, *Pseudoseisura gutturalis*, *Psilopsiagon aurifrons*, *Psilopsiagon aymara*, *Pterocnemia pennata*, *Pygochelidon cyanoleuca*, *Recurvirostra andina*, *Riparia riparia*, *Rollandia rolland*, *Saltator aurantirostris*, *Sappho sparganura*, *Serpophaga munda*, *Serpophaga subcristata*, *Sicalis auriventris*, *Sicalis olivascens*, *Stigmatura budytoides*, *Tachycineta meyeri*, *Teledromas fuscus*, *Thinocorus orbignyianus*, *Thraupis bonariensis*, *Tringa flavipes*, *Tringa melanoleuca*, *Troglodytes aedon*, *Turdus chiguanco*, *Tyto alba*, *Upucerthia certhioides*, *Upucerthia dumetaria*, *Upucerthia ruficaudus*, *Upucerthia validirostris*, *Vanellus chilensis*, *Vultur gryphus*, *Xolmis coronatus*, *Zenaida auriculata*, *Zonotrichia capensis*

Join us on our next expedition into the Big Wild of South America!



Besides learning a lot about nature, you will meet some great people...

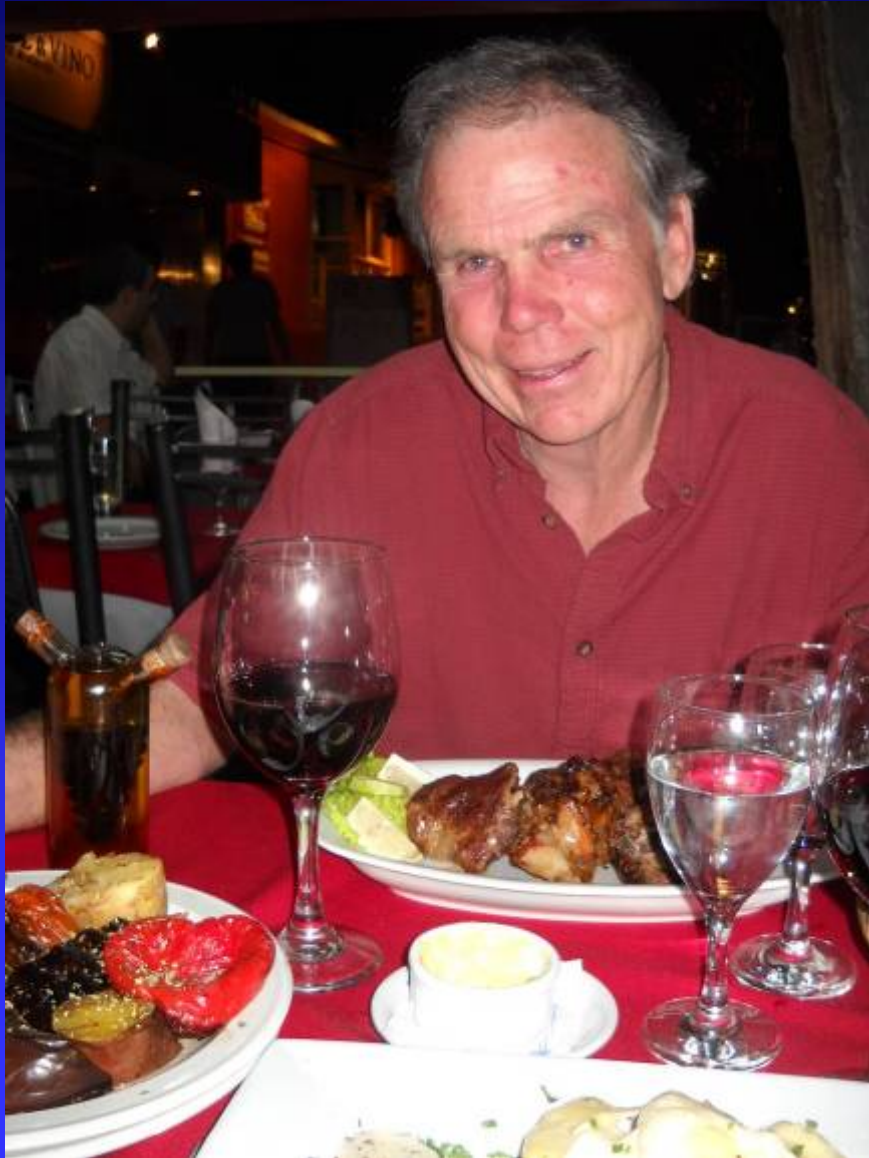




Contribute to conservation science and be part of the first step of protection some of the biggest, most diverse wild areas left on the planet



We will some of our secret places...



and you will have the time of your life...

