



**FAO**

**Technical Expert Meetings on Mitigation**

**Session IV**

Nature based solutions to integrate energy and water aspects into the agri-food chain

# Productive Forests and Agroforestry Systems with Native Species in Areas of Environmental Mitigation in Subtropical Climates of Argentina

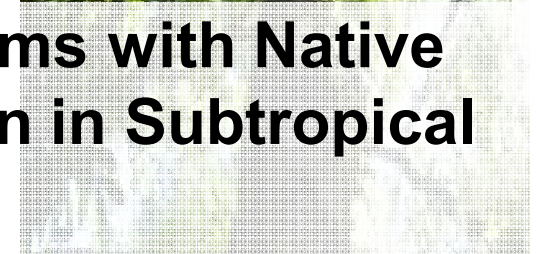
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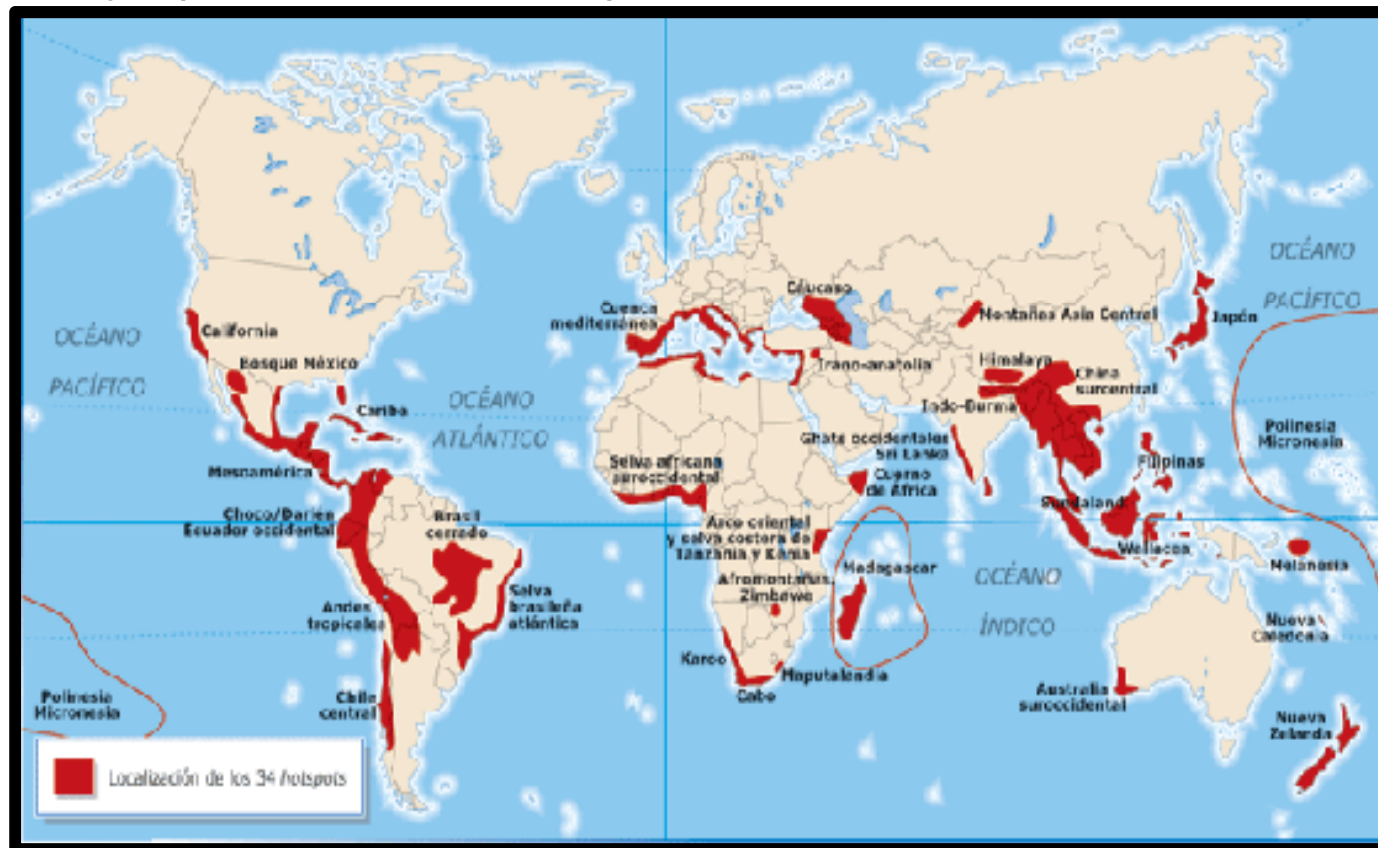
BONN Germany, 21 June 2019



*Cedrela fissilis*, Meliaceae



## Hotspots biogeographical region with high and threatened biodiversity, (34 in the world)



Myers et al. 2000. Biodiversity hotspots for conservation priorities. NATURE



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**Tropical and subtropical rainforests with a geological history and species in common**

**With millions of years of evolution, it has more than 10,000 plant species**

environmental mitigation area



Di Bitetti, M. S., G. Placci y L. A. Dietz. 2003. Visión de Biodiversidad de la Ecorregión del Bosque Atlántico del Alto Paraná: diseño de un paisaje para la conservación de la biodiversidad y prioridades para las acciones de conservación. World Wildlife Fund. Washington, D.C., USA. pp 154

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Figure 4. Forest Remnants of the Atlantic Forests Global 200 Ecoregion



**Ecorregion Considered a critical point of conservation that only maintains 8% of the original surface**

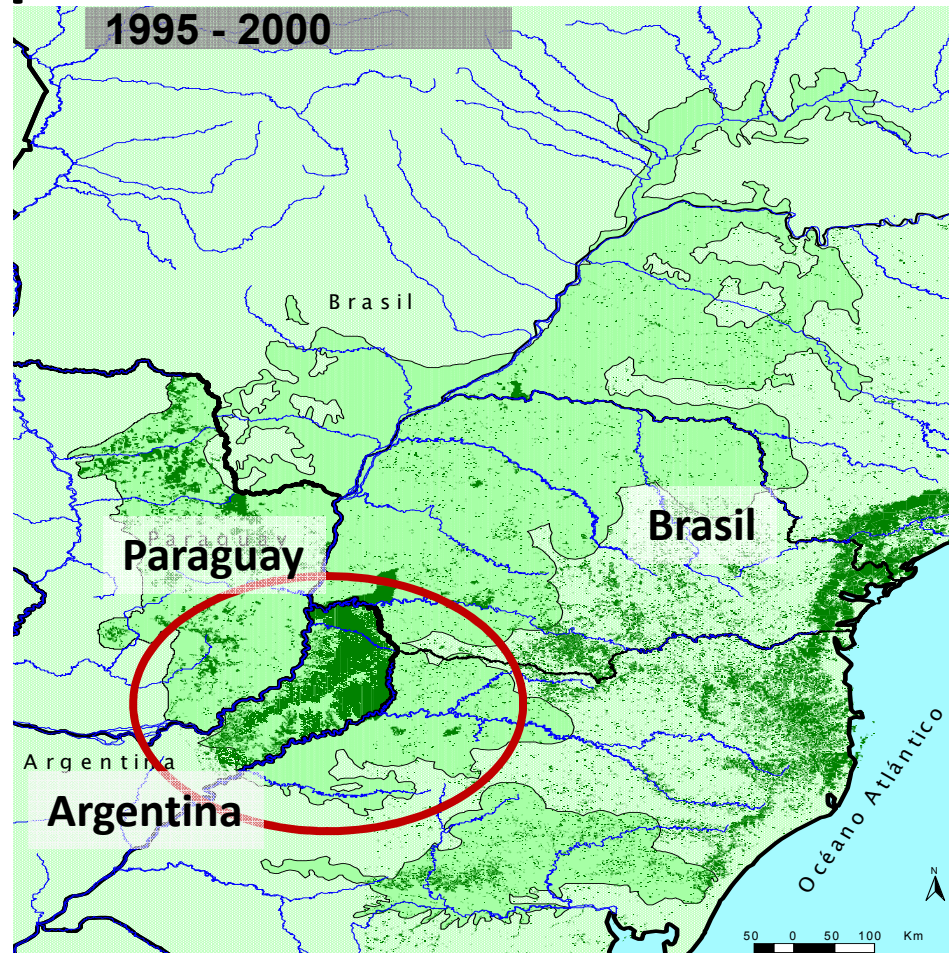
**Interior Atlantic Forest, Paranaense Forest for Argentina**

**BOSQUE ATLANTICO INTERIOR –inserted in the called la CUENCA DEL PLATA  
(3.200.000 km<sup>2</sup>)**

**AN IMMENSE AREA OF SURFACE WATER unites the three countries Paraguay, Brazil and Argentina  
IT IS THE SOURCE THAT RECHARGES THE AQUIFER GUARANI**



# Subtropical Rain Forest Misiones



Source: Fundación Vida Silvestre Argentina.2005

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**Misiones Natural Forests**  
**High biodiversity**  
**Generates Oxygen,**  
**Fixed CO<sub>2</sub>,**  
**Stabilize climates**



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*Dicksonia sellowiana* (chachí manso)  
Endangered species

**Conserve water**

Foto Lucas Lopez





# Safe biodiversity Source of fruits and seeds



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**When environmental functions are lost**

**We must restore**



# From the natural succession of the site

## Pioneer species

*Cecropia adenopus* (Ambay,) *Solanum granulatum* (fumo bravo),  
*Trema micrantha* (palo polvora) and others



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✓ And with plantations

*Araucaria angustifolia* (araucaria)



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**Plantations with native species**

*Peltophorum dubium* (caña fistola)



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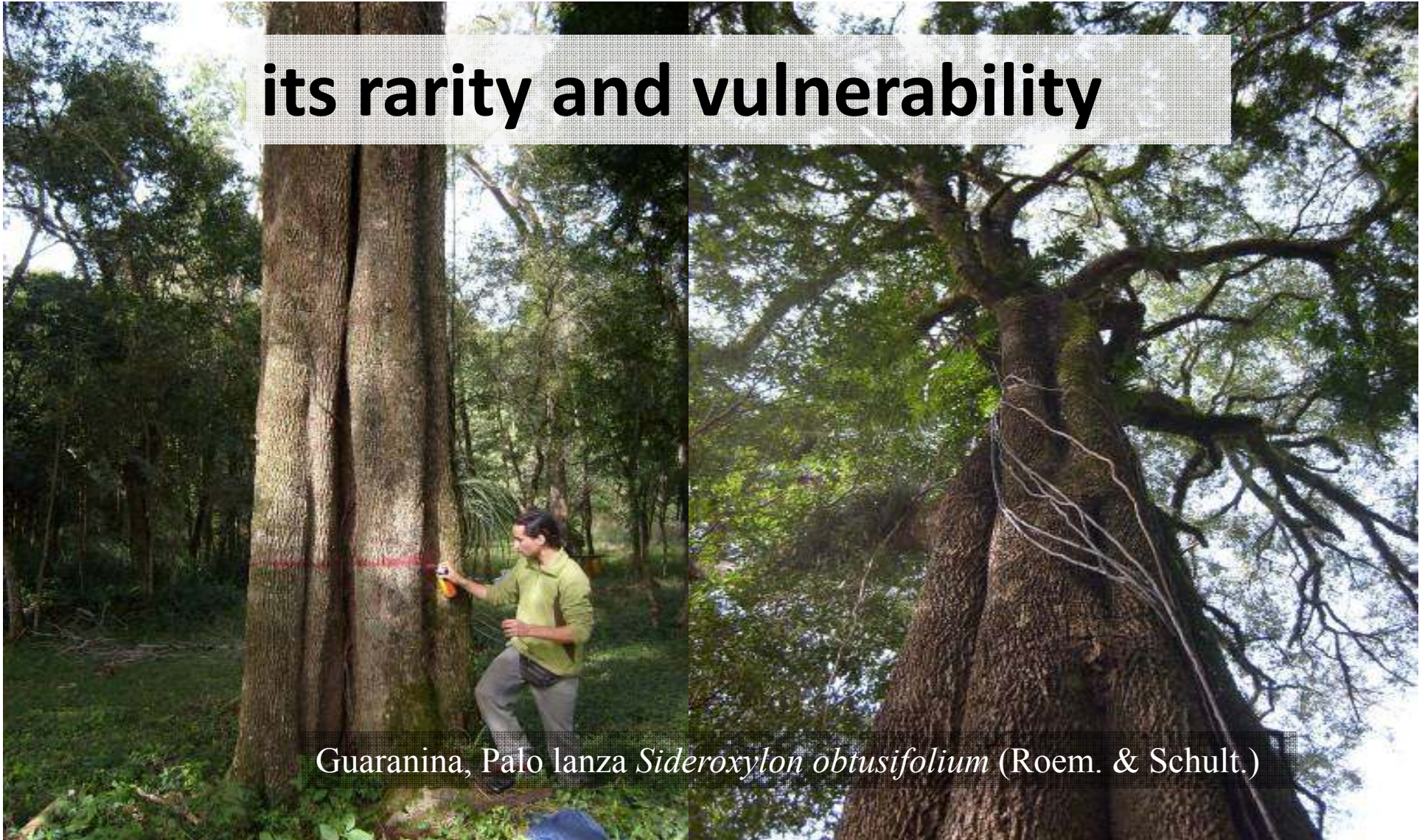
The trees are registered for its timber value and its ecological importance. Resol. INASE 318/18

*Myrocarpus frondosus* (inciense)

*Cordia trichotoma* (loro negro)



# its rarity and vulnerability



Guaranina, Palo lanza *Sideroxylon obtusifolium* (Roem. & Schult.)



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The fruits are harvested

03/03/2011

*Ceiba speciosa* Samohu,





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**Seeds are conditioned**

*Parapiptadenia rigida* (anchico colorado)



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**The Origin and Quality of the SEEDS are CERTIFIED**



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GERMINATION TESTING is carried out

*Aspidosperma polyneuron* (palo rosa)



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**Certified seeds go to the nursery**

*Cedrela fissilis*, CEDRO



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Or Nursery for Conservation in Banks of PLANTS

*Araucaria angustifolia* (ARAUCARIA)



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**plant quality indicators**



*Cedrela fissilis*, Meliaceae



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# Comunication spaces





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TRAINING





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TRAINING AND RESEARCH



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### Visits of schools, SOIL AND FORESTS function



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**vulnerable native species in productive spaces**

*Araucaria angustifolia* (araucaria)



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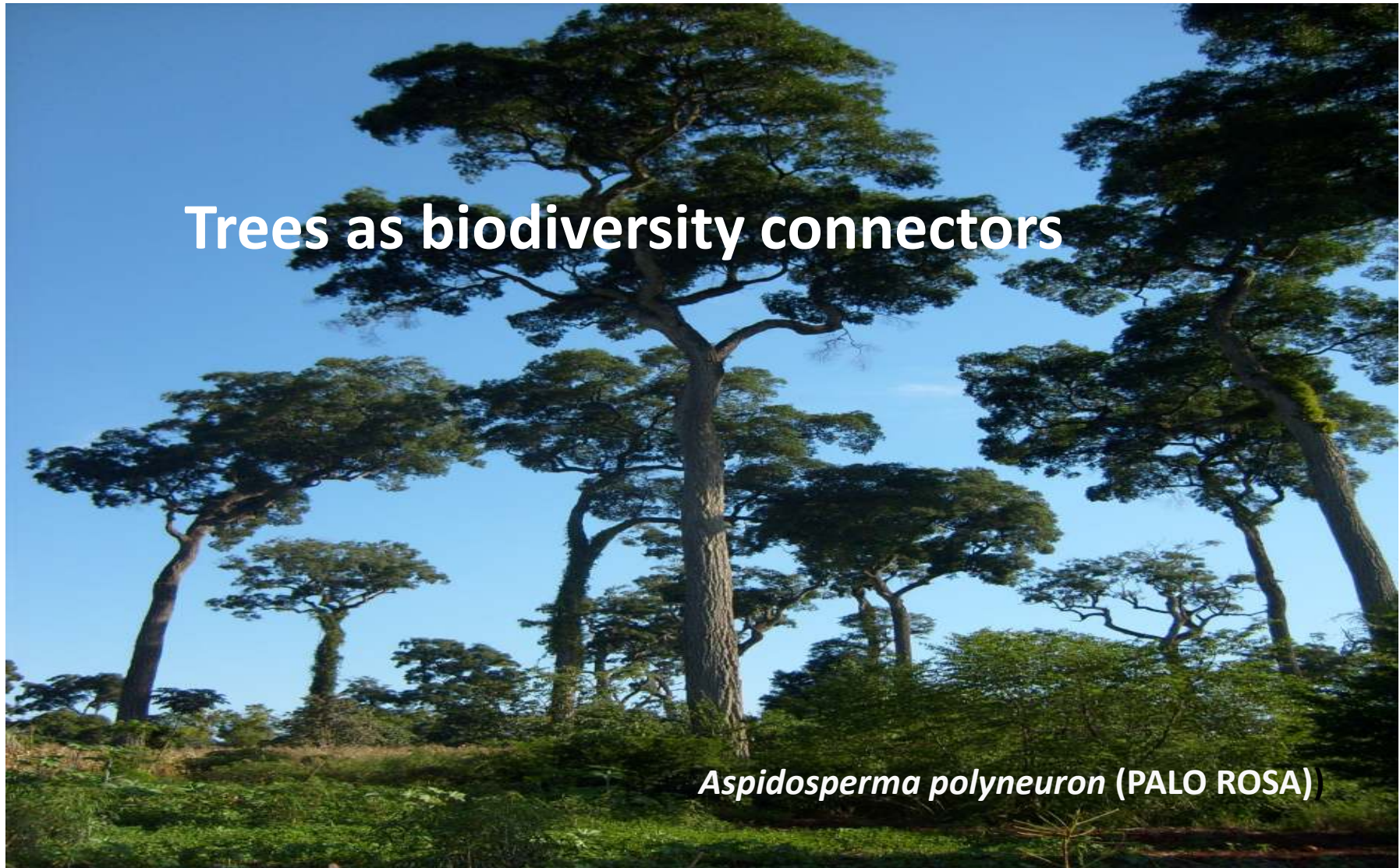




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# Trees as biodiversity connectors



*Aspidosperma polyneuron* (PALO ROSA)



# - IN AGROFORESTRY SYSTEMS -

W E F / NBS



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# Yerba mate with Trees . SAF

*Ilex paraguariensis* (YERBA MATE)

Foto: Jose Stevenson  
San Pedro Misiones



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# REFUGE FOR BIRDS



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**REFUGE FOR BIRDS**



Arasarí Fajado , Tucan



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# Flowers diversity



Eugenia involucrata CERELLA





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# Flowers diversity



*Erithrina crista galli* (SEIBO)



**flowers TO EAT**



**Acca sellowiana (guayabita)**



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flowers for honey

*Luehea divaricata* (zoita)



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# Fruits diversity

*Eugenia uniflora* (PITANGA)



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**Fruits diversity**

*Rollinia emarginata* (araticu)



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# Trees for the landscape



*Handroanthus heptaphyllus*, LAPACHO NEGRO



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Trees for the landscape

*Handroanthus albus*, LAPACHO AMARILLO

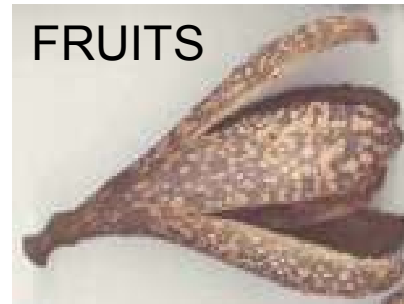


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TREES

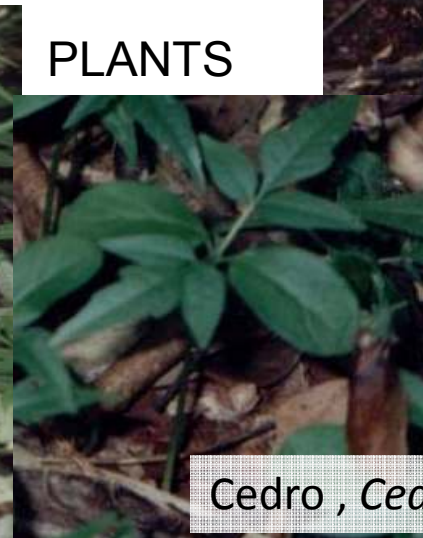


FRUITS



SEEDS

IT IS NECESSARY TO WORK WITH SPECIFIC AND GENETIC DIVERSITY AND WITH THE MULTIPLE PURPOSE USE OF THE SPECIES , with regeneration and plantation



PLANTS

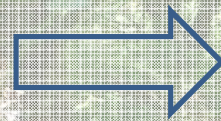


Cedro , *Cedrela fissilis*, Meliaceae





# Plantations and natural regeneration



**new FOREST**

**W E F / N B S**

**Infiltration of Precipitation. Maximum use of available energy. Atmospheric CO2 fixation. Healthy food production. It is restored accompanying the natural regeneration**

*SAF Ilex paraguariensis (YERBA MATE) with Handroanthus heptaphyllus , Enterolobium contortisiliquum and Balfourodendron riedelianum TREES*