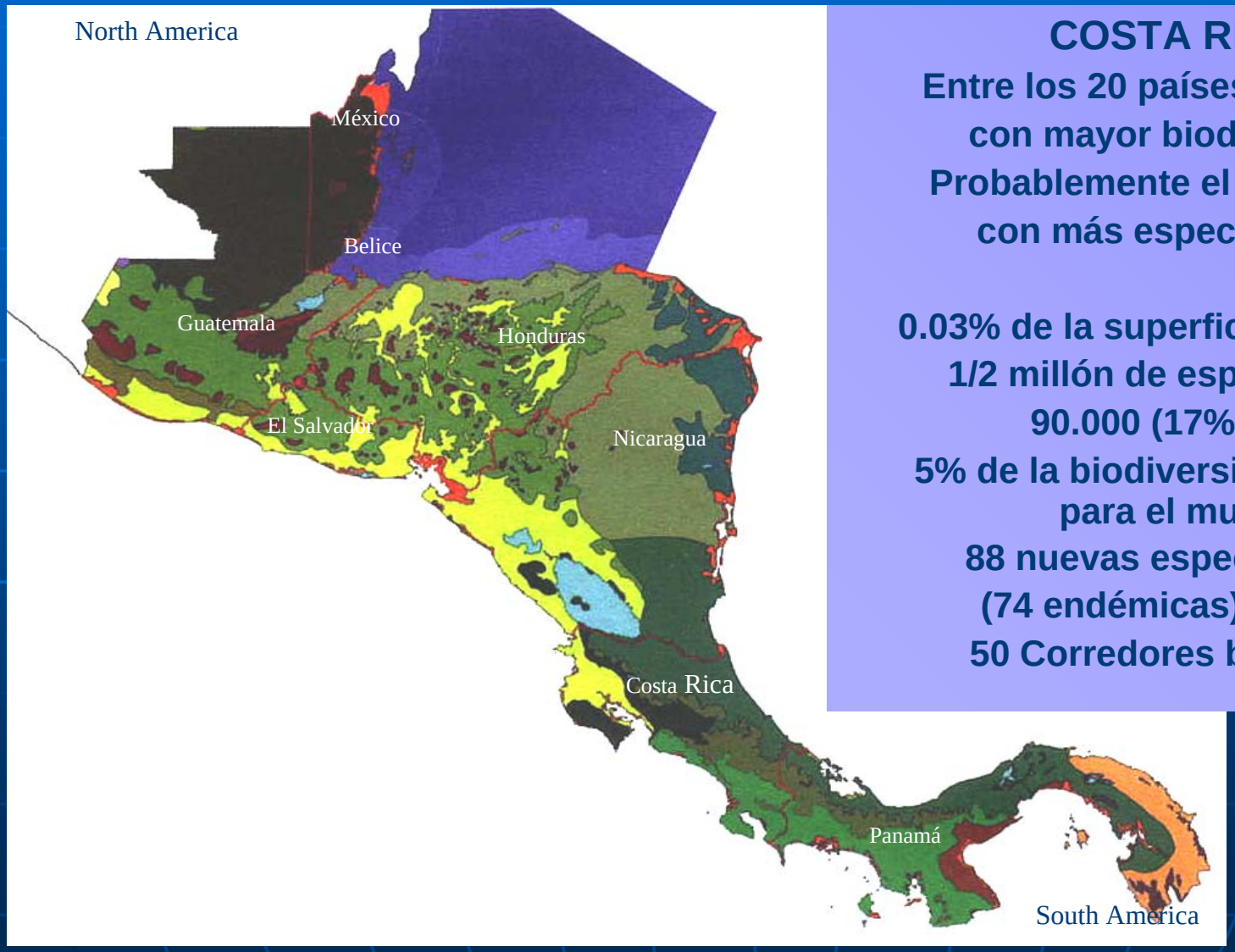
Global Workshop on the Satoyama Initiative

Payments for Environmental Services in Costa Rica: The Tropical Satoyama

By: Carlos Manuel Rodríguez

CONSERVATION INTERNATIONAL

LA BIODIVERSIDAD DE COSTA RICA ES LA PRINCIPAL ATRACCION
MAPA DE MESOAMERICA

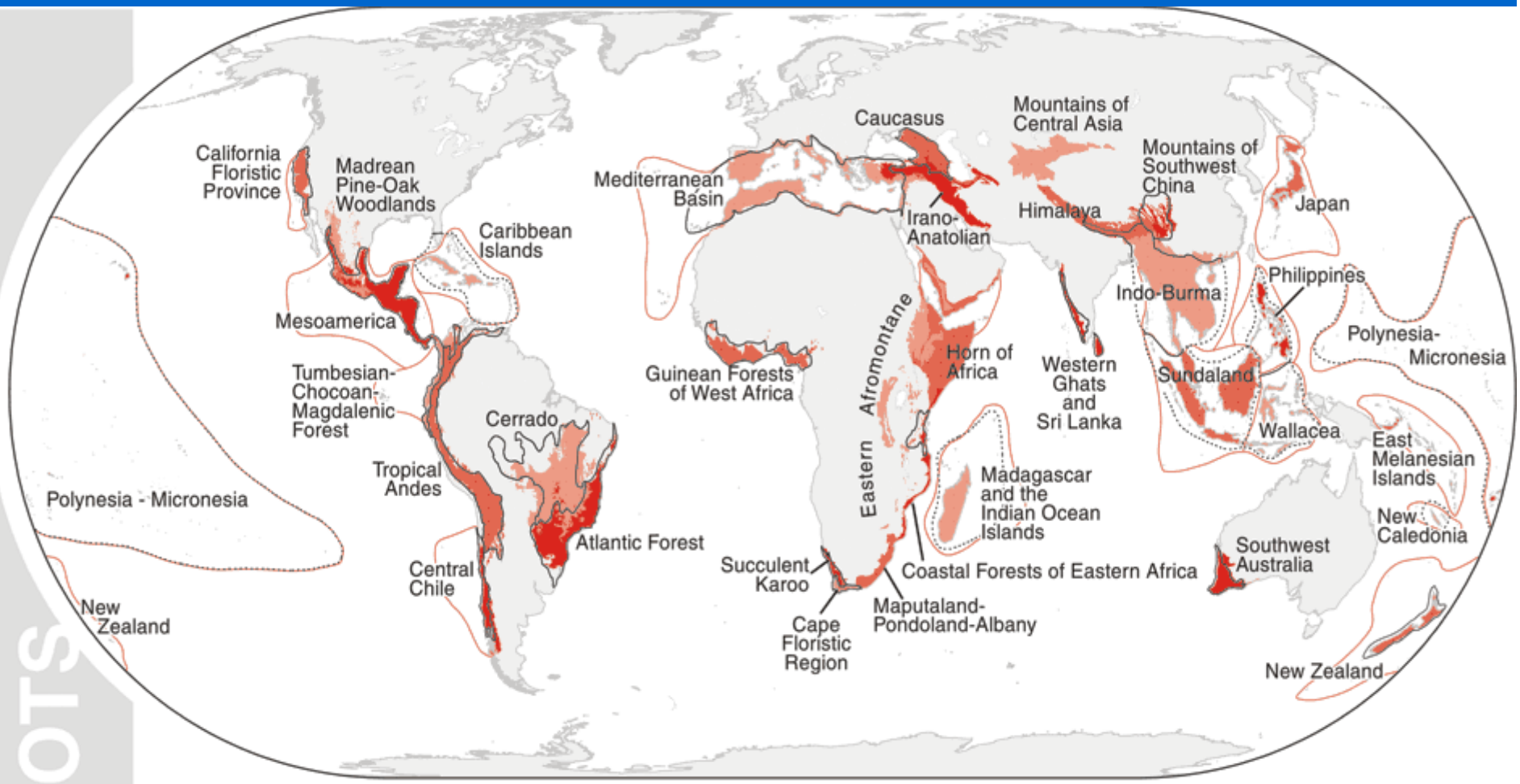


COSTA RICA:

Entre los 20 países del mundo con mayor biodiversidad
Probablemente el primer país con más especies/ km2.

0.03% de la superficie del mundo
1/2 millón de especies estimado
90.000 (17%) descritas
5% de la biodiversidad estimada para el mundo
88 nuevas especies descritas (74 endémicas) en 2001
50 Corredores biológicos.

(Obando, V. 2003)



HOTSPOTS

Conservation International Hotspots

Results of the 2004 Hotspots Review

May 2004

scale: 1/142,700,000
projection: Eckert IV
data:
Conservation International
Digital Chart of the World

this map was prepared by the
Conservation Mapping Program
GIS & Mapping Laboratory
Center for Applied Biodiversity Science
at Conservation International

cartography: M.Denil

cartography: M.Denil

2004 Hotspots

terrestrial Hotspot area

outer boundary of Hotspot area

2000 Hotspots

terrestrial Hotspot area

outer boundary of Hotspot area

outer boundary of Hotspot area

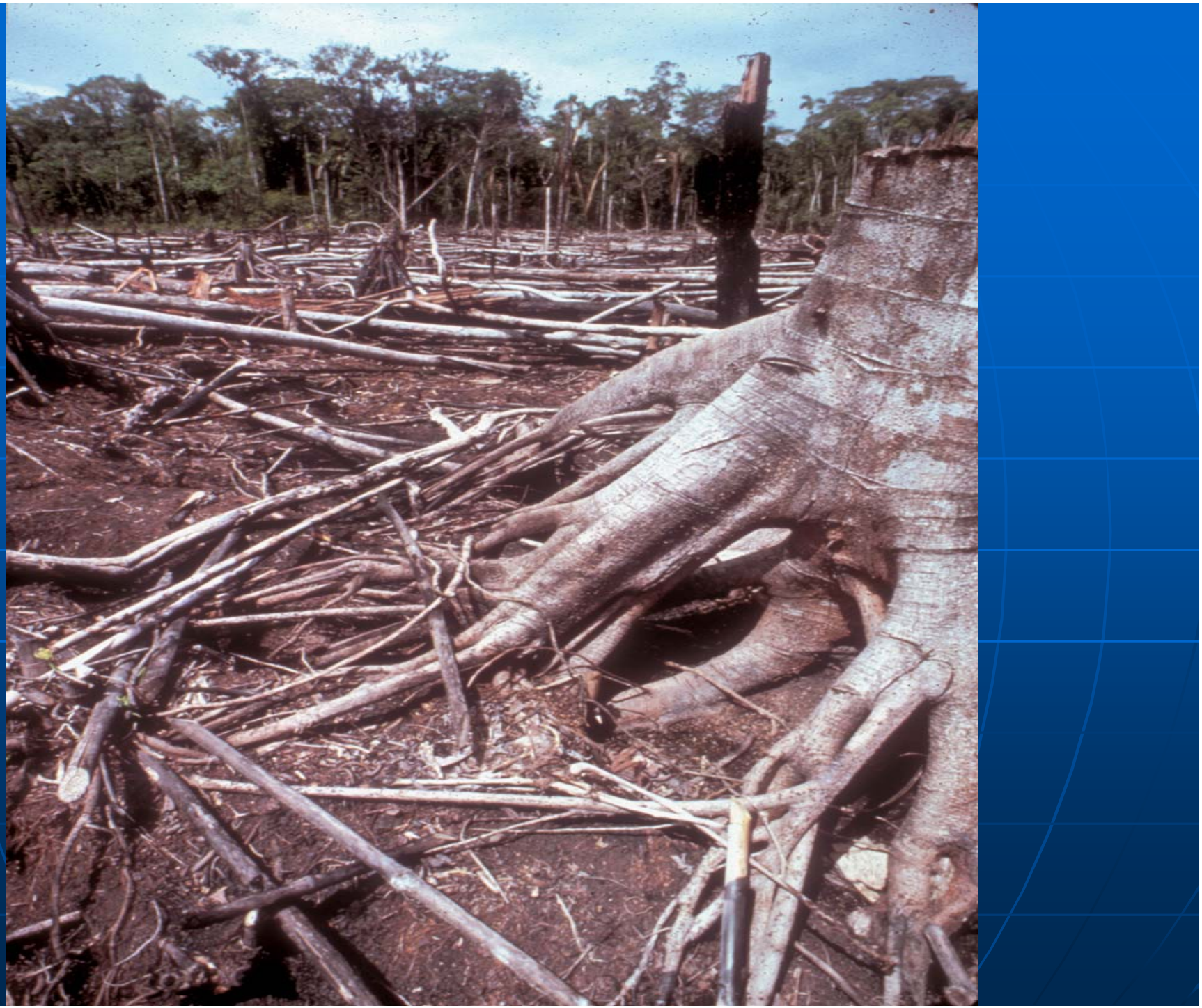








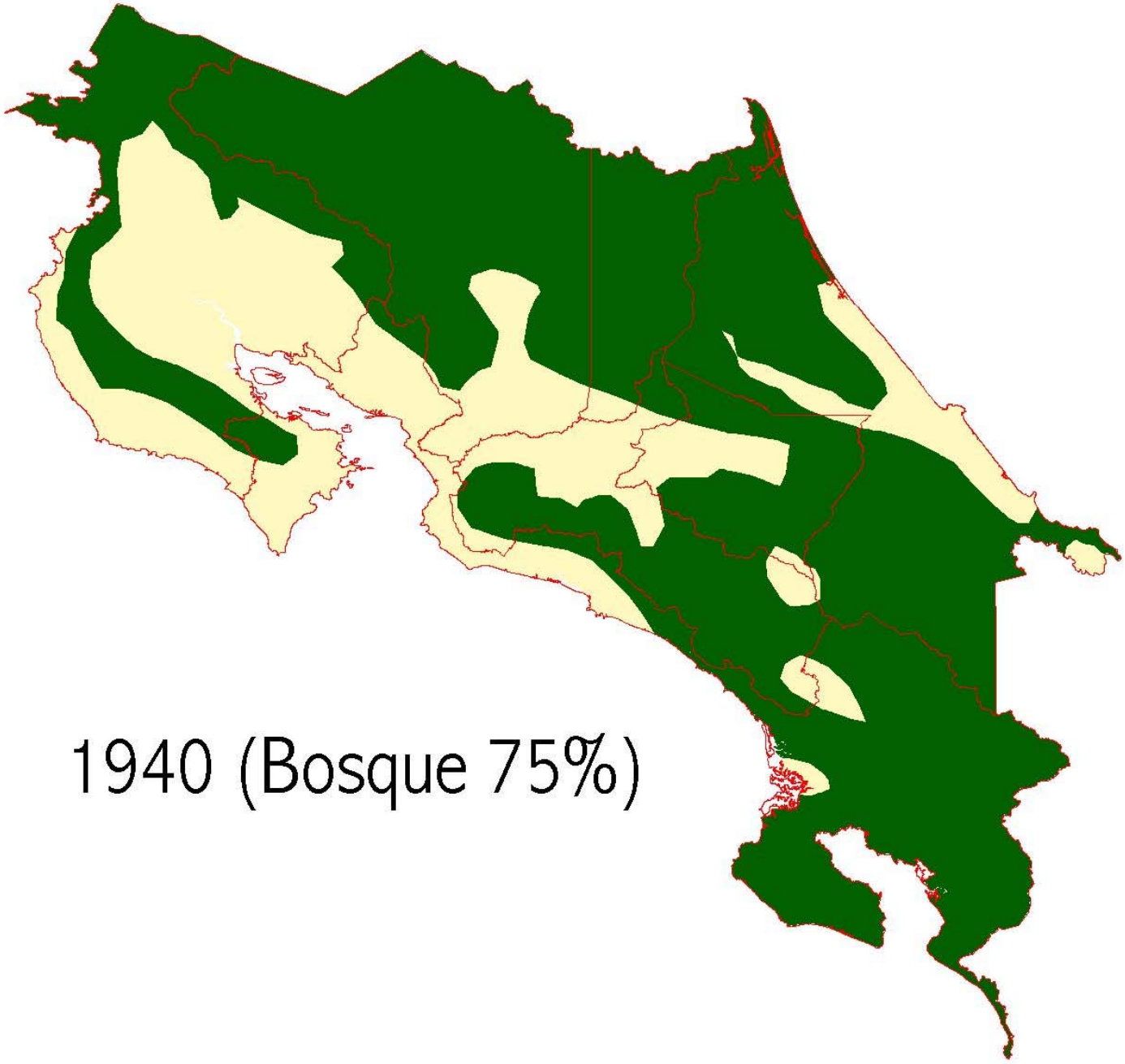

mimundo.org

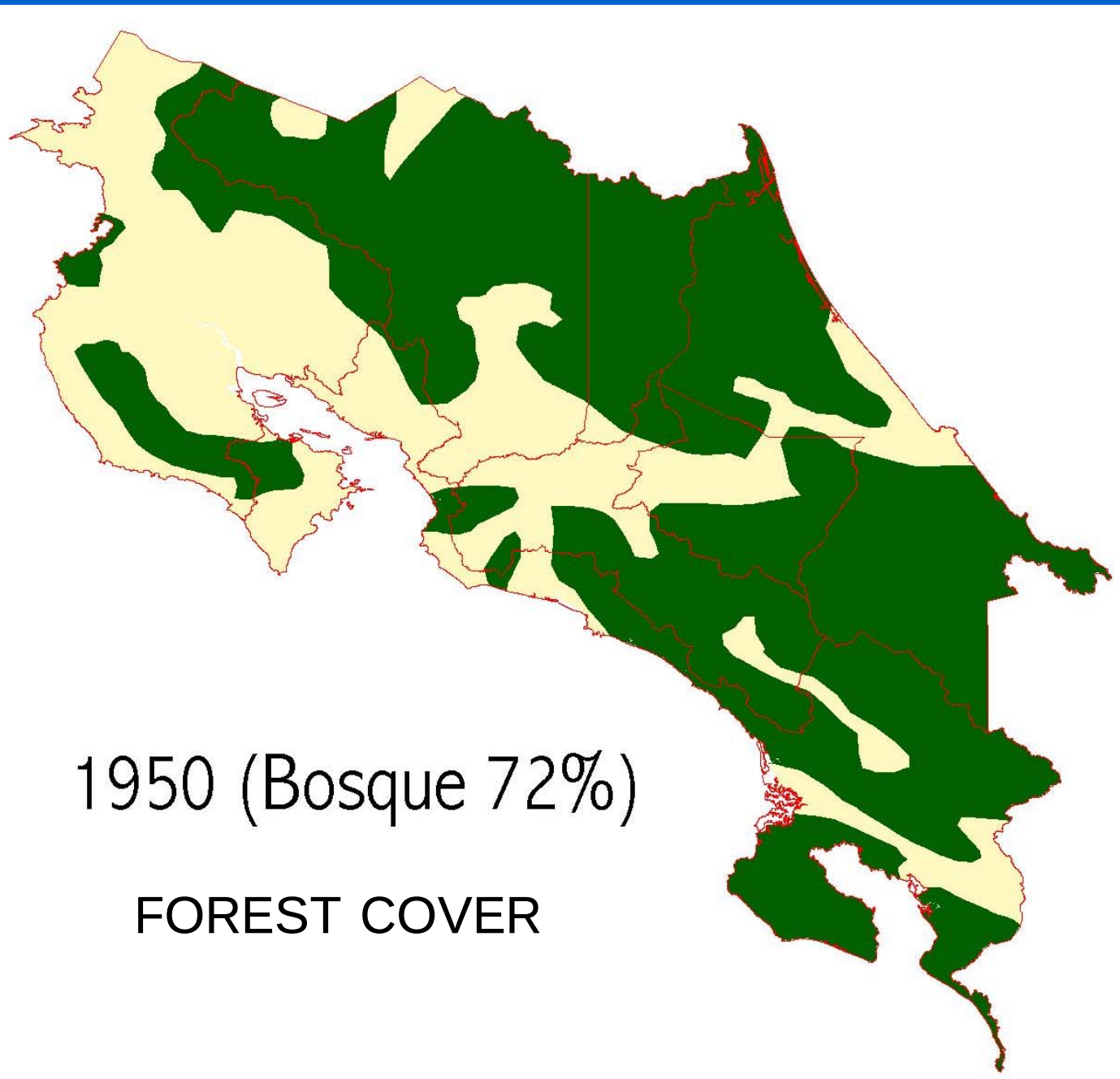


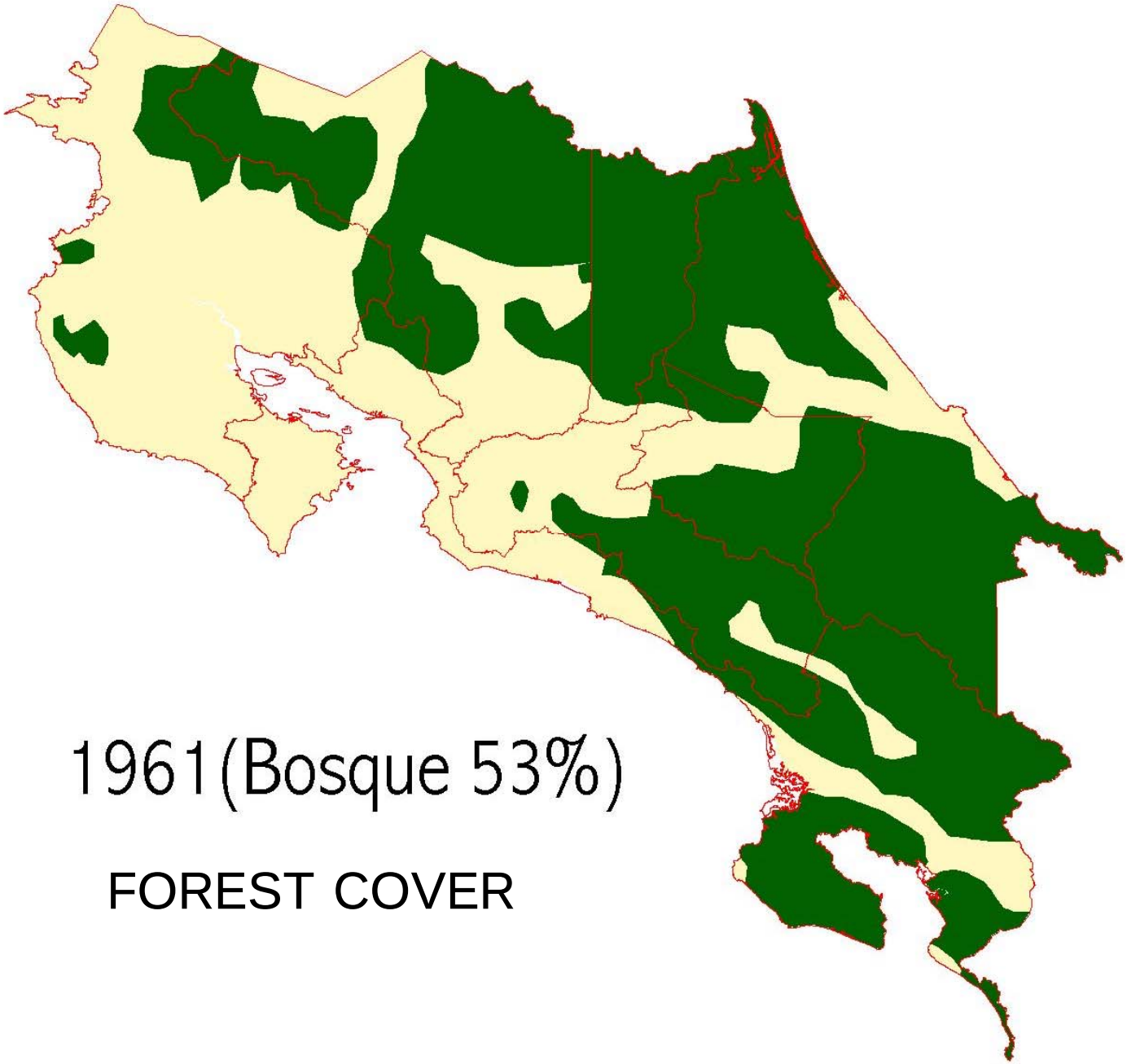

GREENPEACE

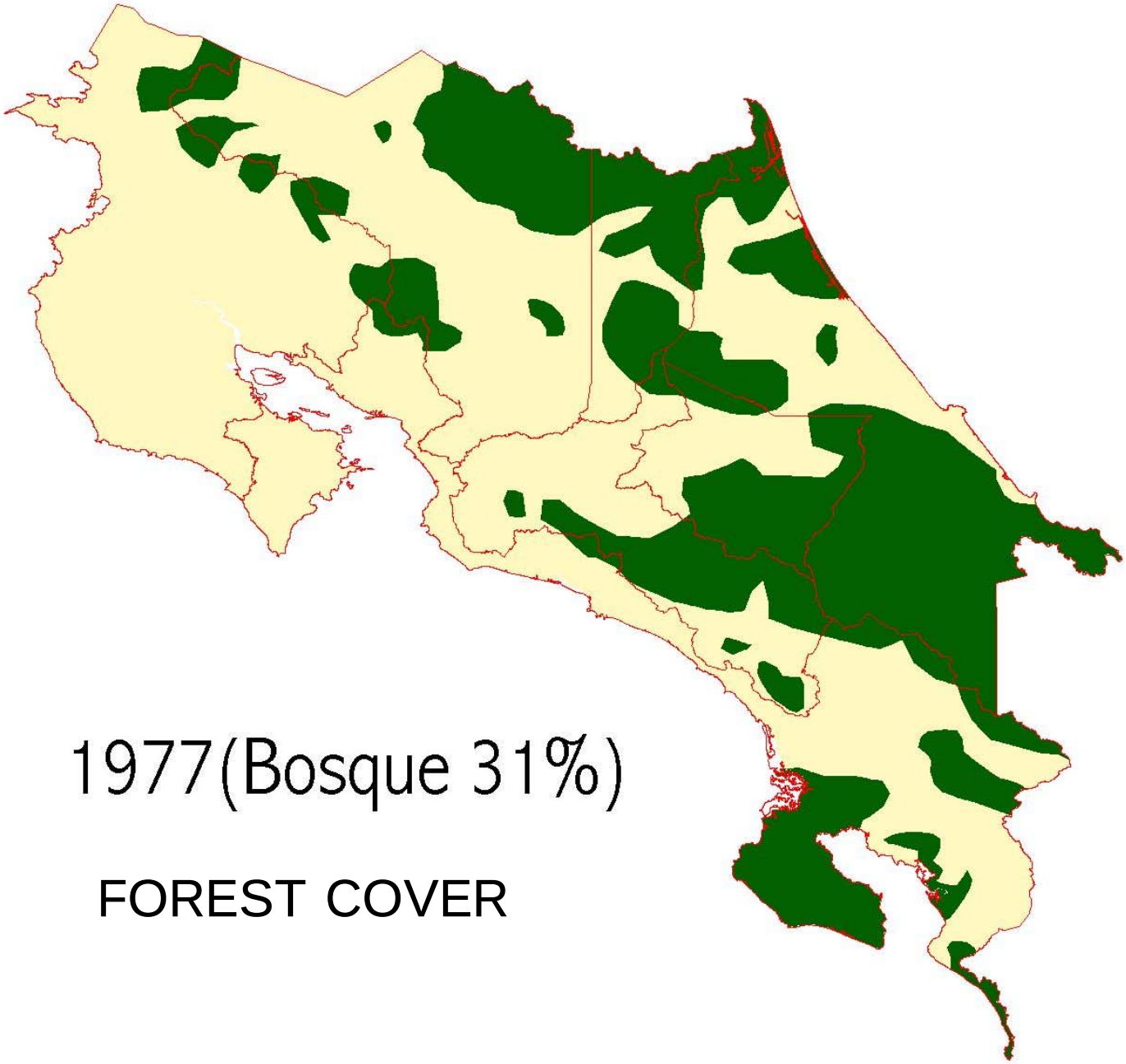

© mongabay.com

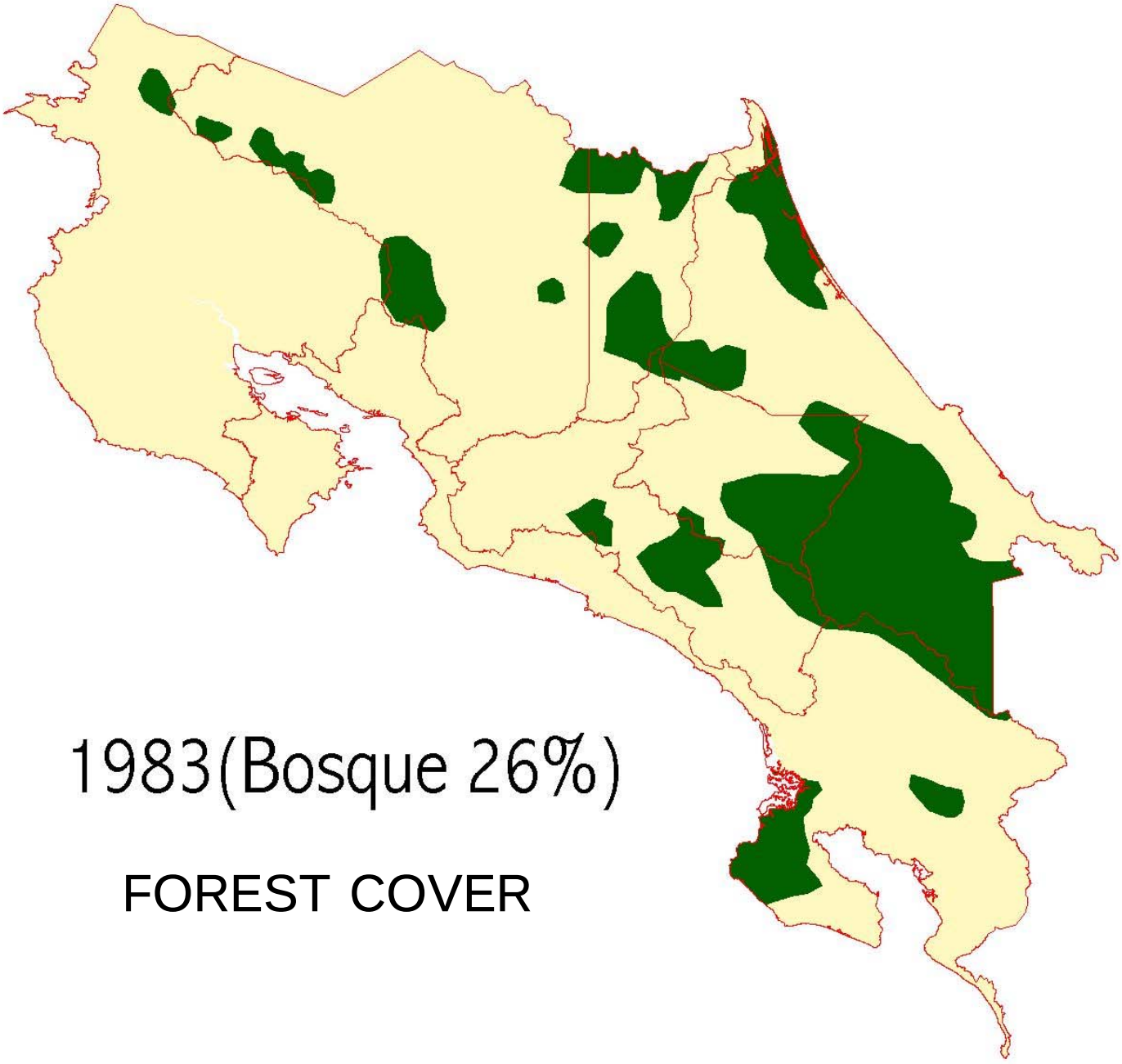

MICHELIN

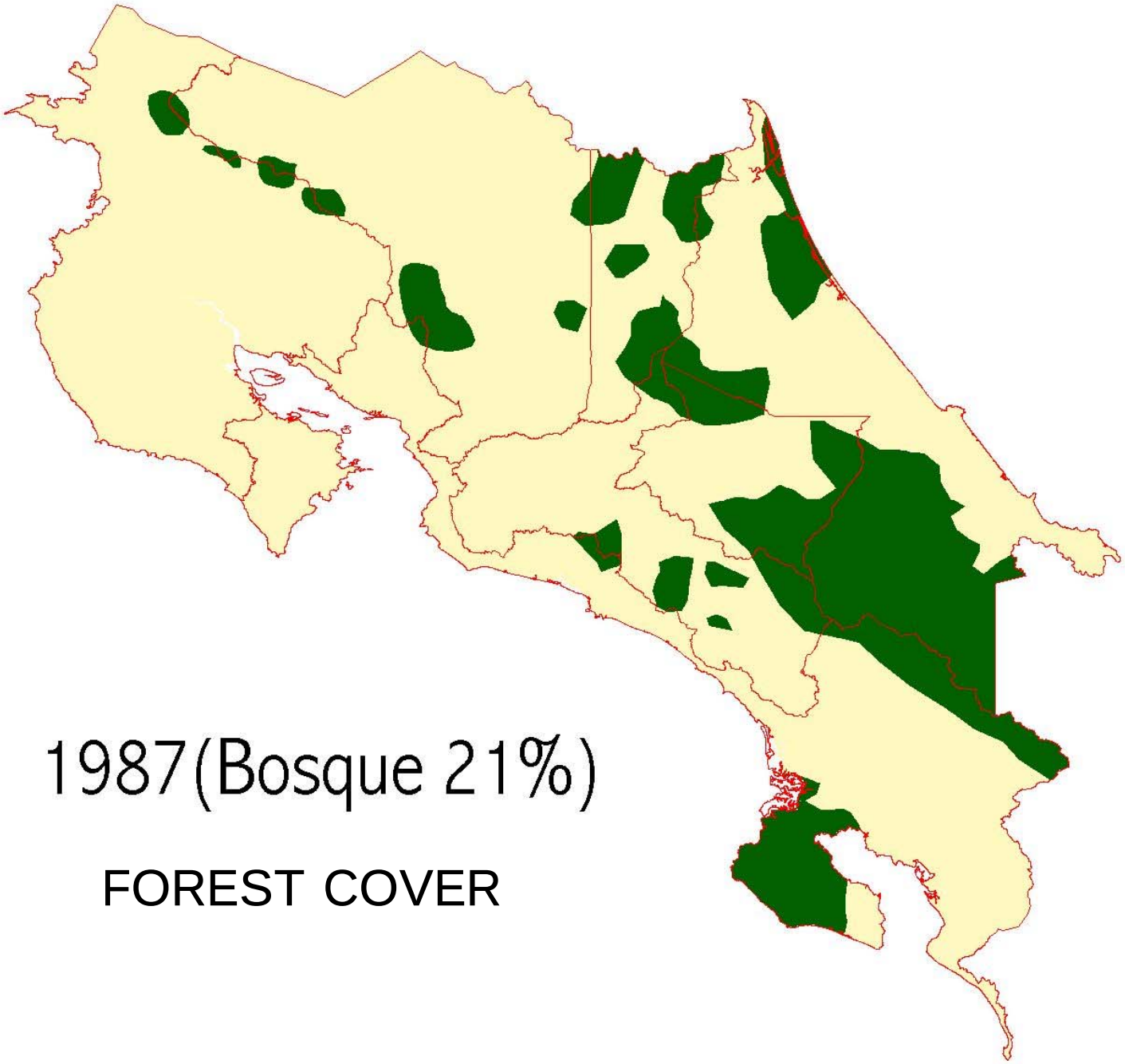

1940 (Bosque 75%)


1950 (Bosque 72%)
FOREST COVER

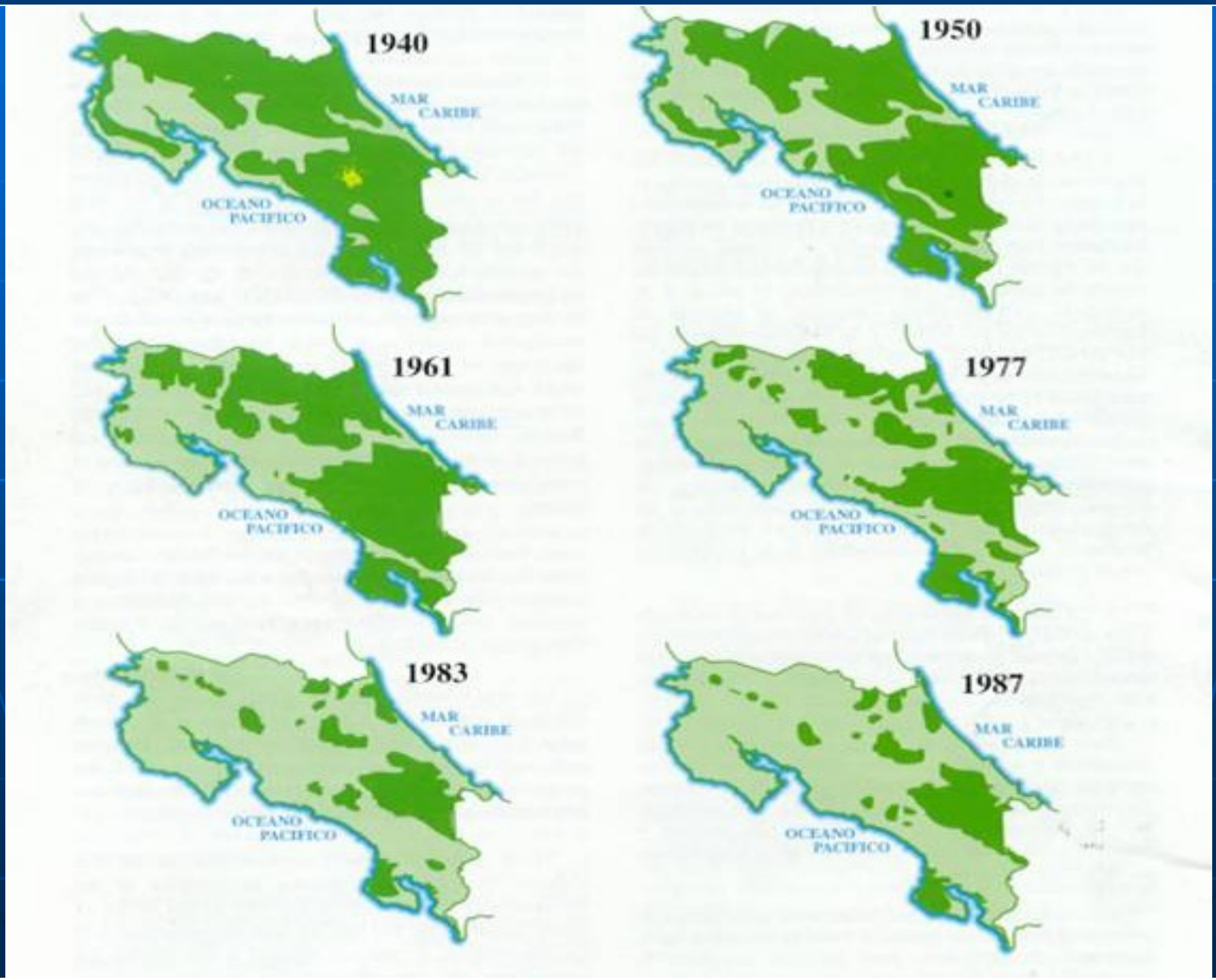

1961(Bosque 53%)
FOREST COVER


1977(Bosque 31%)
FOREST COVER


1983(Bosque 26%)
FOREST COVER


1987(Bosque 21%)
FOREST COVER

Evolution of forest cover 1940 - 1987



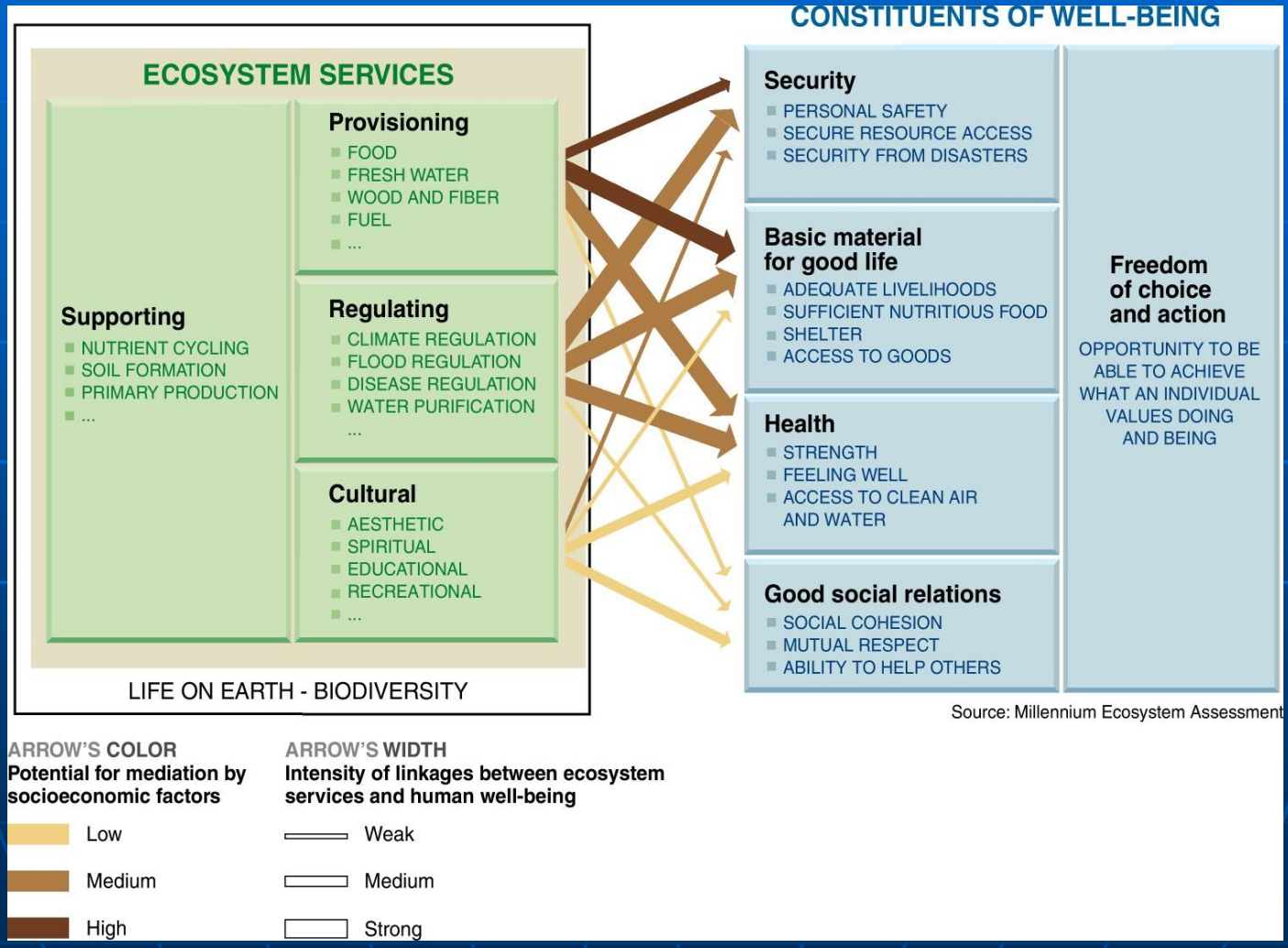
Unfortunately, conservation has not been seen as contributing to economic and social development.

Obstacles:

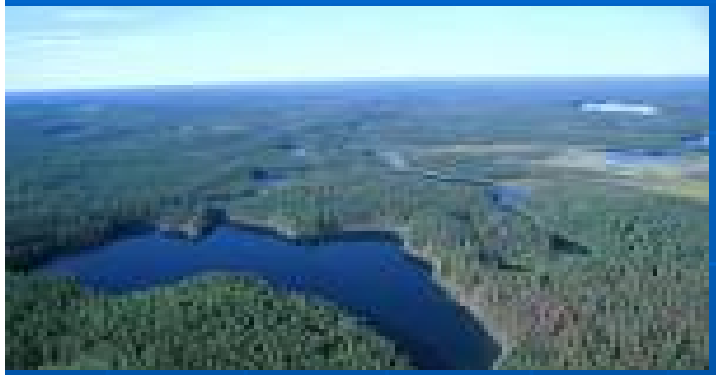
- Lack of integrated knowledge and awareness
- Hard to assign monetary value to nature's services/public good
- Short-term benefits outweigh long-term value
- Difficult to scale up successes


natural
benefits from healthy ecosystems
Food
Water
Fibers
Housing Materials
Medicines
Pollination
Carbon Storage
Waste disposal

Ecosystem Services and Human Well-Being



WHAT IS THIS ?

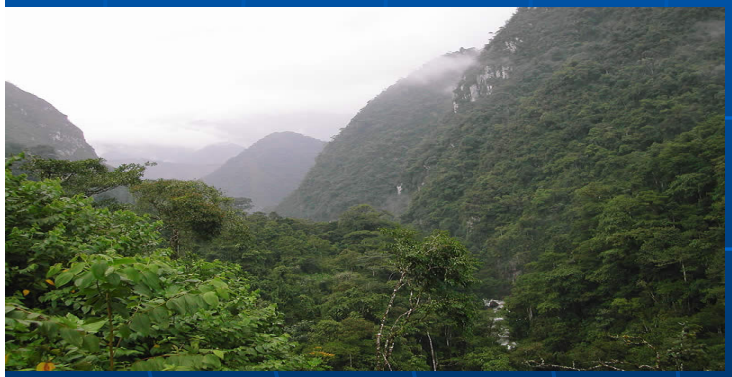


- A water factory
- A flood control
- mechanism
- A food production plant
- A pollinator system
- A fish production facility
- More than resources;

It's Systems

Not just bugs and plants;

It's Services



1995-1998 New legal and institutional framework for sustainable development policy

- 1995 General Environmental Law enacted
- 1996 New Forestry Law
- 1998 Biodiversity Law

- Sustainable development becomes a national goal by Law (Art. 50 National Constitution and Environmental law)
- Creation of the National System of Protected Areas to enhance integrated management of natural resources.
- Abolition of the change of use of forested lands
- FONAFIFO legally consolidated
- The Forest National Office was created as a dialogue mechanism among the private and public forest stakeholders
- Transformation of incentives into Environmental Services Payment as the main financial mechanism to promote forest protection and sustainable use
- Creation of a funding source for ESP (tax on fuels)

FONAFIFO

ECONOMIC VALUE

- Where economic value can be attached to the provision of these services, beneficiaries and other stakeholders can be engaged to ensure maintenance of intact ecosystems. This maintenance and value not only provides valuable economic incentives and livelihood benefits, but also provides extra resources and opportunities to engage larger sectors of the public important for conserving biodiversity

WHAT IS PES ?

- The PES is a financial instrument that fully recognize ecological services between providers and users. So, we can say its a private transaction between them, were the Government is in the middle setting policies, rules, procedures, institutional administration and the political will to internalize them.

- THE ECONOMIC VALUE OF THE DIFERENT ENVIROMENTAL SERVICES IN A COSTA RICAN OLD GROWTH FOREST IS:

- FROM $150 TO $300 PER HECT. PER YEAR

  - Tropical Science Center, 1996

Environmental Services Payment Program: Legal framework

The Forestry Law states

" Forests, forest plantations and other ecosystems provide essential services to the people and economic activities, at the local, national and global levels".

Protection of water resources for different uses

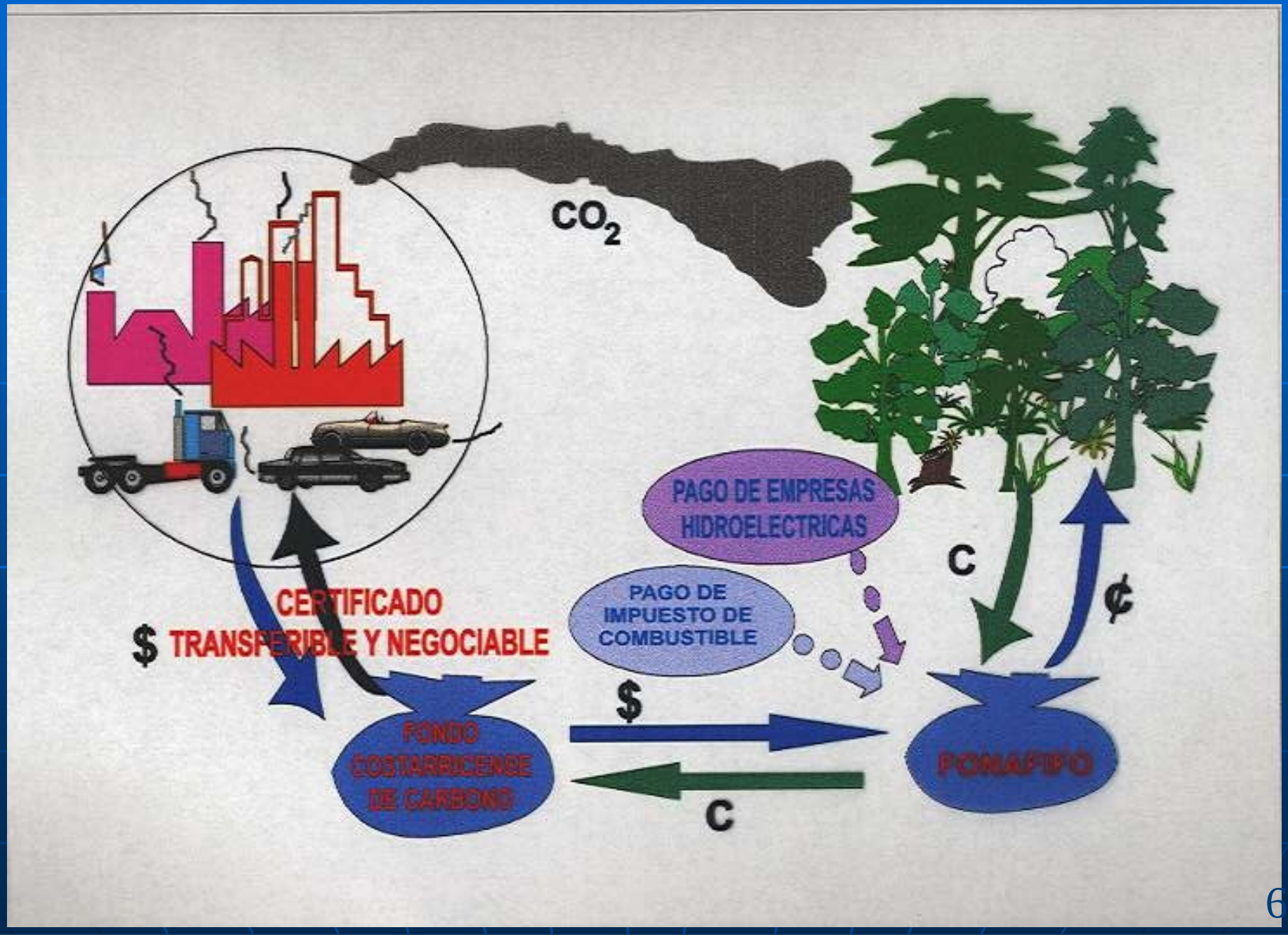
Mitigation of greenhouse effect gases and carbon fixation

Protection of biodiversity

Landscape/scenic beauty

Payment for environmental services is the mechanism implemented to pay the owners of land by the above mentioned services provided to the society

RATIONALE OF THE ESPP



Ecomarket Project goals/targets

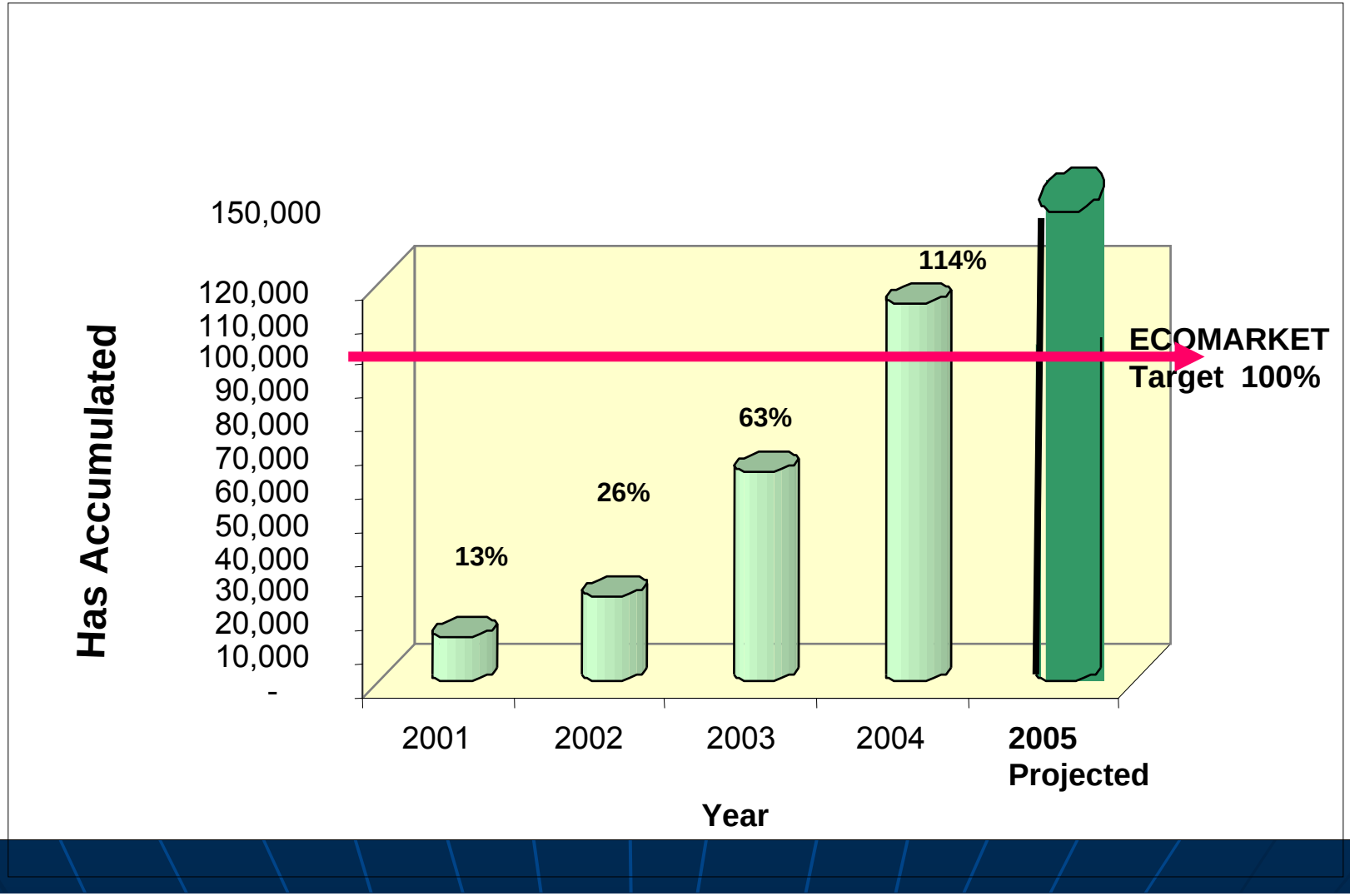
- Payments for contracted projects (+200.000 Has)
- Increase volume of existing contracts in 100.000 Has
- Increase by 30% participation of women in ESP
- Increase by 100% participation of indigenous peoples
- Strengthen FONAFIFO and SINAC institutional capacities

Ecomarkets project

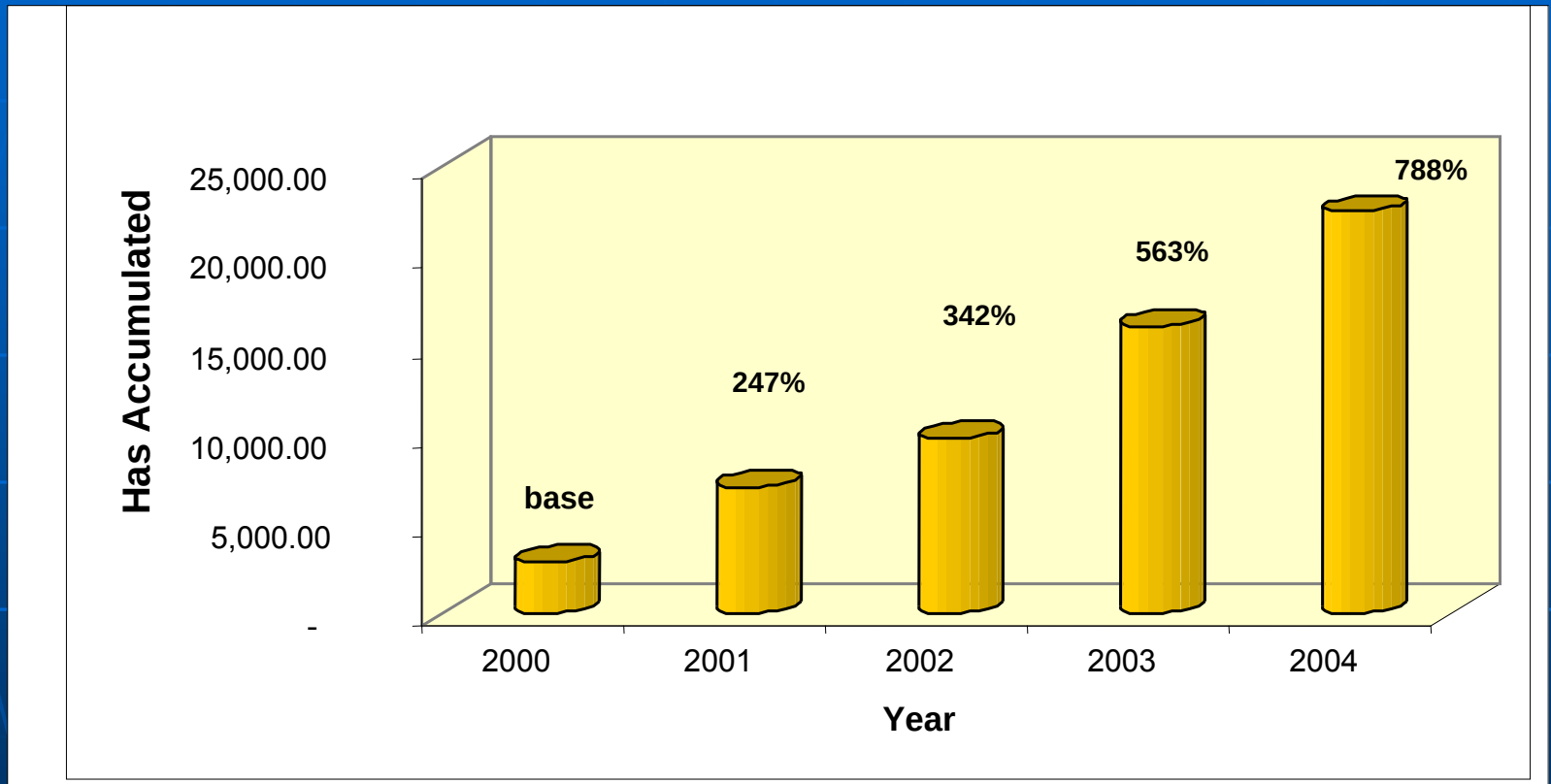
- Need to increase forest conservation and forest cover recovering by enhancing the development of private markets for environmental services provided by forests such as biodiversity protection, greenhouse emissions reduction and water resources protection.

Source of funding	$ US
BIRF 4557-CR	32,630,000
GEF 23681-CR	8,000,000
PJN 50508	302,250
Government	8,500,000
TOTAL	**49,432,250**

New Has protected by ESP



Participation of indigenous peoples

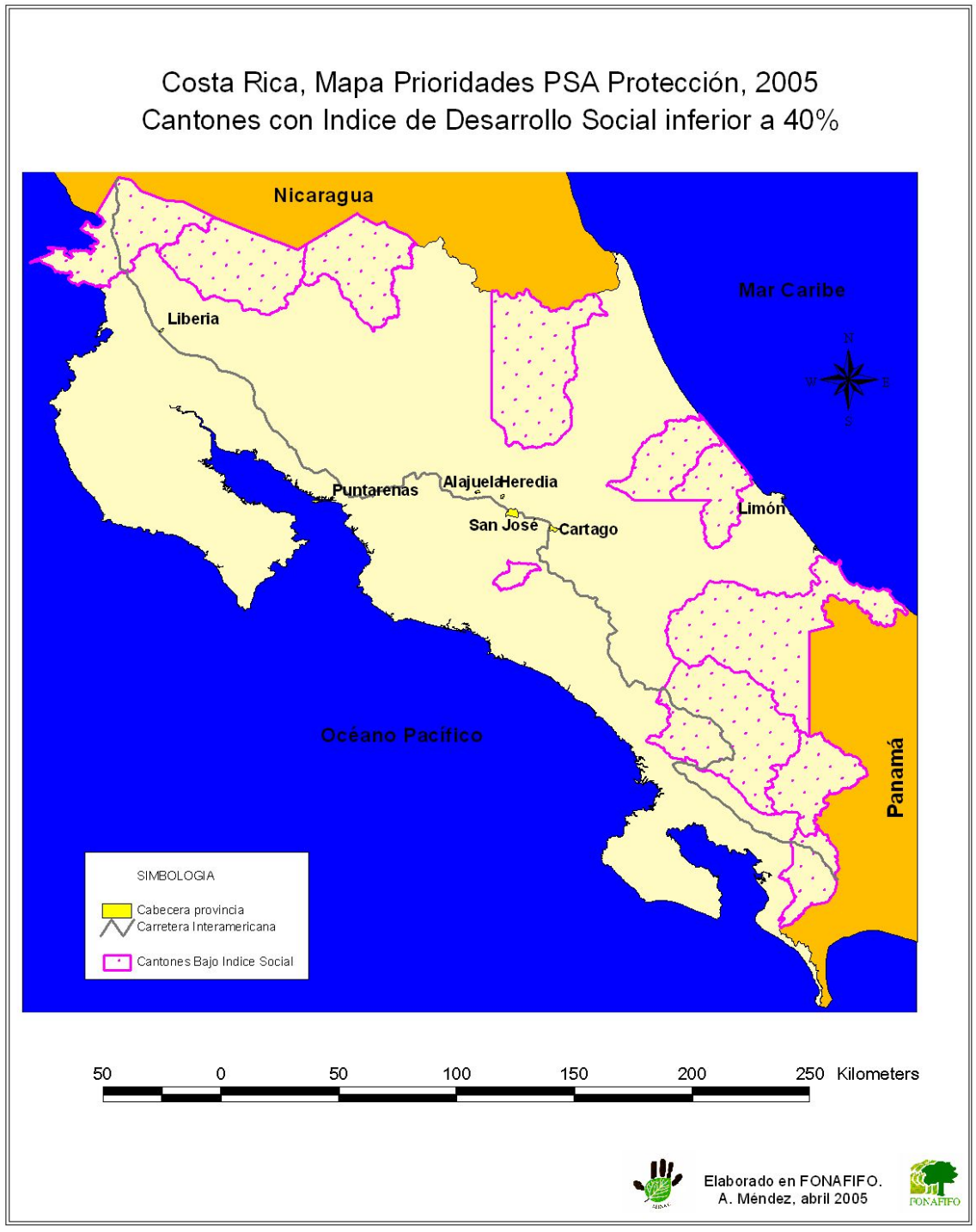


FONAFIFO

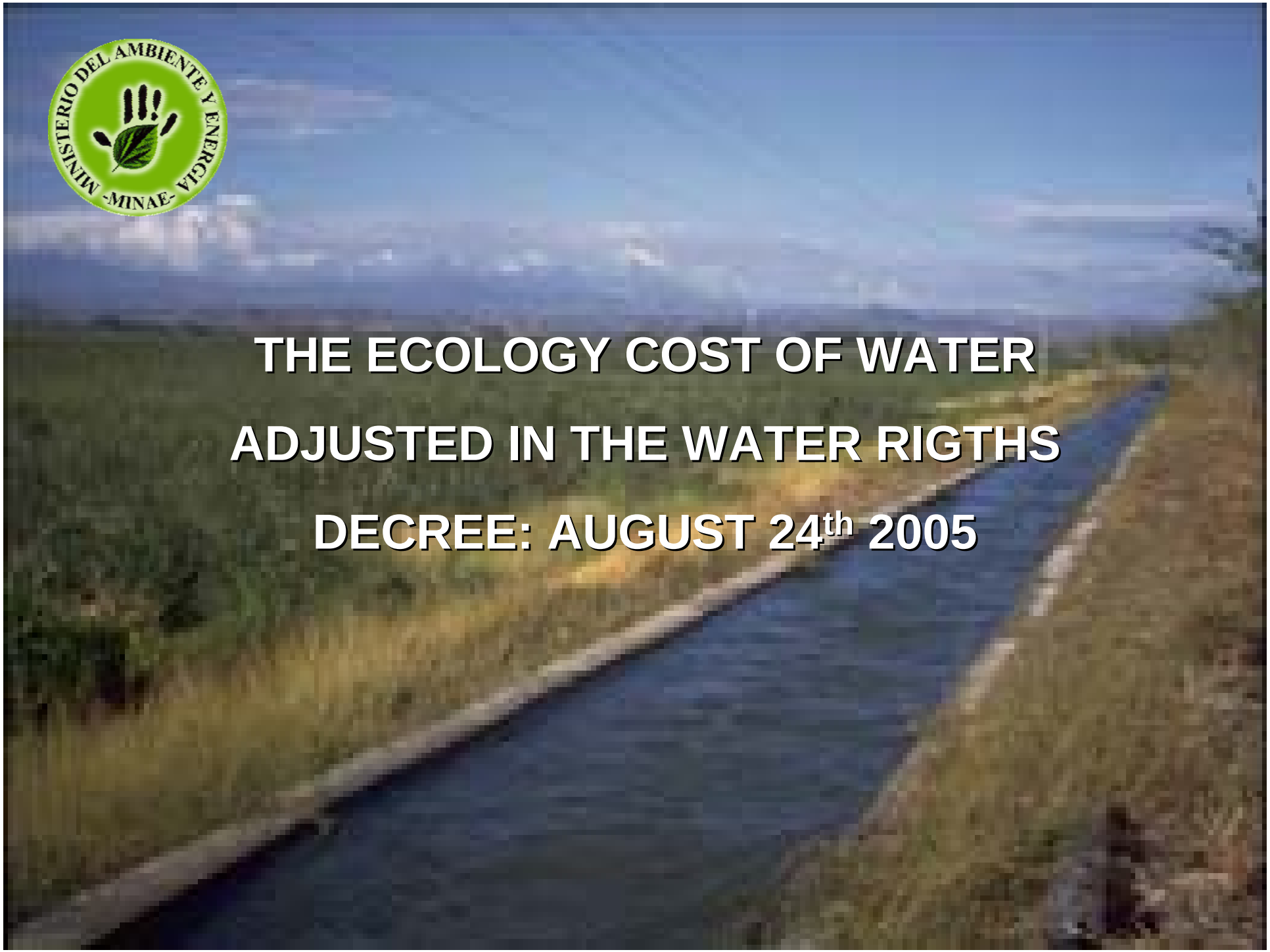

PSA Reserva Indígena


GRECIA
TEL: 494-4405


COLEGIO TELESECUNDARIA BOCA CUEN TJAi



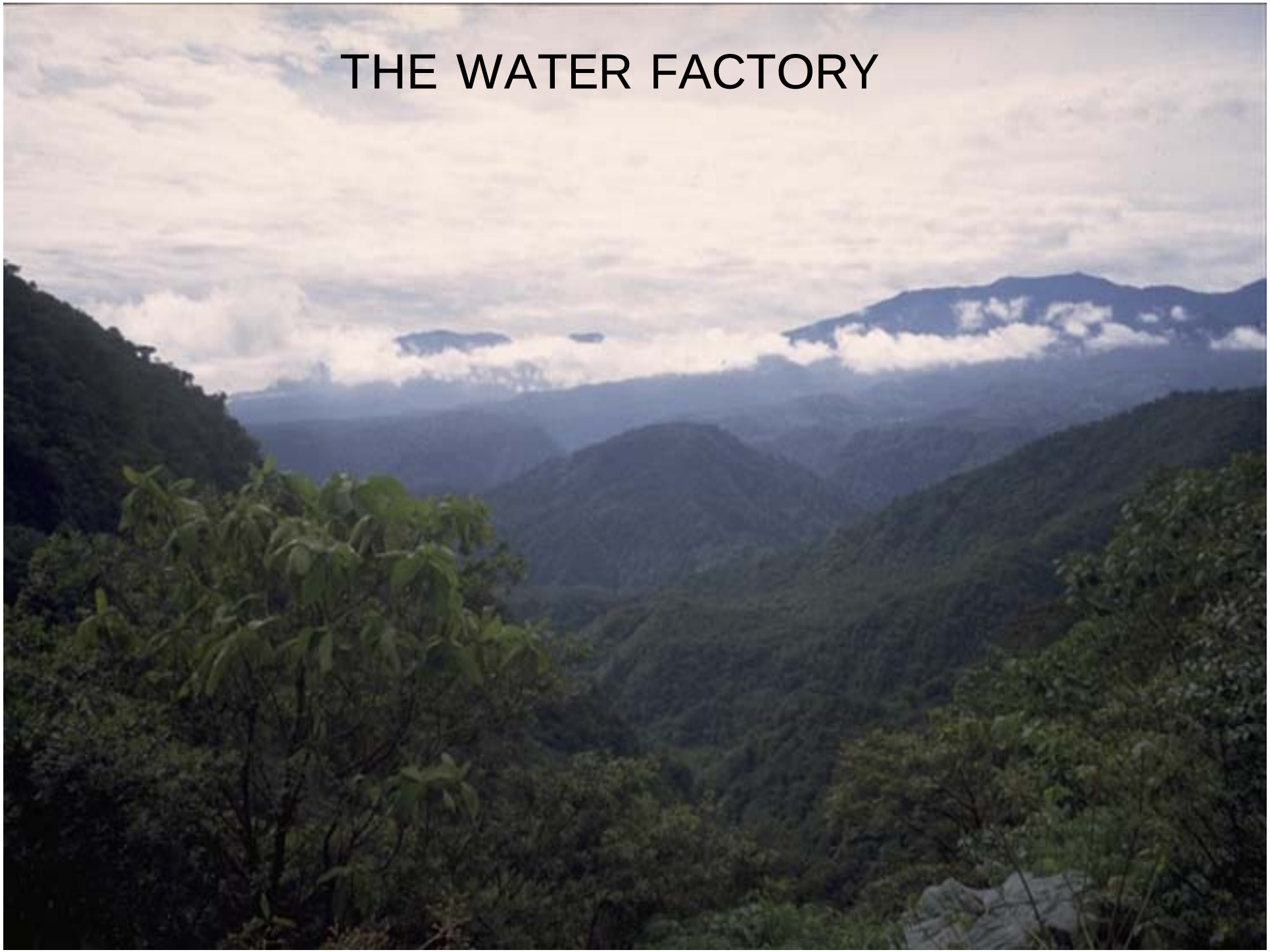
Low Social Development Index Populations (Less than 40%)



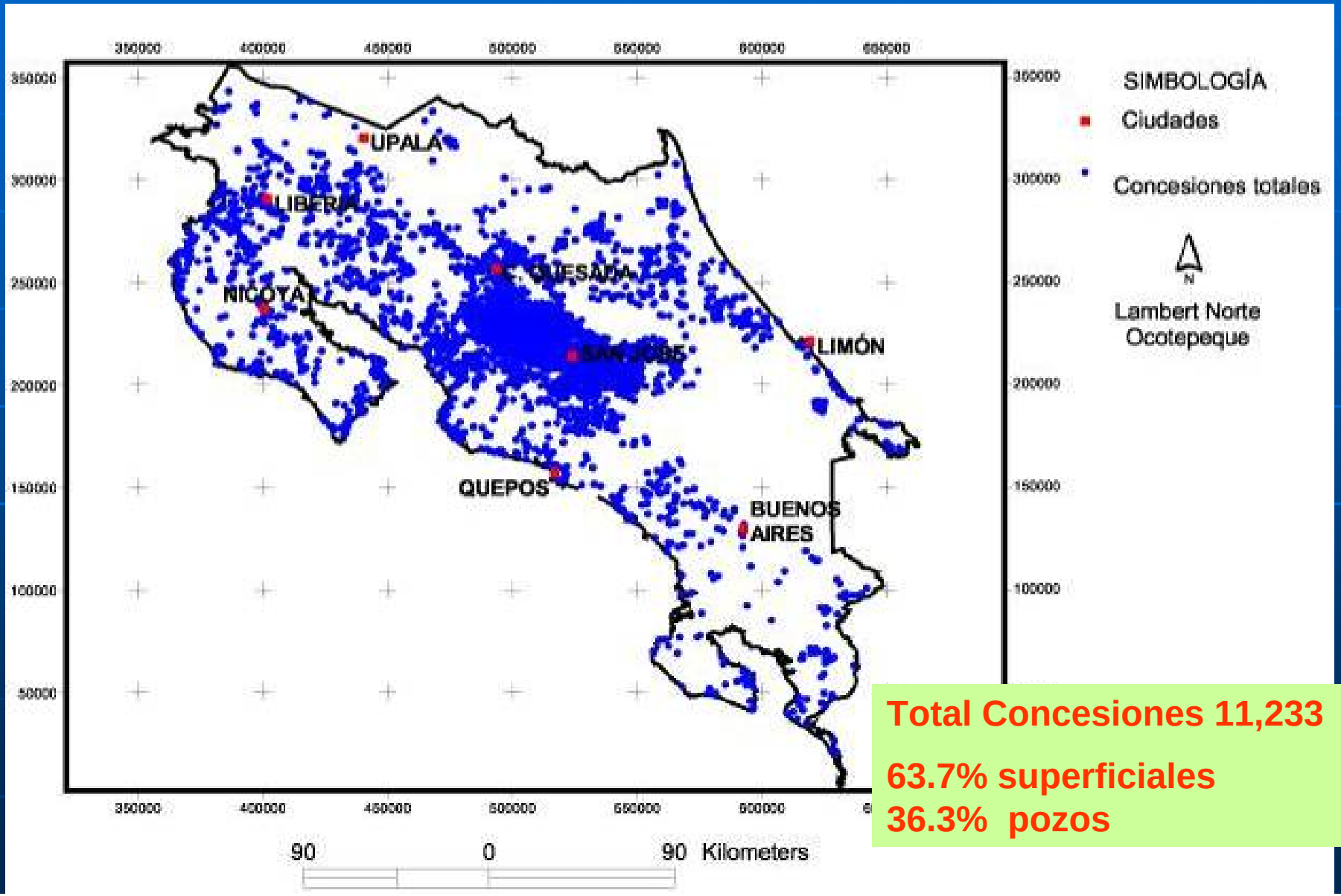
THE ECOLOGY COST OF WATER ADJUSTED IN THE WATER RIGTHS

DECREE: AUGUST 24th 2005


MINISTERIO DEL AMBIENTE Y ENERGIA
-MINAE-


THE WATER FACTORY

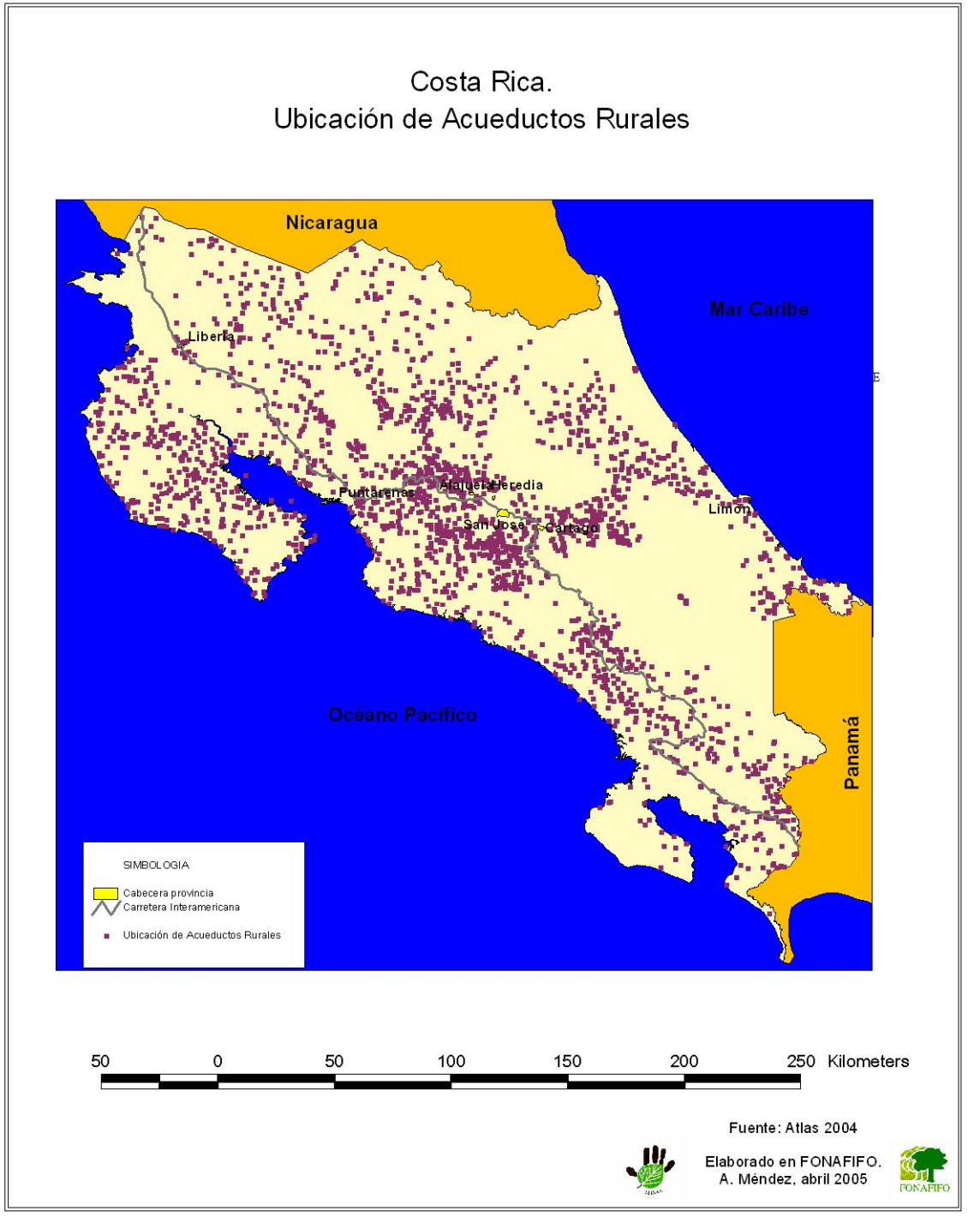
Internalización Servicio Ambiental
Protección del Recurso Hídrico



Total Concesiones 11,233

63.7% superficiales
36.3% pozos

Rural water Supply system



MAYOR USERS OF WATER

Uso	Concesiones	%	Vol. Total m3	%
Fuerza hidráulica	174	1.5	11168689277	68.72
Riego	2656	23.6	3559261626	21.90
Agropecuario	2363	21	841641751	5.18
Consumo humano	4261	37.9	235879112	1.45
Industrial	545	4.9	173966485	1.07
Agoindustria	393	3.5	148903557	0.92
Turismo	741	6.6	118913097	0.73
Comercial	100	0.9	5836199	0.04
Total	11233	99.9	16253091104	100.01

.ENERGY AND AGRICULTURE : 95% OF WATER CONCESSIONS.

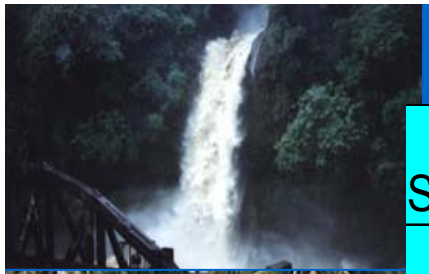
Value of Water Concessions

Decreto 26635-MINAE - Enero 1998

Sector	Canon (colones por metro cúbico anual) Superficial	Subterráneo
Doméstico	0.5177 $ 0.0010354	0.7187 $ 0.0014374
Poblacional	0.0088 $ 0.0000176	0.0109 $ 0.0000218
Hidroeléctrico (fuerza hidráulica)	0.0001 $ 0.0000002	NA $
Industrial	0.0252 $ 0.0000504	0.1928 $ 0.0003856
Riego	0.0169 $ 0.0000338	0.1304 $ 0.0002608
Otros usos	0.0075 $ 0.000015	0.3224 $ 0.0006448
Promedio	0.0007 $ 0.0000014	0.1128 $ 0.0002256

Adjusted value

(1) Uso	(2) Canon (colones por metro cúbico anual) Agua Superficial	Agua Subterránea
Consumo Humano	1.46 $ 0.00292	1.63 $ 0.00326
Industrial	2.64 $ 0.00528	3.25 $ 0.0065
Comercial	2.64 $ 0.00528	3.25 $ 0.0065
Agroindustrial	1.90 $ 0.0038	2.47 $ 0.00494
Turismo	2.64 $ 0.00528	3.25 $ 0.0065
Agropecuaria	1.29 $ 0.00258	1.40 $ 0.0028
Acuicultura	0.12 $ 0.00024	0.16 $ 0.00032
Fuerza Hidráulica	0.12 $ 0.00024	-
PROMEDIO	1.60 $ 0.0032	2.2014 $ 0.



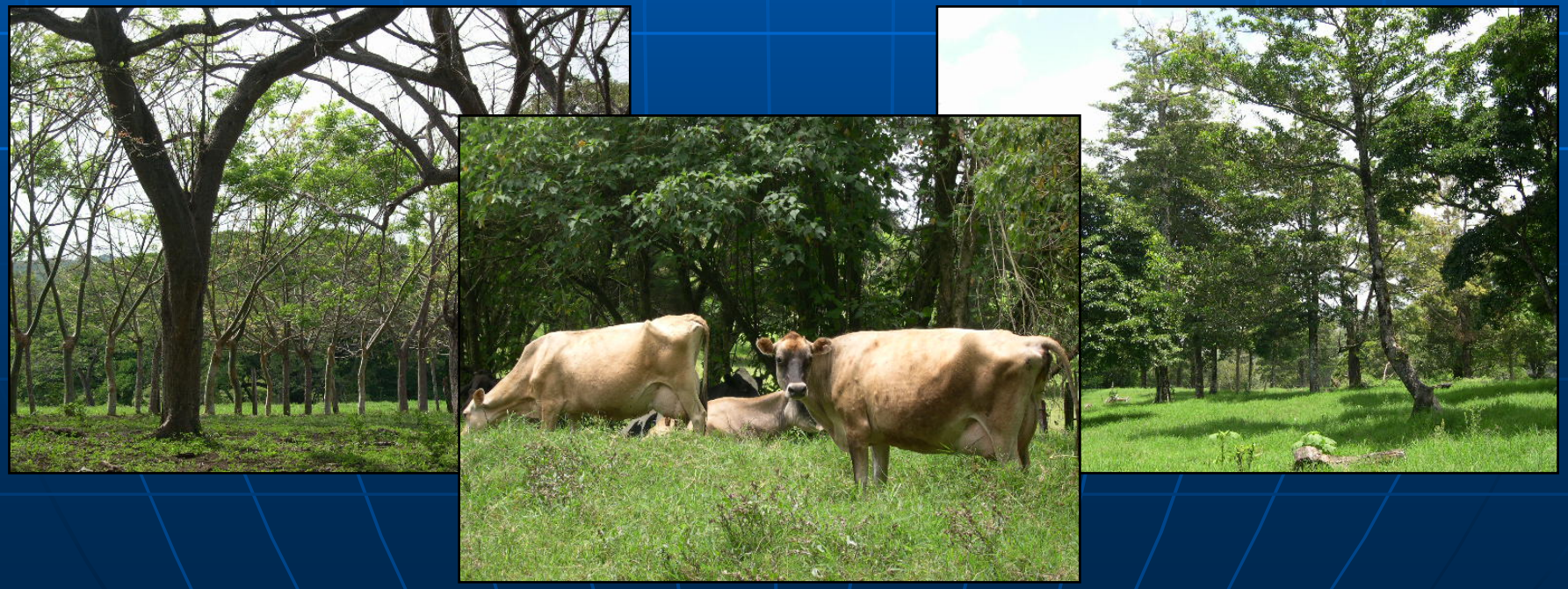


Sector	Canon (colones por metro cúbico anual)			
	Superficial		Subterráneo	
	Anterior	CAA *	Anterior	CAA *
Doméstico	0.5177	2,46	0.7187	2,63
Poblacional	0.0088	2,46	0.0109	2,63
Hidroeléctrico (fuerza hidráulica)	0.0001	0,12	NA	NA
Industrial	0.0252	3,64	0.1928	4,25
Turístico	0.0252	3,64	0,1928	4,25
Agropecuario	0.0169	1,29	0.1304	1,40
Riego Distrito Arenal	0,0169	0,12	NA	NA
Usos no consuntivos				
Ingenio, Enfriar, Acuacultura	0,0252 0,0169	0,12	0,1928 0,1304	0,16

Canon Anterior Decreto 26635-MINAE Enero-98
Ingresos para el año 2005: $250 mil

CAA: Canon Ambientalmente Ajustado, Decreto Enero 2006. Ingresos para el año 2012, $10 millones

Need to invest: in restauration and good uses of land for water conservation

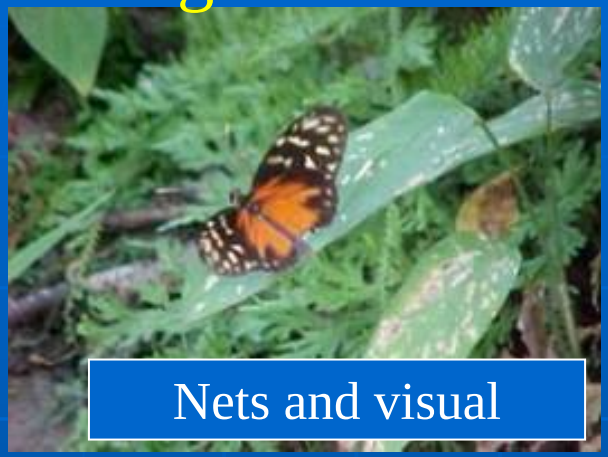


Opportunities for biodiversity conservation in agricultural landscapes in Central America: lessons from the FRAGMENT project

Celia A. Harvey
F.L. Sinclair, M. Ibrahim, J. Sáenz, C. Villanueva, R. Gómez, M. López, J. Montero, J. González, A. Medina, D. Sánchez, S. Vilchez, B. Hernández, and S. Kunth

on-farm tree cover for biodiversity conservation?

Organisms studied



Data collected: abundance, richness of species

Taxa monitored in 8 land use types

“La Ramada” Farm - Iván Gutierrez

Uso_2004	Length_met	Uso_descri
16	8442.578	CV-MULTI-ES
8	8504.247	CV

CERCAS VIVAS 2004

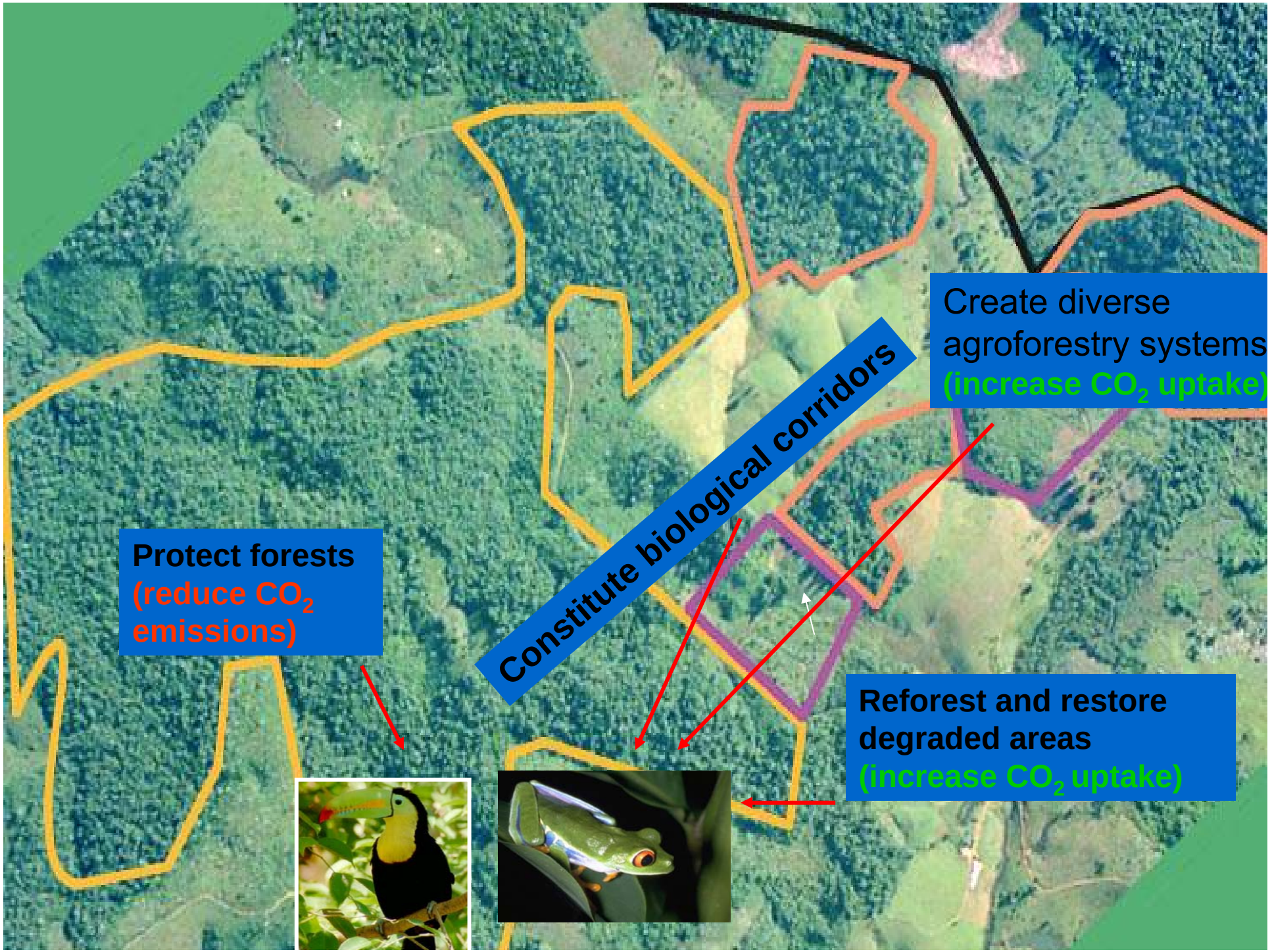
LA RAMADA
IVÁN GUTIERREZ

N

40 0 40 80 Meters

Our goal = to convert degraded pastoral landscapes to silvopastoril systems with a diverse tree component that can potentially benefit both farm production and biodiversity conservation

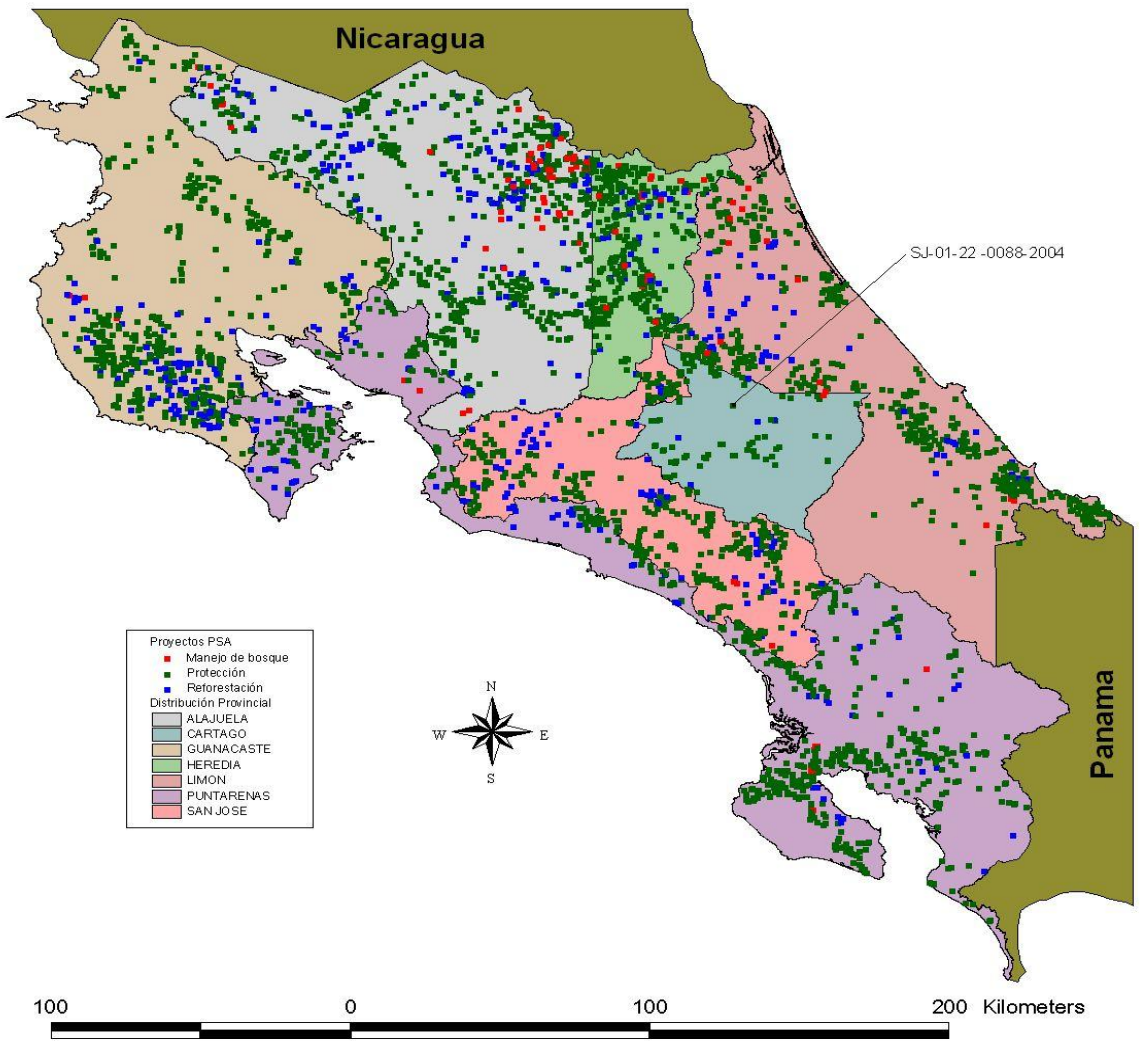
(Gobbi, 2005)


Create diverse agroforestry systems (increase CO_2 uptake)
Constitute biological corridors
Protect forests (reduce CO_2 emissions)
Reforest and restore degraded areas (increase CO_2 uptake)

PES in 1998


Costa Rica
Ubicación de proyectos PSA 1998
Nicaragua
Mar Caribe
Liberia
Puntarenas
Alajuela
Heredia
San José
Cartago
Limón
Océano Pacífico
Panamá
50 0 50 100 150 200 250 Kilometers
Elaborado en FONAFIFO.
A. Méndez, abril 2005

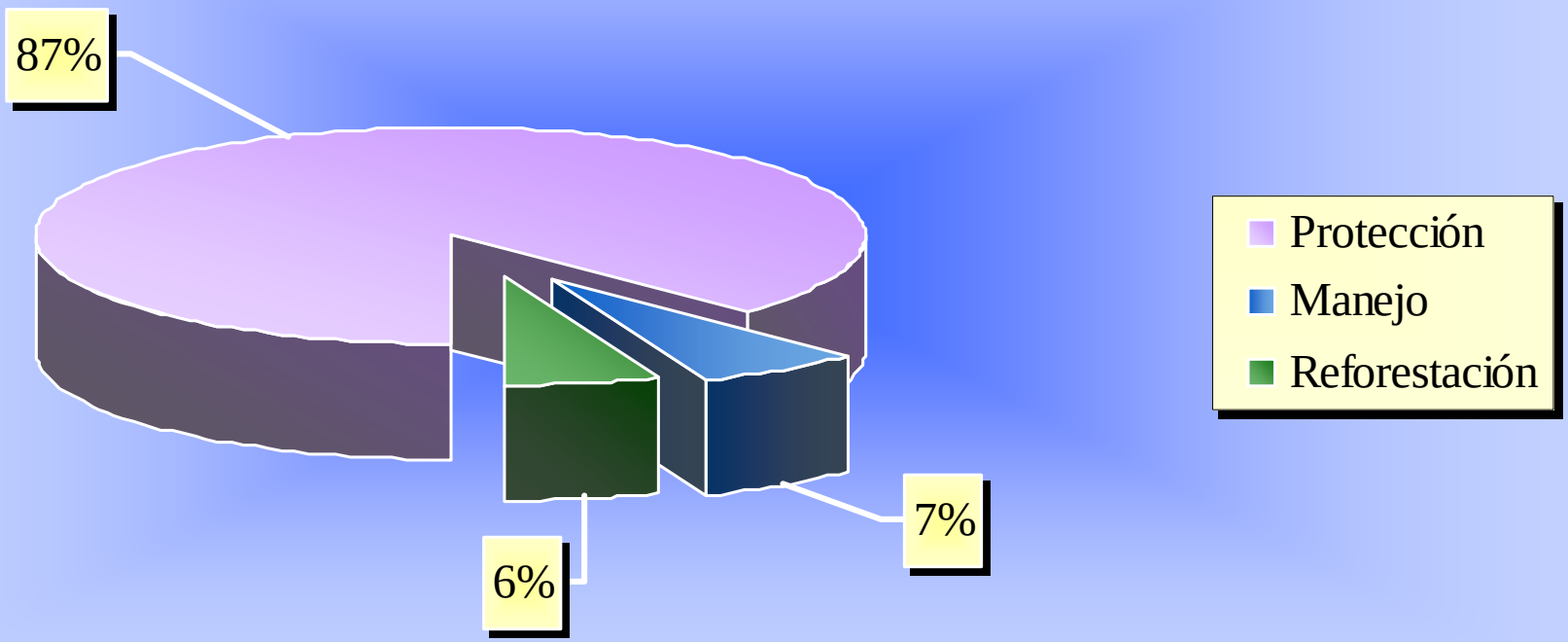
Costa Rica, Ubicación de proyectos PSA



Elaborado en FONAFIFO
A. Méndez, julio 2007

520 mil hectáreas con PSA entre 1997 - 2006

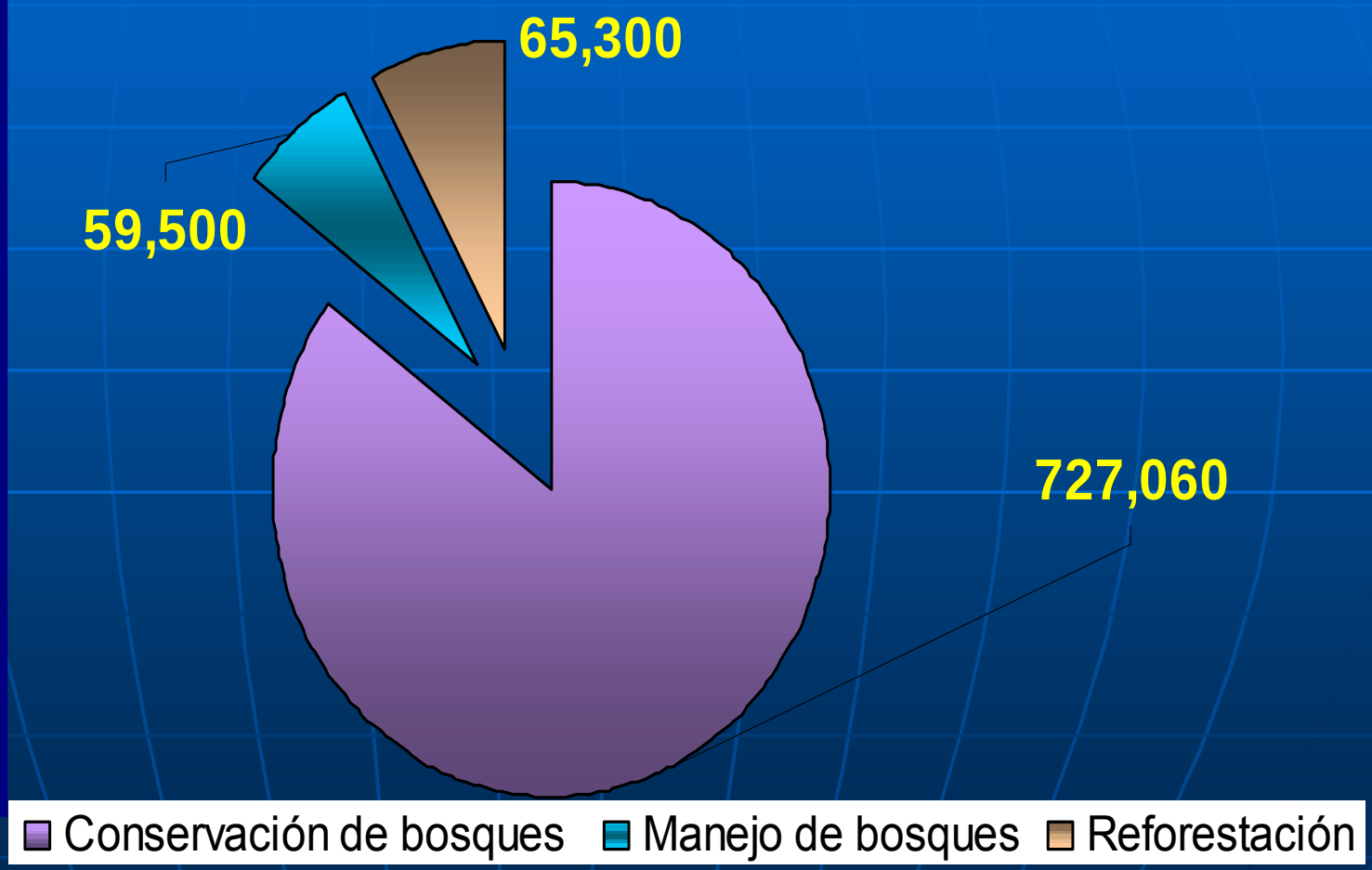
Distribución Historica Pago de Servicios Ambientales por Modalidad (1997-2006)



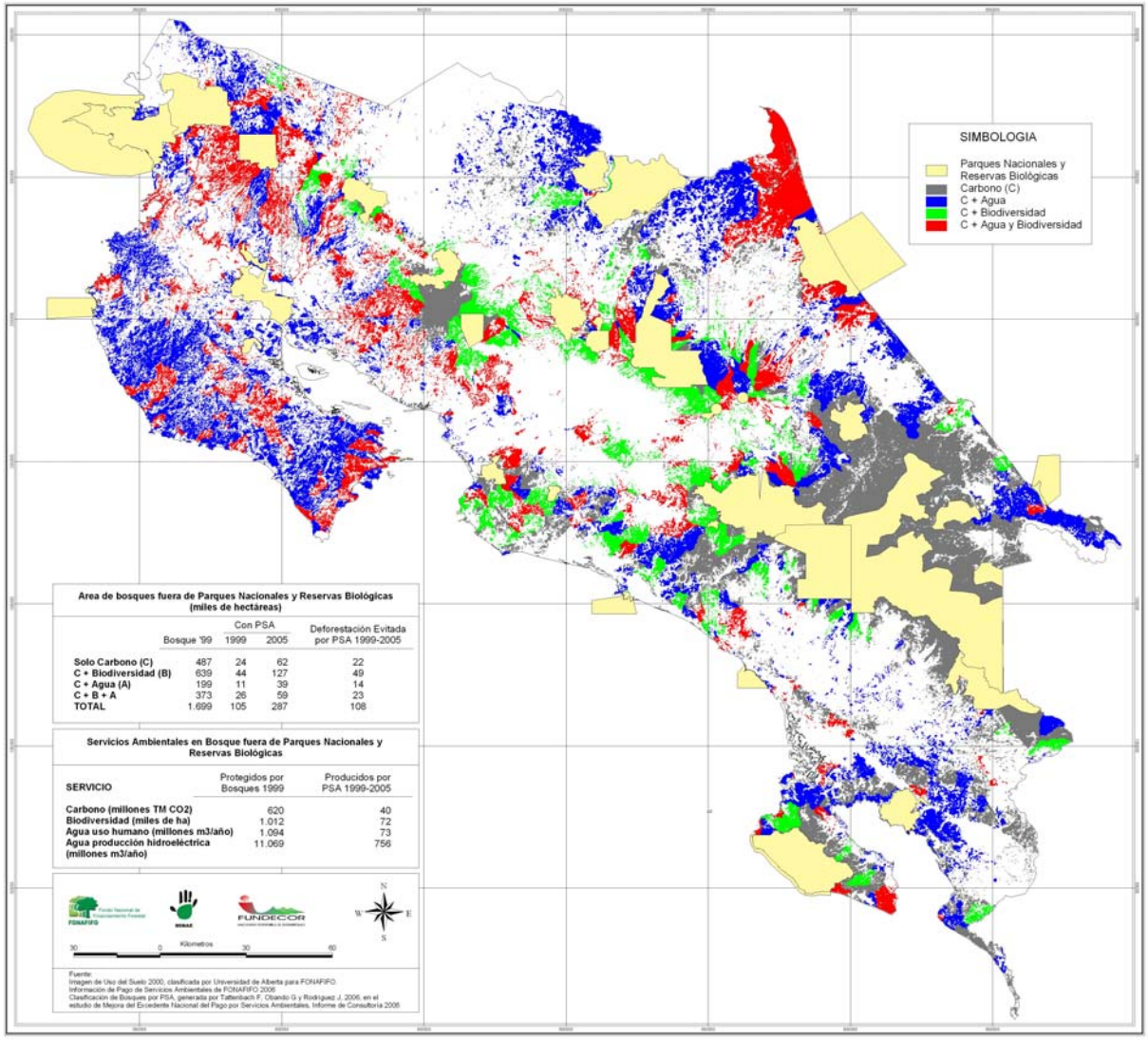
Más de 7500 pequeños y medianos productores

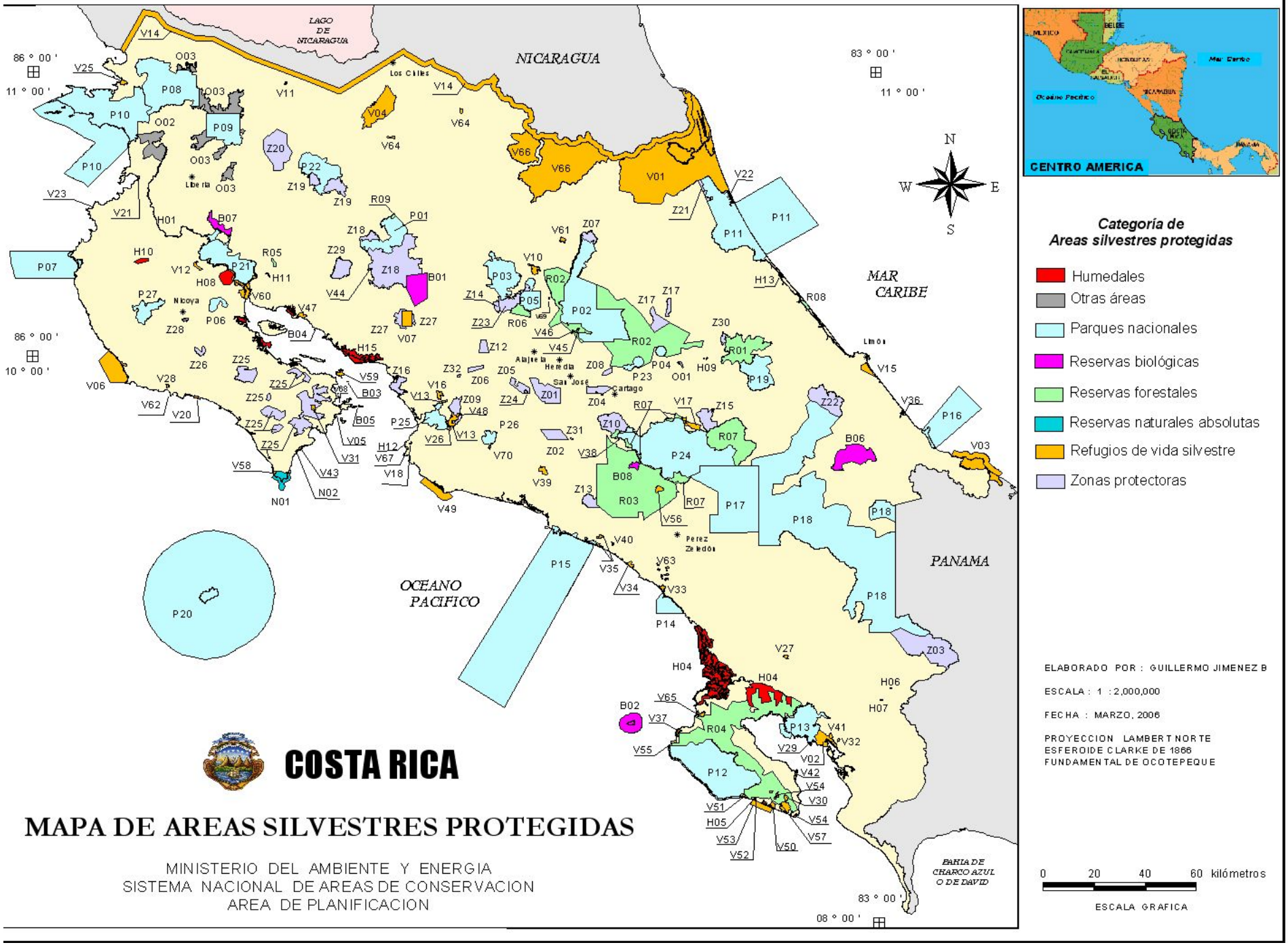
Para satisfacer la oferta en los próximos 5 años, se requiere una inversión de 214 millones de dólares (72 mil millones de colones) solo para recuperar y proteger una fracción según capacidad de uso

OFERTA PARA PSA EN Has PARA LOS PROXIMOS 5 AÑOS



BOSQUES 2000 FUERA DE PARQUES NACIONALES y RESERVAS BIOLOGICAS SEGUN TIPO DE SERVICIOS AMBIENTALES





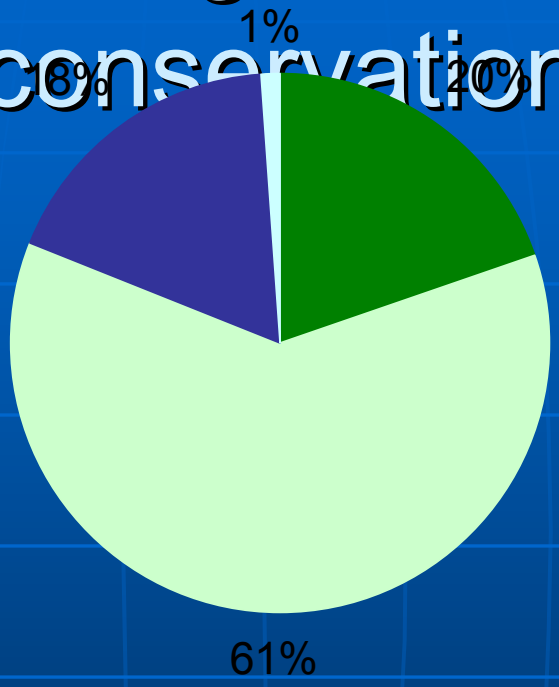
COSTA RICA

MAPA DE AREAS SILVESTRES PROTEGIDAS

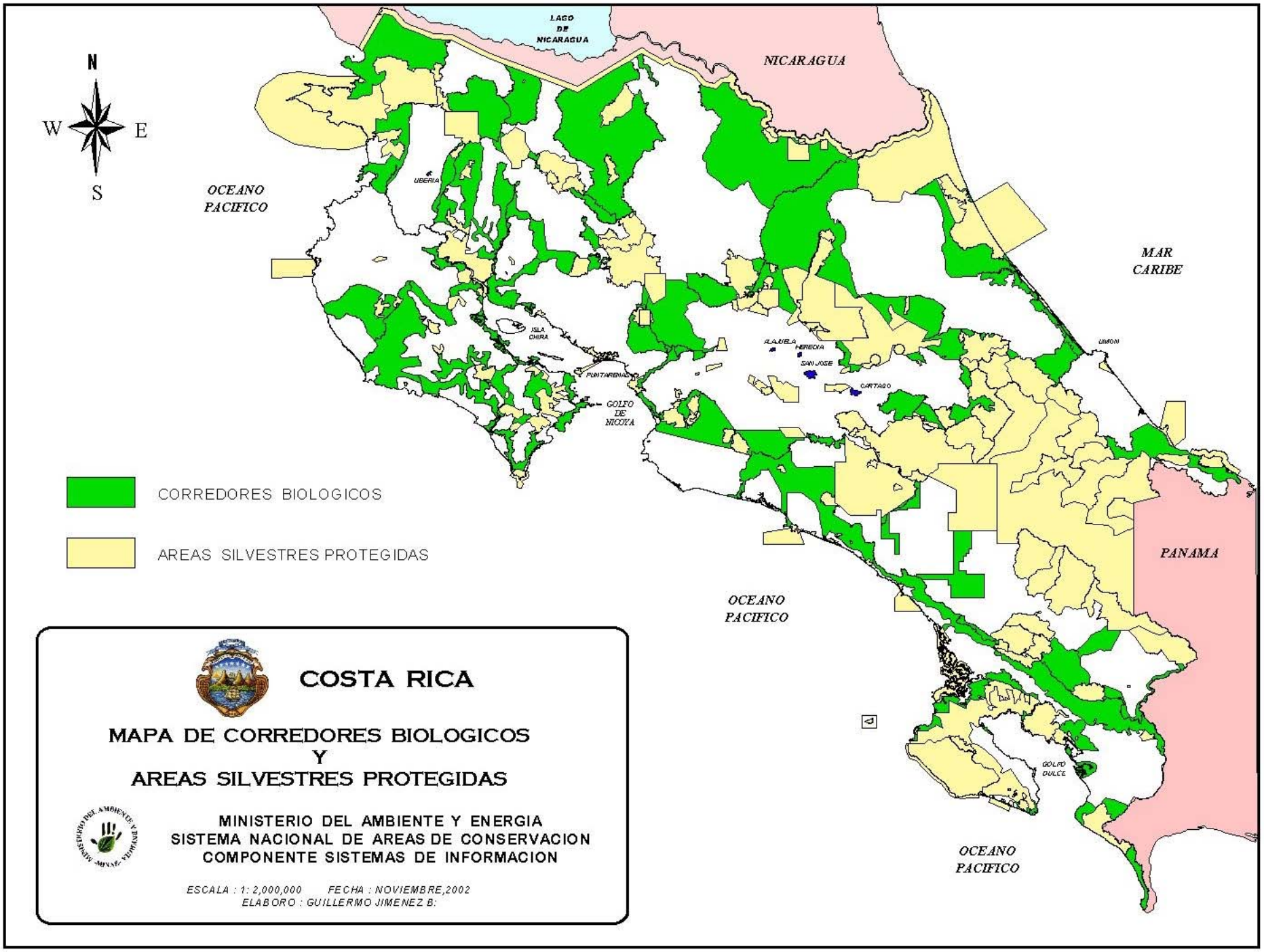
MINISTERIO DEL AMBIENTE Y ENERGIA
SISTEMA NACIONAL DE AREAS DE CONSERVACION
AREA DE PLANIFICACION

Threatened species not well conserved at the site scale alone

Percentages of globally threatened species requiring different scales of conservation

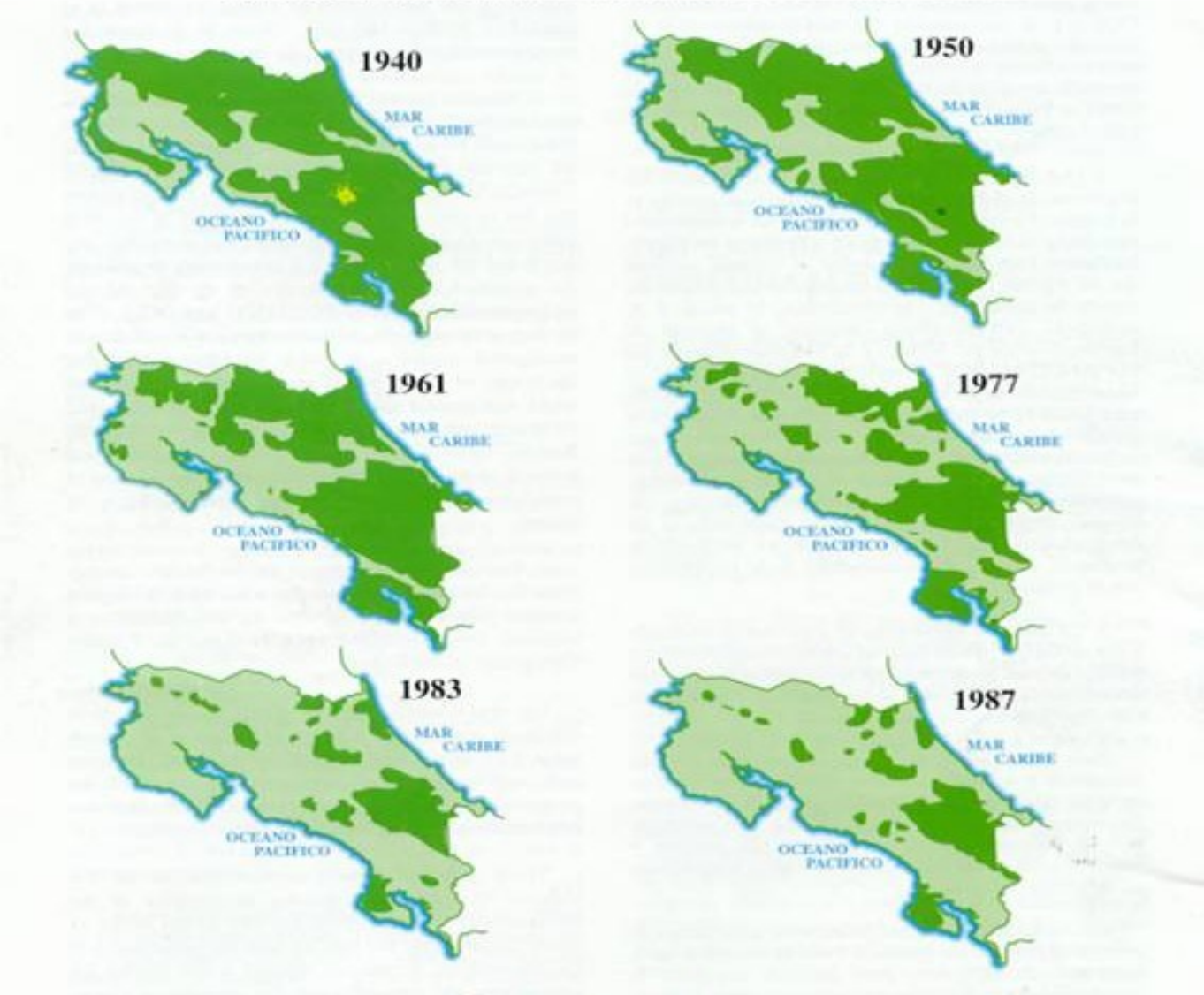


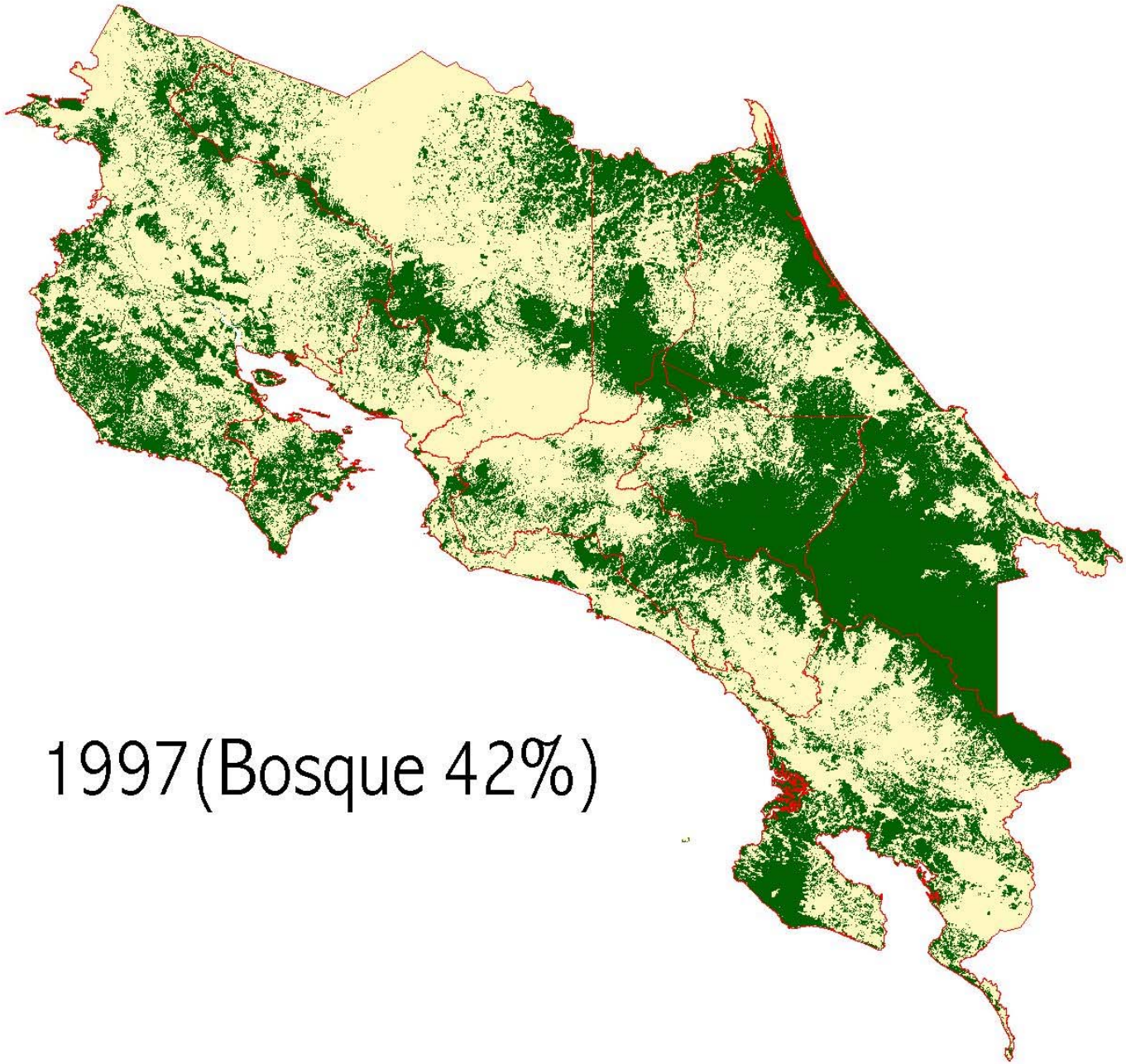
- single site; - network of sites;
- network of sites plus broad-scale; - broad-scale only.


N
W
E
S
LAGO DE NICARAGUA
NICARAGUA
OCEANO PACIFICO
MAR CARIBE
UBERIA
ISLA CHIRA
PUNTARENAS
GOLFO DE NICOYA
ALAJUELA
HEREDIA
SAN JOSE
CARTAGO
LIMON
PANAMA
OCEANO PACIFICO
GOLFO DULCE
OCEANO PACIFICO
CORREDORES BIOLOGICOS
AREAS SILVESTRES PROTEGIDAS
COSTA RICA
MAPA DE CORREDORES BIOLOGICOS
Y
AREAS SILVESTRES PROTEGIDAS
MINISTERIO DEL AMBIENTE Y ENERGIA
SISTEMA NACIONAL DE AREAS DE CONSERVACION
COMPONENTE SISTEMAS DE INFORMACION
ESCALA : 1: 2,000,000 FECHA : NOVIEMBRE,2002
ELABORO : GUILLERMO JIMENEZ B:

"If governments invest seriously as Costa Rica has done it, they will no longer be flying blind" The Economist

Evolution of forest cover 1940 - 1987



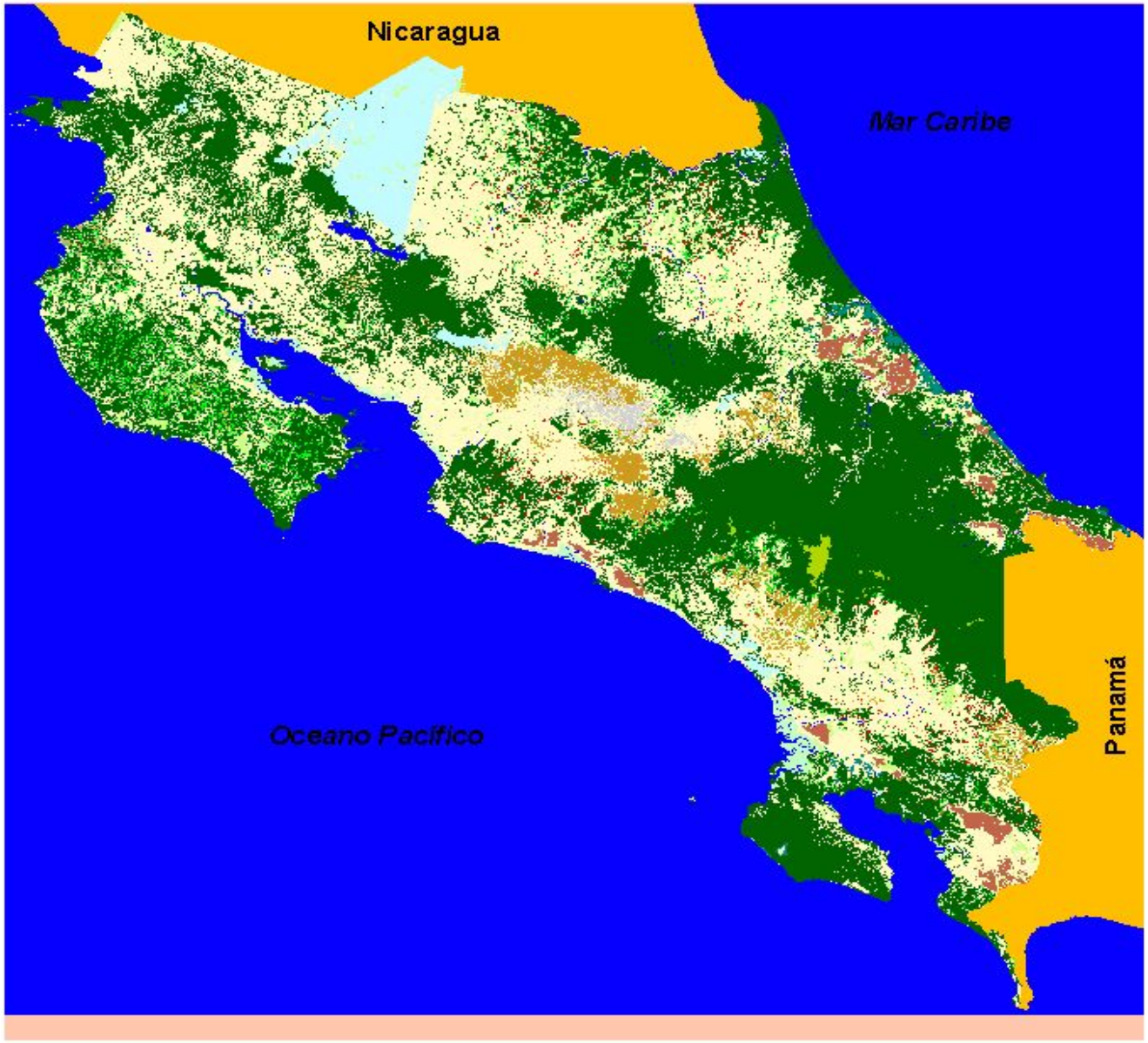


1997(Bosque 42%)

Forest Cover 2000 45%

Cobertura Forestal 2005

52%

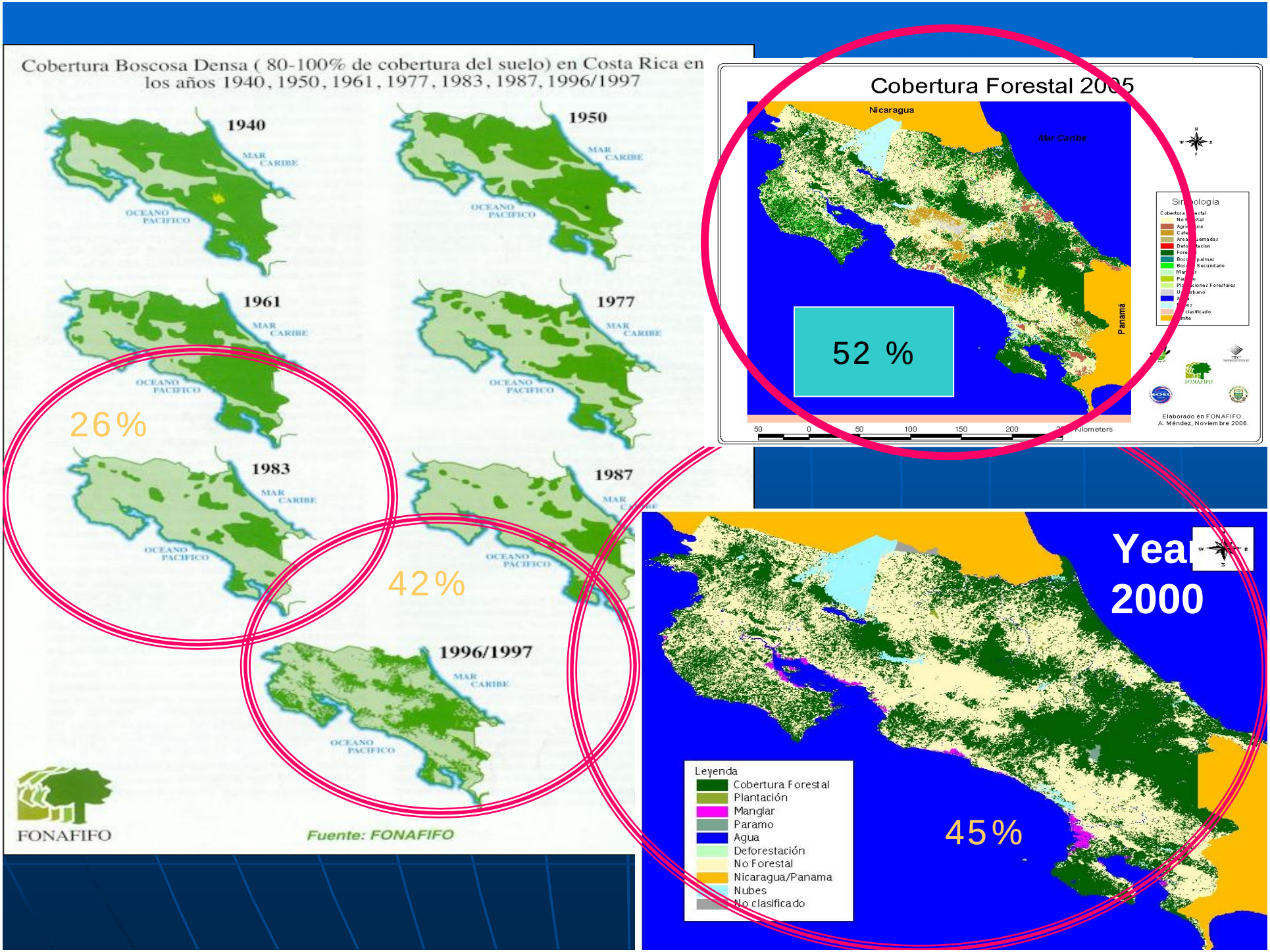


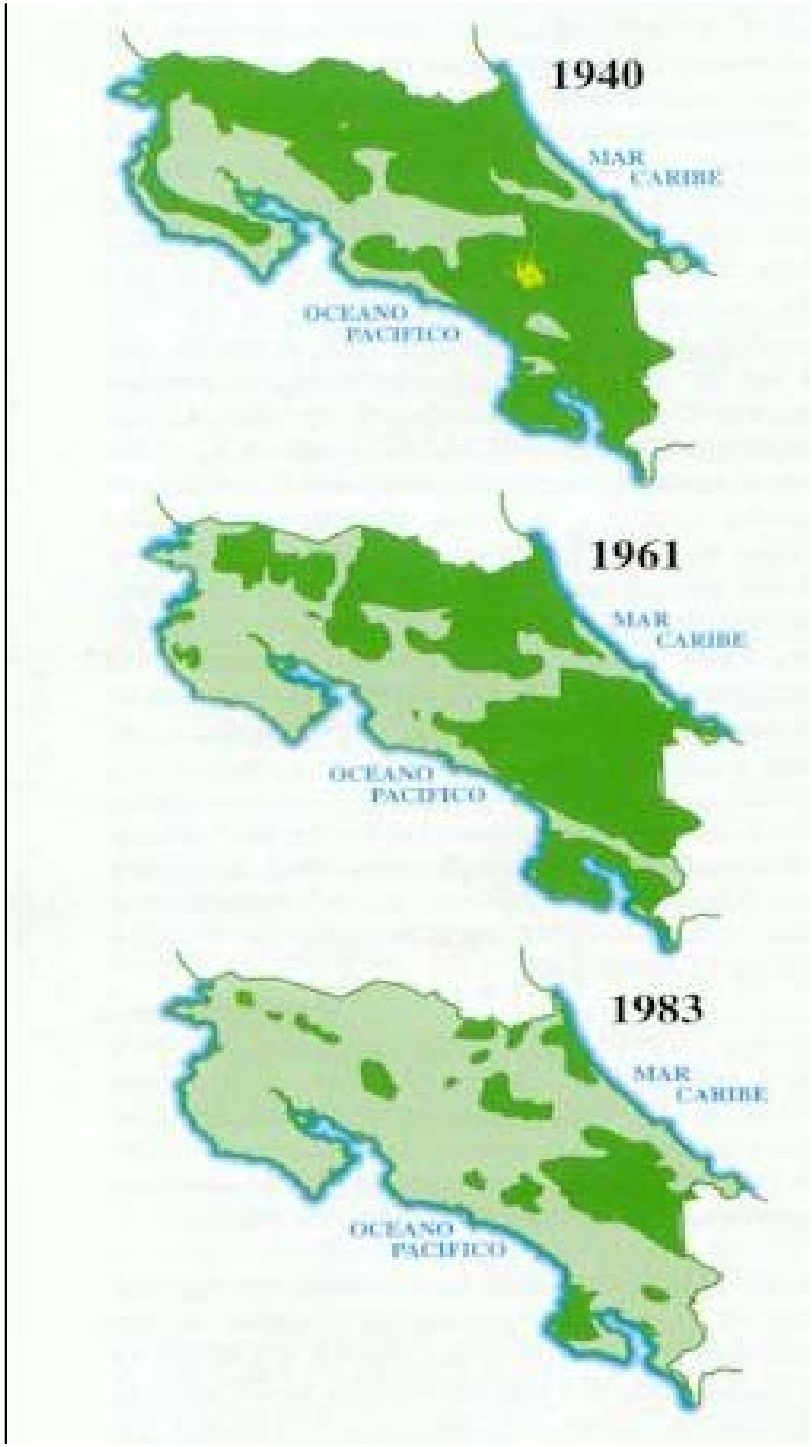
Simbología

Cobertura Forestal
- No forestal
- Agricultura
- Cafe
- Areas quemadas
- Deforestacion
- Forestal
- Bosque palmas
- Bosque Secundario
- Manglar
- Paramo
- Plantaciones Forestales
- Uso urbano
- Agua
- Nubes
- No clasificado
- Limite

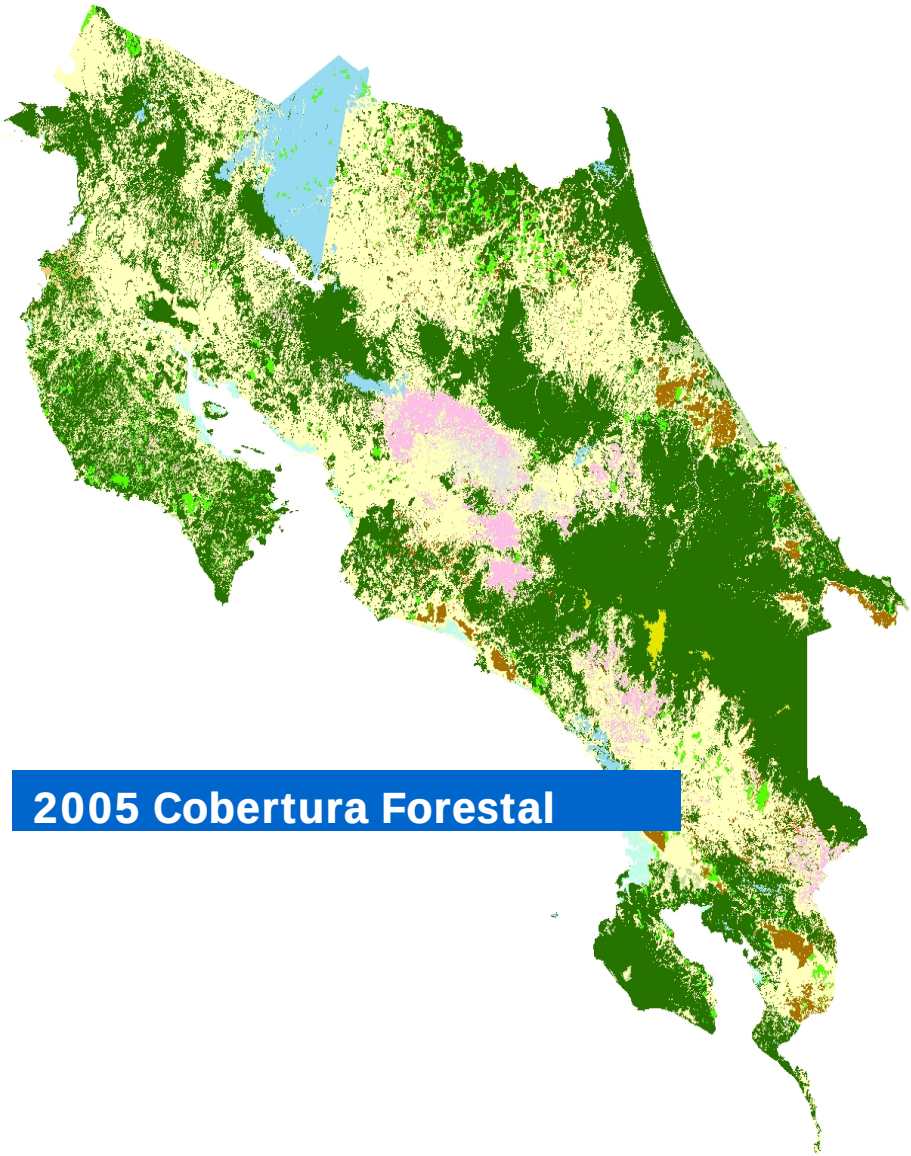
FONAFIFO

Elaborado en FONAFIFO.
A. Méndez, Noviembre 2006.


Cobertura Boscosa Densa (80-100% de cobertura del suelo) en Costa Rica en los años 1940, 1950, 1961, 1977, 1983, 1987, 1996/1997
1940
1950
1961
1977
1983
1987
1996/1997
MAR CARIBE
OCEANO PACIFICO
26%
42%
FONAFIFO
Fuente: FONAFIFO
Cobertura Forestal 2005
Nicaragua
Mar Caribe
Panamá
52 %
Elaborado en FONAFIFO
A. Méndez, Noviembre 2006.
Year 2000
Leyenda
Cobertura Forestal
Plantación
Manglar
Paramo
Agua
Deforestación
No Forestal
Nicaragua/Panama
Nubes
No clasificado
45%

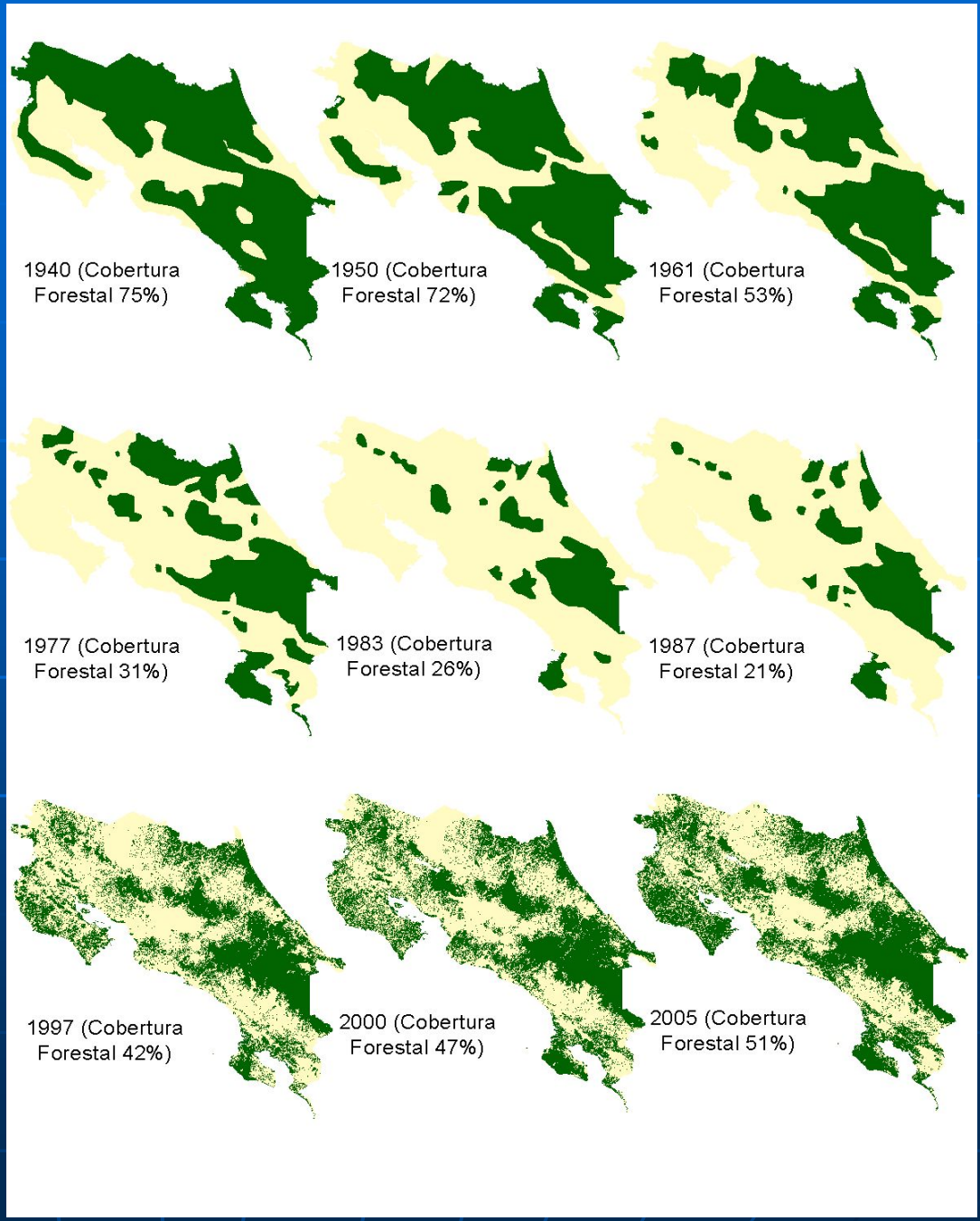


Impactos de políticas de ASP y PSA

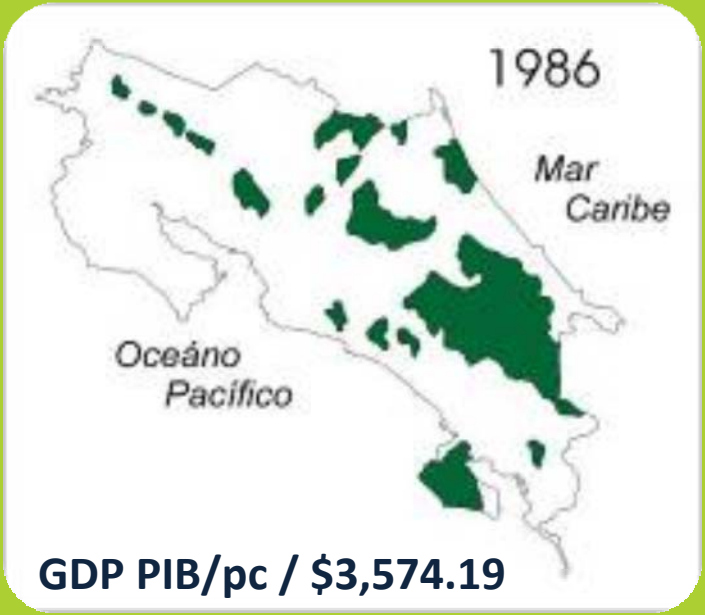


2005 Cobertura Forestal

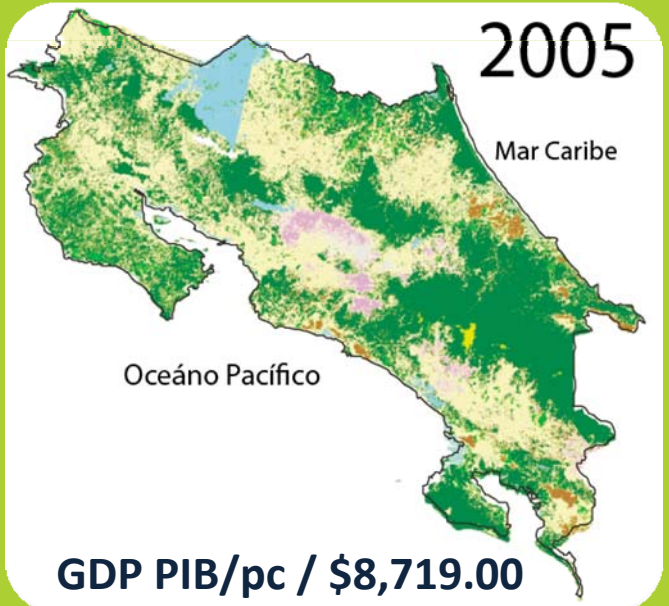
Good public policies, elmination of perverse incentives and the payment for environmental services has proveen to be succesful for stopping deforestation and forest restoration



FOREST COVER and GDP Costa Rica

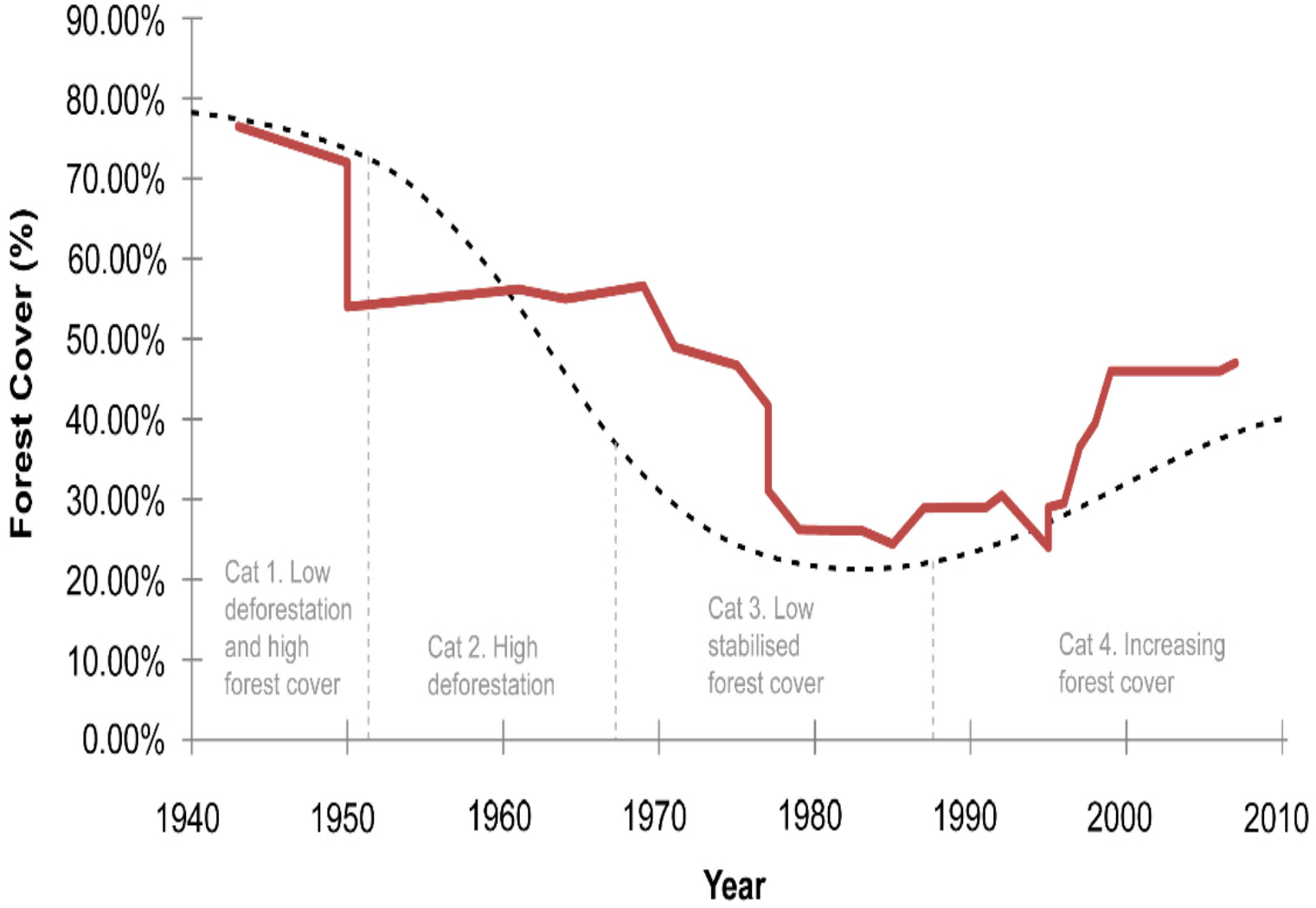


GDP PIB/pc / $3,574.19

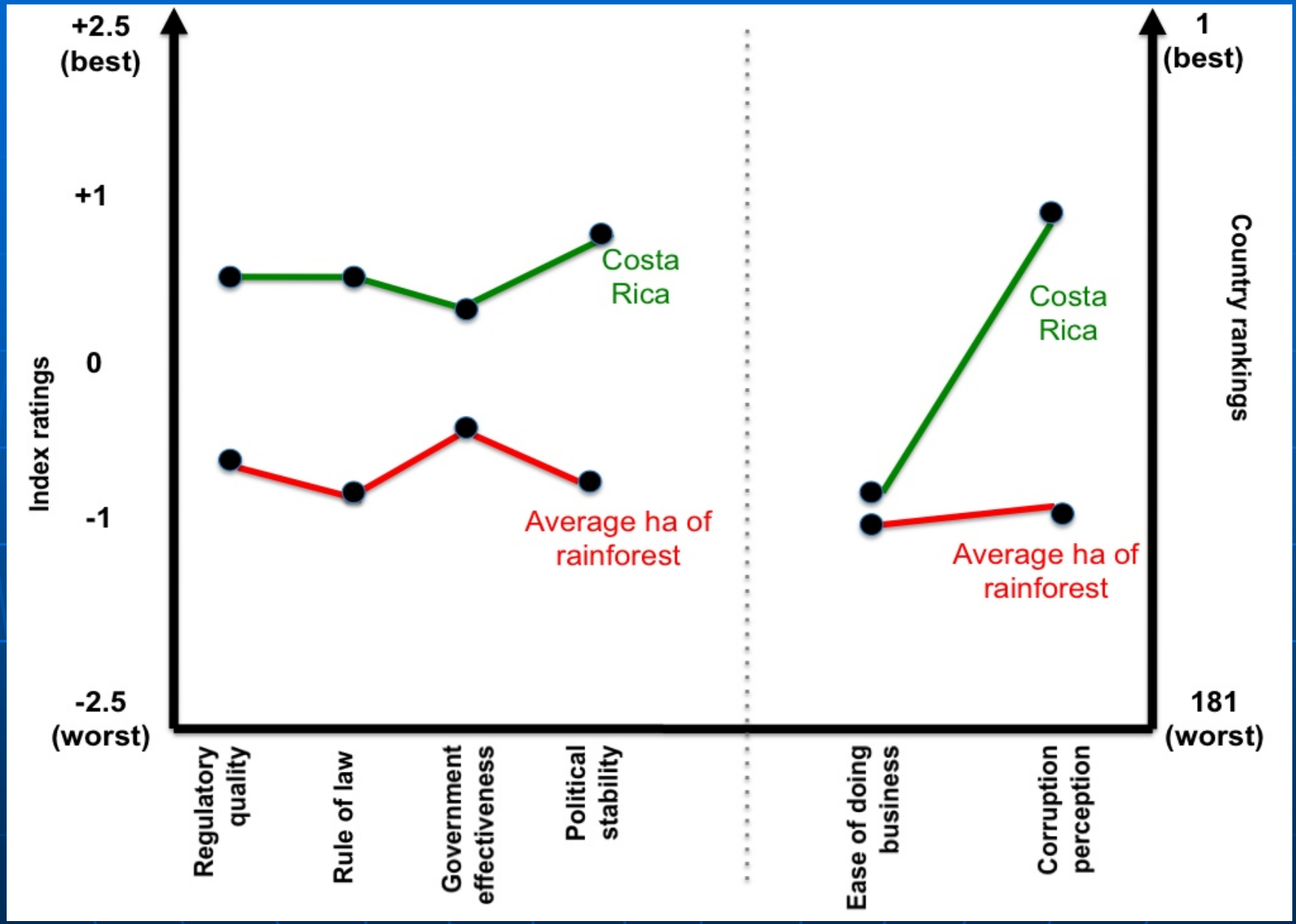


GDP PIB/pc / $8,719.00

Fuente: FONAFIFO-MINAE – FMI

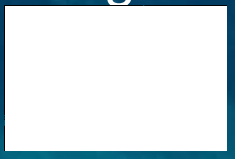

90.00%
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Forest Cover (%)
Cat 1. Low deforestation and high forest cover
Cat 2. High deforestation
Cat 3. Low stabilised forest cover
Cat 4. Increasing forest cover
1940
1950
1960
1970
1980
1990
2000
2010
Year

	Regulatory Quality (World Bank) 2007	Rule of Law (World Bank) 2007	Corruption Perception (Transparency International) 2008	Government Effectiveness (World Bank) 2007	Political Stability (World Bank) 2007	Ease of Doing Business (World Bank) 2009	Country Risk (OECD) 2008
Scoring	+2.5=best -2.5=worst	+2.5=best -2.5=worst	1=best 180=worst	+2.5=best -2.5=worst	+2.5=best -2.5=worst	1=best 181=worst	1=best 7=worst
Costa Rica	+0.49	+0.48	47	+0.38	+0.75	117	3
Average hectare of rainforest	-0.61	-0.80	118	-0.57	-0.72	119	5


+2.5
(best)
+1
0
-1
-2.5
(worst)
Index ratings
Costa
Rica
Average ha of
rainforest
Regulatory
quality
Rule of law
Government
effectiveness
Political
stability
1
(best)
Country rankings
Costa
Rica
Average ha of
rainforest
181
(worst)
Ease of doing
business
Corruption
perception

lessons learned

- Large-scale conservation is possible
- Innovative policies depend on Economic “arguments” on the social benefits of ecosystem services
- Long-term sustainability will rely on:
- Structural political reforms
- Addressing market failures
- Linking healthy ecosystems and human well being
- Capacity-building



Some one is using my grandson’s credit card !!