#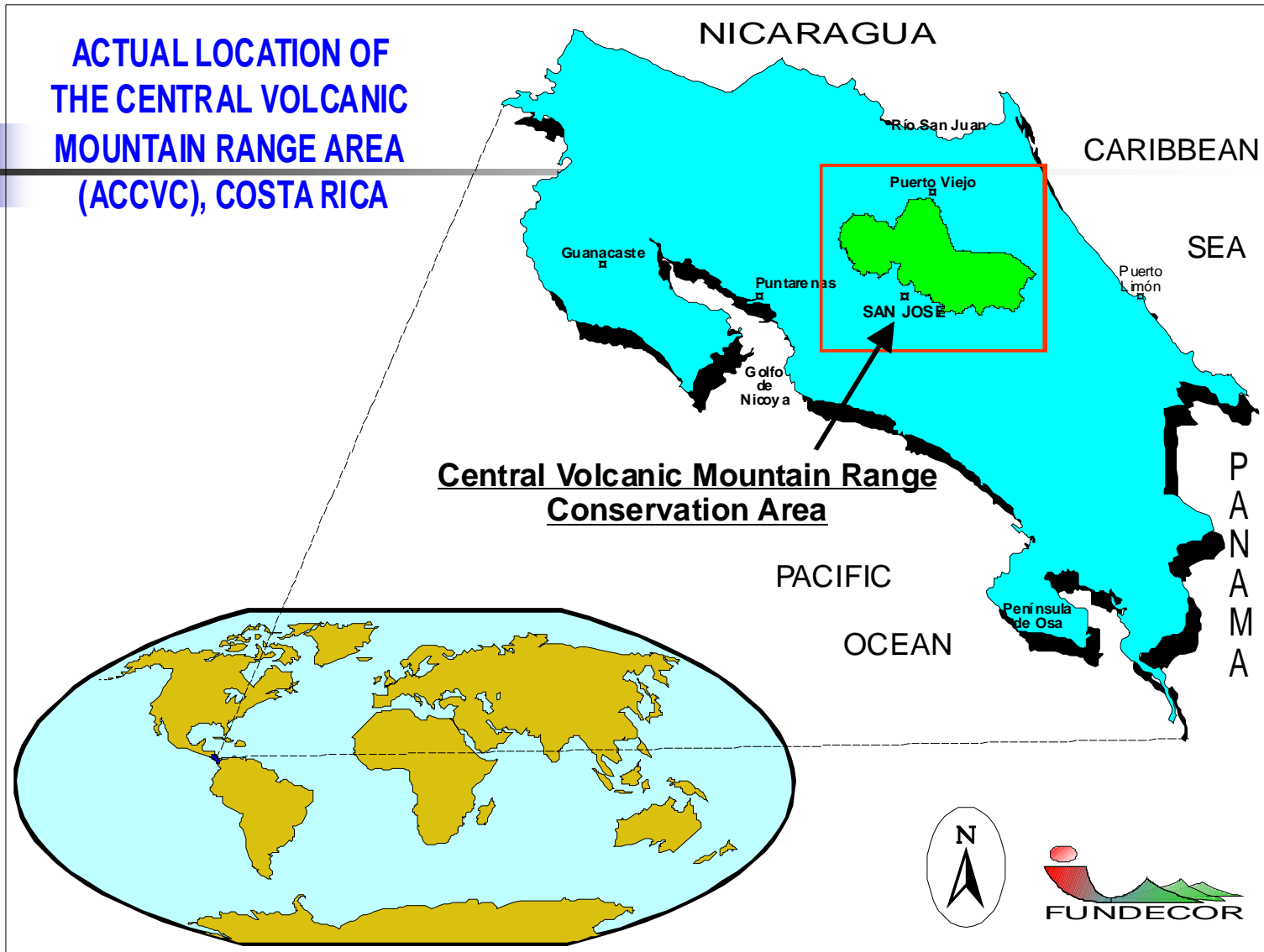 Bringing Forest to the Mainstream Economy - institutional frameworks and economic instruments to reduce deforestation: Costa Rica 1991-2001 FUNDECOR
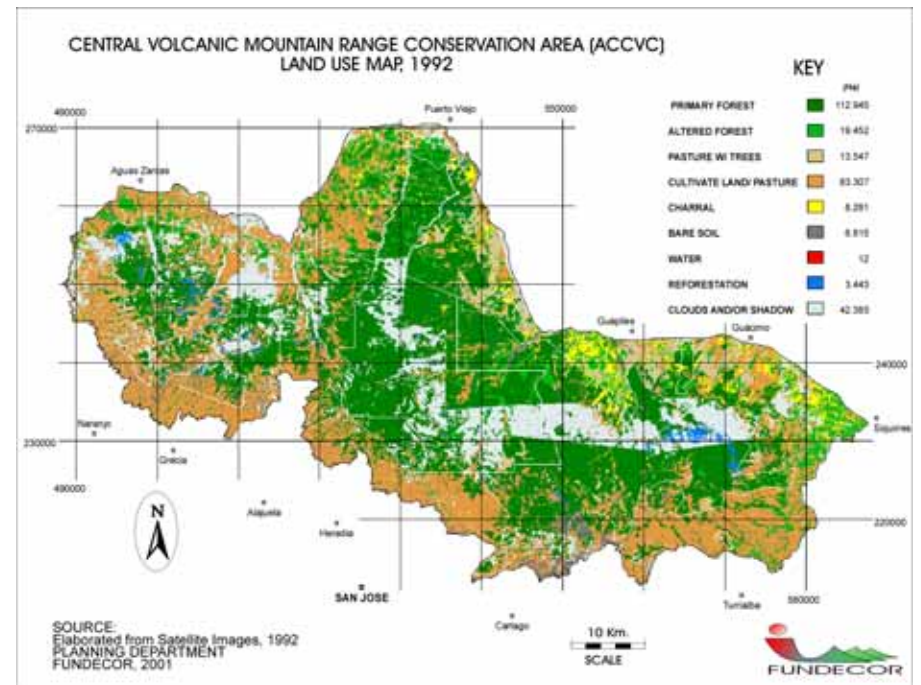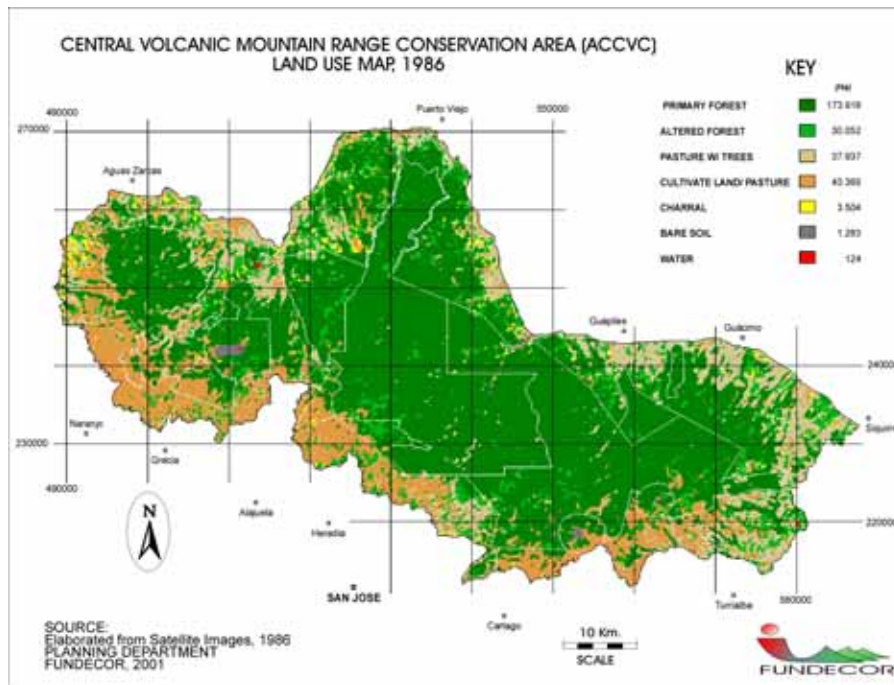
Introduction

FUNDECOR is a non-governmental organization founded in 1991 to protect and increase the Costa Rican forests located in the country's central plateau. The forest coverage of this territory is one of the largest in Costa Rica, and comprises many of the country's National Parks.

ACTUAL LOCATION OF THE CENTRAL VOLCANIC MOUNTAIN RANGE AREA (ACCVC), COSTA RICA

NICARAGUA

Río San Juan

CARIBBEAN

Puerto Viejo

SEA

Guanacaste

Puntarenas

Puerto Limón

SAN JOSÉ

Golfo de Nicoya

Central Volcanic Mountain Range Conservation Area

PACIFIC

OCEAN

Península de Osa

PANAMA

N

FUNDECOR

Introduction

CENTRAL VOLCANIC MOUNTAIN RANGE CONSERVATION AREA (ACCVC)
NATIONAL PARKS MAP

KEY

	(Ha)
1. Juan Castro B. Nat´l Park.	14.312
2. Volcan Poas Nat´l Park.	6.506
3. Braulio Carrillo Nat´l Park.	47.506
4. Volcan Irazu Nat´l Park.	2.310
5. Volcan Turrialba Nat´l Park.	1.577
6. Guayabo Nat´l Monument.	233

ACTUAL LOCATION OF THE ACCVC
IN COSTA RICA.

10 Km.

ESCALA
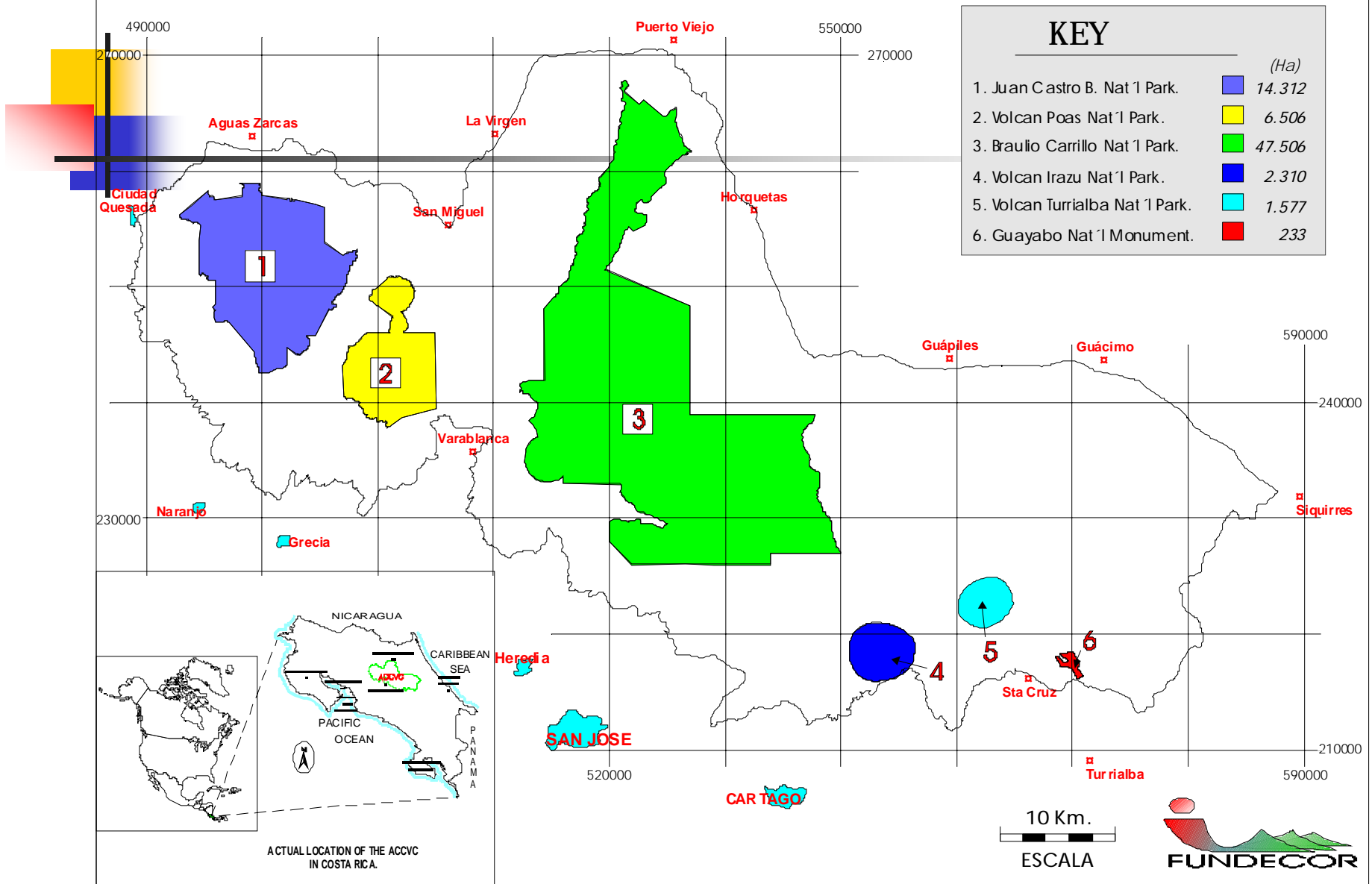
FUNDECOR

Where has FUNDECOR focused?

CONSERVATION AND DEVELOPMENT STRATEGY
CENTRAL VOLCANIC MOUNTAIN RANGE CONSERVATION AREA (ACCVC)
RATE OF DEFORESTATION PROJECTED THROUGH 1996- 2000 ACCORDING TO CATEGORIES OF RISK (*)

CATEGORIES OF RISK

		(Ha)	(ann. defor.)
LOW RISK	🟩	19.650	3.6
MEDIUM RISK	🟨	37.456	5.2
HIGH RISK	🟥	54.508	8.7
OTHER USES OR CLOUDS	⬛	108.151	
NATIONAL PARKS		72.444	

SOURCE:
Elaborated from Satellite Images, 1996
CONSERVATION AND DEVELOPMENT STRATEGY
BASE GROUP: FUNDECOR/ ACCVC-SPN

(*) The rate of deforestation is only refered to the Buffer
Zone of ACCVC, do not includes National Parks areas.

FUNDECOR

Which are the main natural resources of the ACCVC and what could affect them?

THREATS

SOLUTIONS

National Parks
- Self-sufficiency of the parks → Concessions
- Park boundaries → Delimiting parks boundaries
- Surveillance
- Land tenure → Purchase of land

Natural Resources

- Water
- Biodiversity
- Carbon fixing
- Scenic-tourism beauty

Buffer Zone

- Forest low economic value for forest owners
  - Environmental Services Payment and Charging System
  - Commercialization strategies of SFM's wood production
    - Timber auctioning
    - Advance purchase of wood
    - Access to local and international green seal's wood markets

- Lack of protagonism of forest owners in SFM
  - Group Certification
  - Timber auctioning

- Lack of technology
  - New Technologies implementation
    - Reduced Impact Logging
    - Web Sites for practitioners
    - Biological monitoring of forestry operations
  - Financing of Sustainable Forest Management
    - Land registration and titling
    - Financing the planning and implementation of SFM

Beneficiaries of forest products and services

TYPES OF PRODUCTS AND SERVICES	BENEFICIARY		
	WORLD	COUNTRY	OWNER
WOOD			✔
WATER		✔	
SCENIC BEAUTY		✔	
BIODIVERSITY	✔		
CO_2	✔		

Environmental services payment and charging system
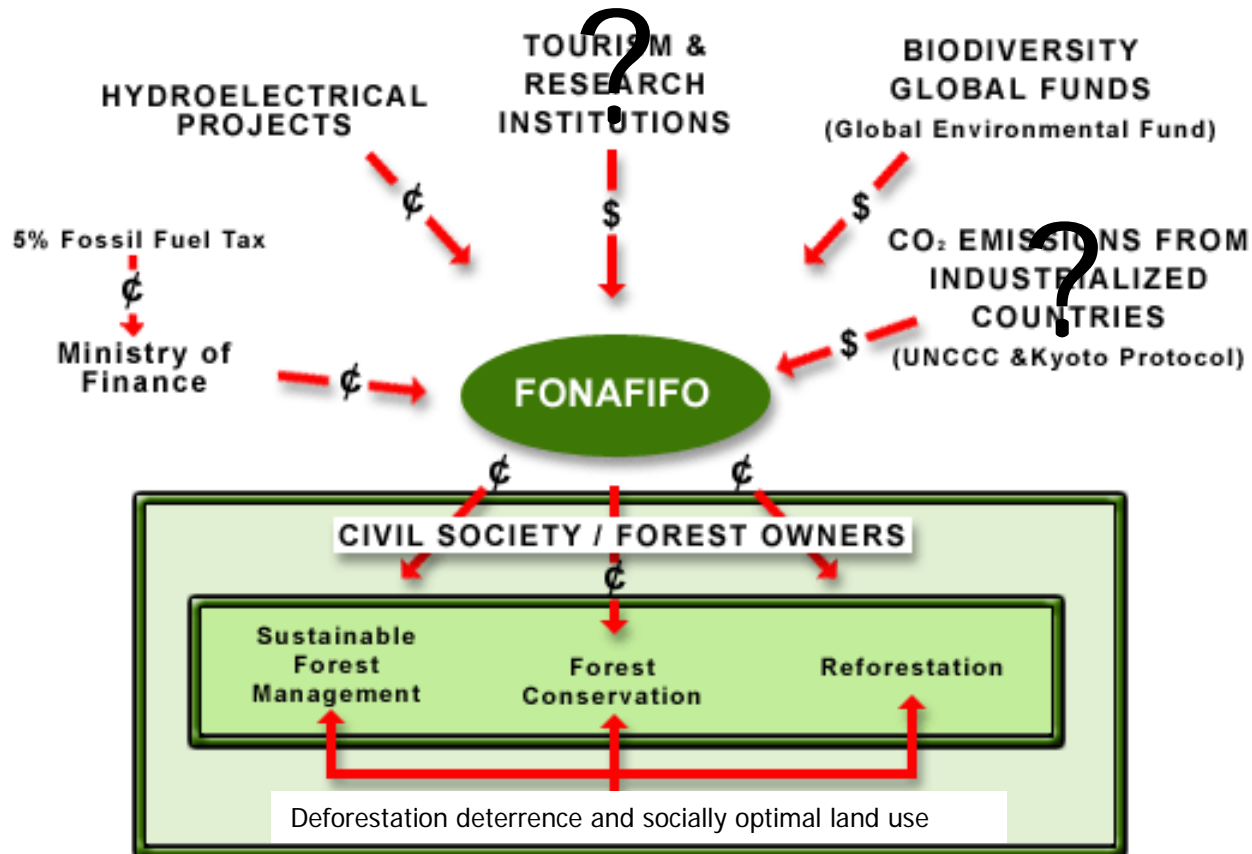
Forest environmental services

	GEOSPECIFIC	NON-GEOSPECIFIC
N A T I O N A L	Water Scenic-tourism beauty	?
G L O B A L	Biodiversity	CO_2

SOURCE: Tattenbach, 1999

The public and private logic of Costa Rica's environmental service payment program

- Environmental service is defined as *an environmental benefit (or cost) produced by the existence (or disappearance) of forest that is not captured by its owner, but by others*

  $P \geq C$ *Private Logic*

  $V \geq P$ *Public Logic*

  $V \geq P \geq C$ *ESP feasibility range*

  $V = V_g + V_c$ Disaggregating values

  $V = V_c + E_g$ country logic

  $V_c = O_n + V_i$ disaggregating country values

  $P_t \; \Leftrightarrow \; O_n + R_i + E_g$ ESP program logic

The public and private logic of Costa Rica's environmental service payment program

- Environmental service is defined as *an environmental benefit (or cost) produced by the existence (or disappearance) of forest that is not captured by its owner, but by others*

  - $P \geq C$ *Private Logic*

  - $V \geq P$ *Public Logic*

  - $V \geq P \geq C$ *ESP feasibility range*

The public and private logic of Costa Rica's environmental service payment program

- The total value of all environmental services V is equal to the sum of the values that accrue only at the global level (V_g) and the values that accrue at the country level (V_c)

$$V = V_g + V_c \text{ disaggregating values}$$

- A country total environmental service P_c must be no more than the values that accrue at the country level plus the economic compensations obtained (exports) of the global environmental services E_g:

$$V = V_c + E_g \text{ country logic}$$

The public and private logic of Costa Rica's environmental service payment program

- These country values are also decomposable into values that accrue at the national level O_n and values that are only geo-specific and accrue at the local level V_i:

$$V_c = O_n + V_i \text{ disaggregating country values}$$

- A country should pay environmental service payment from general taxes P_t less than the values that accrue at the national level O_n plus the economic value reveled by the willingness to pay at the local level R_i plus the economic compensations obtained (exports) of the global environmental services Eg:

$$P_t \; ✿ \; O_n + R_i + E_g \text{ ESP program logic}$$
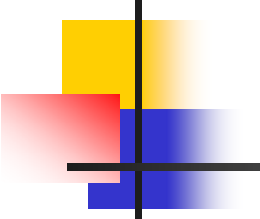
Internalization of environmental services
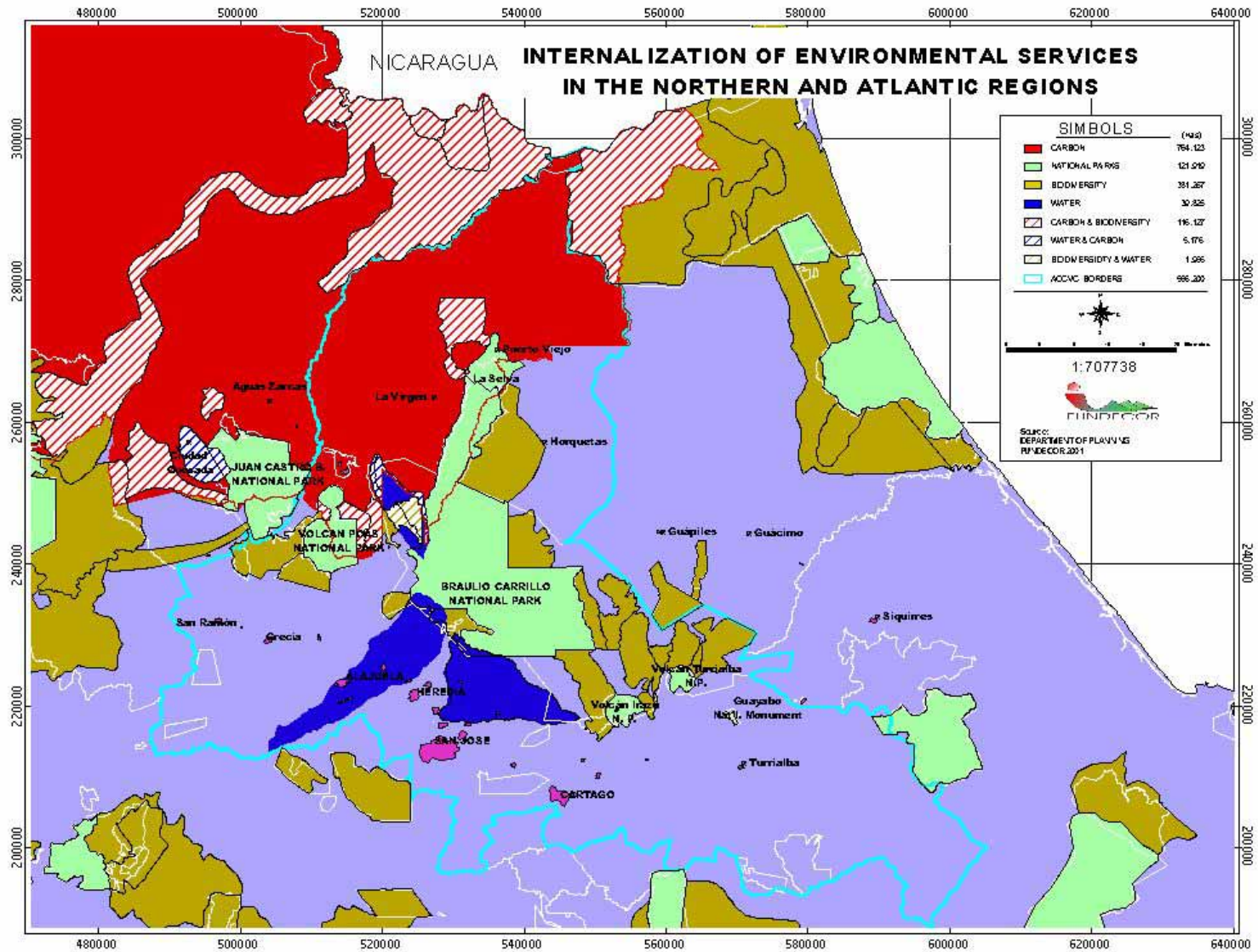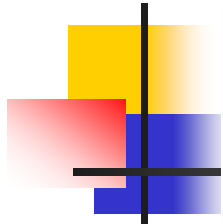
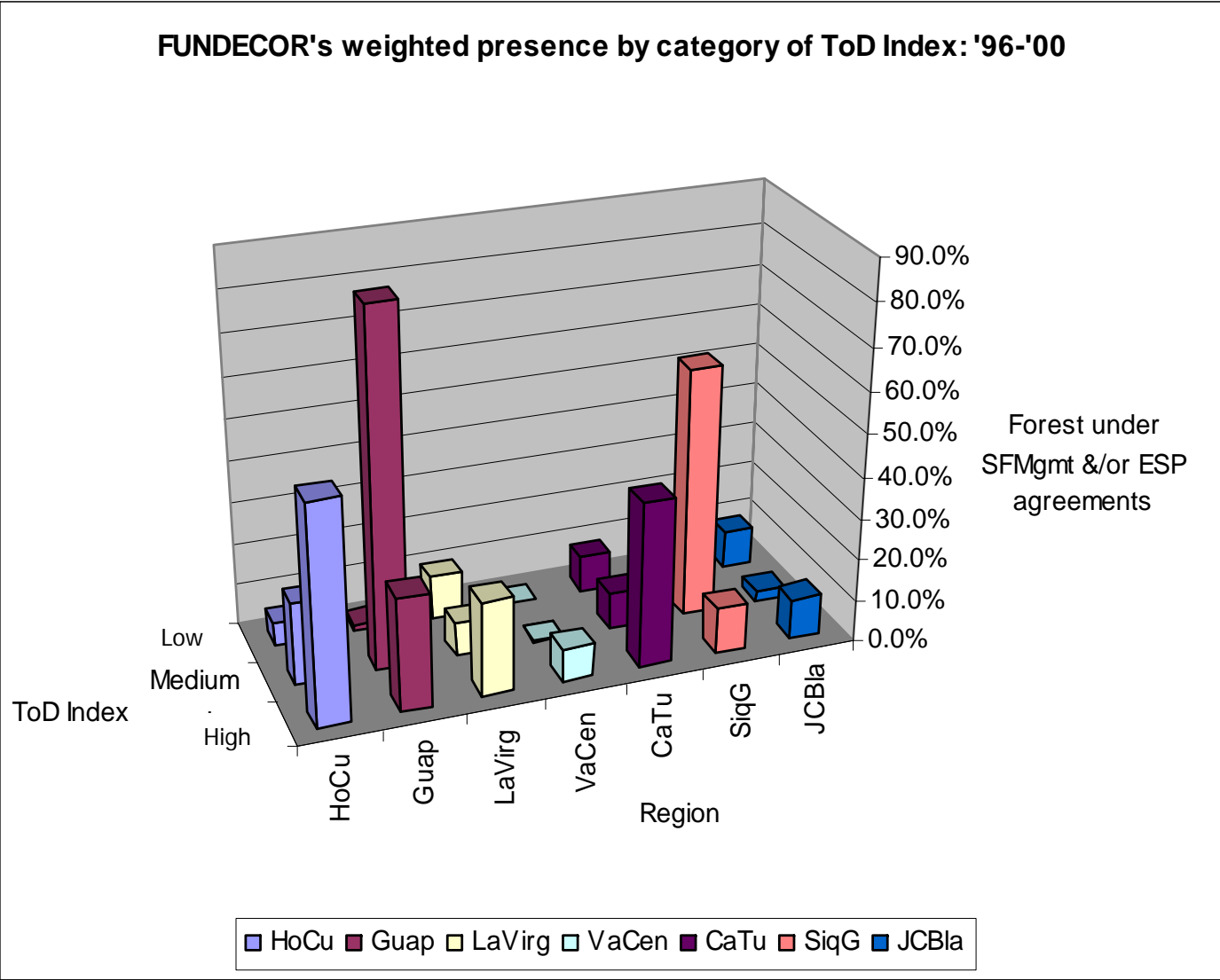# Group certification

FSC

SGS-Qualifor

Forest Owners

CENTRAL VOLCANIC MOUNTAIN RANGE CONSERVATION AREA (ACCVC)
NATIONAL PARKS MAP

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ACTUAL LOCATION OF THE ACCVC
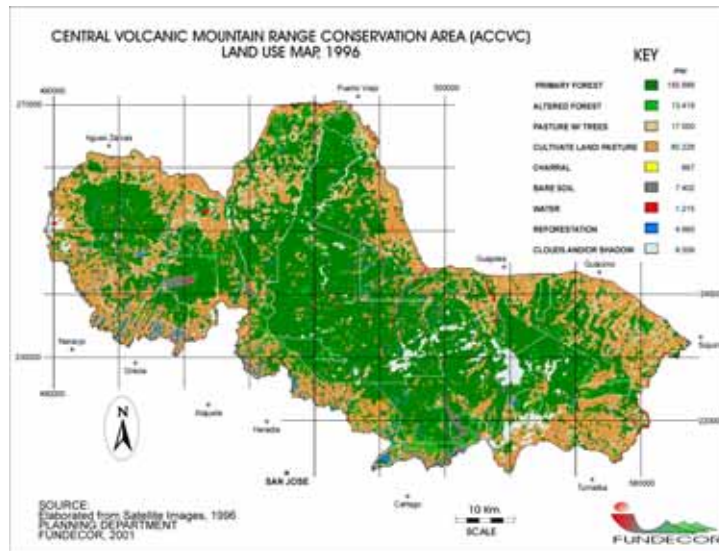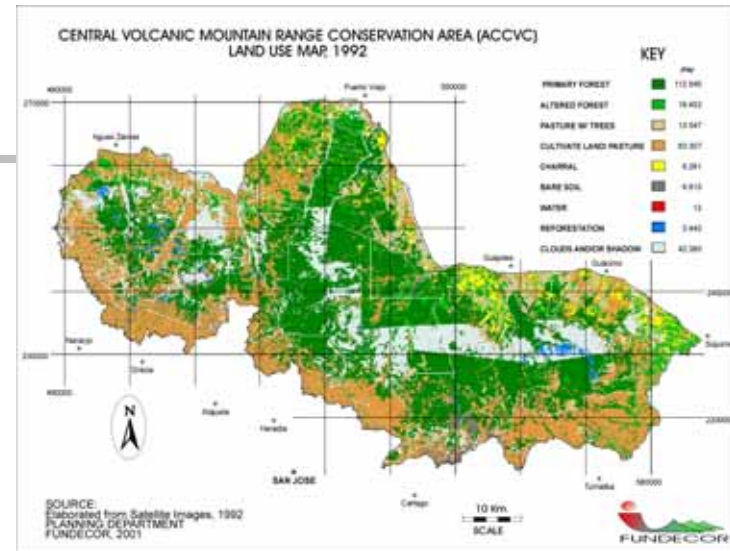IN COSTA RICA.

10 Km.
ESCALA

FUNDECOR

04/12/2003

17
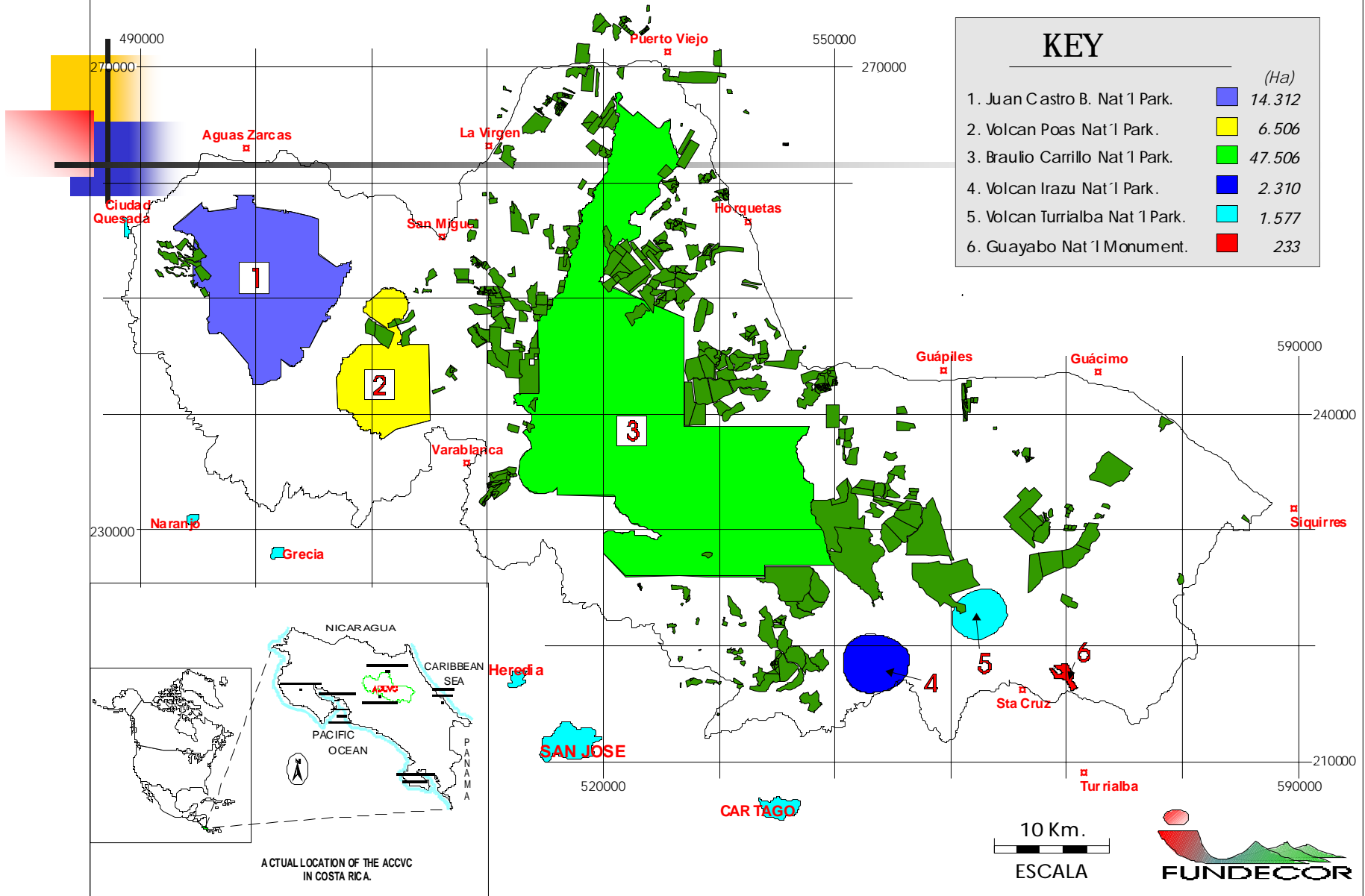
FUNDECOR's weighted presence by category of ToD Index: '96-'00

Bringing Forest to the Mainstream Economy
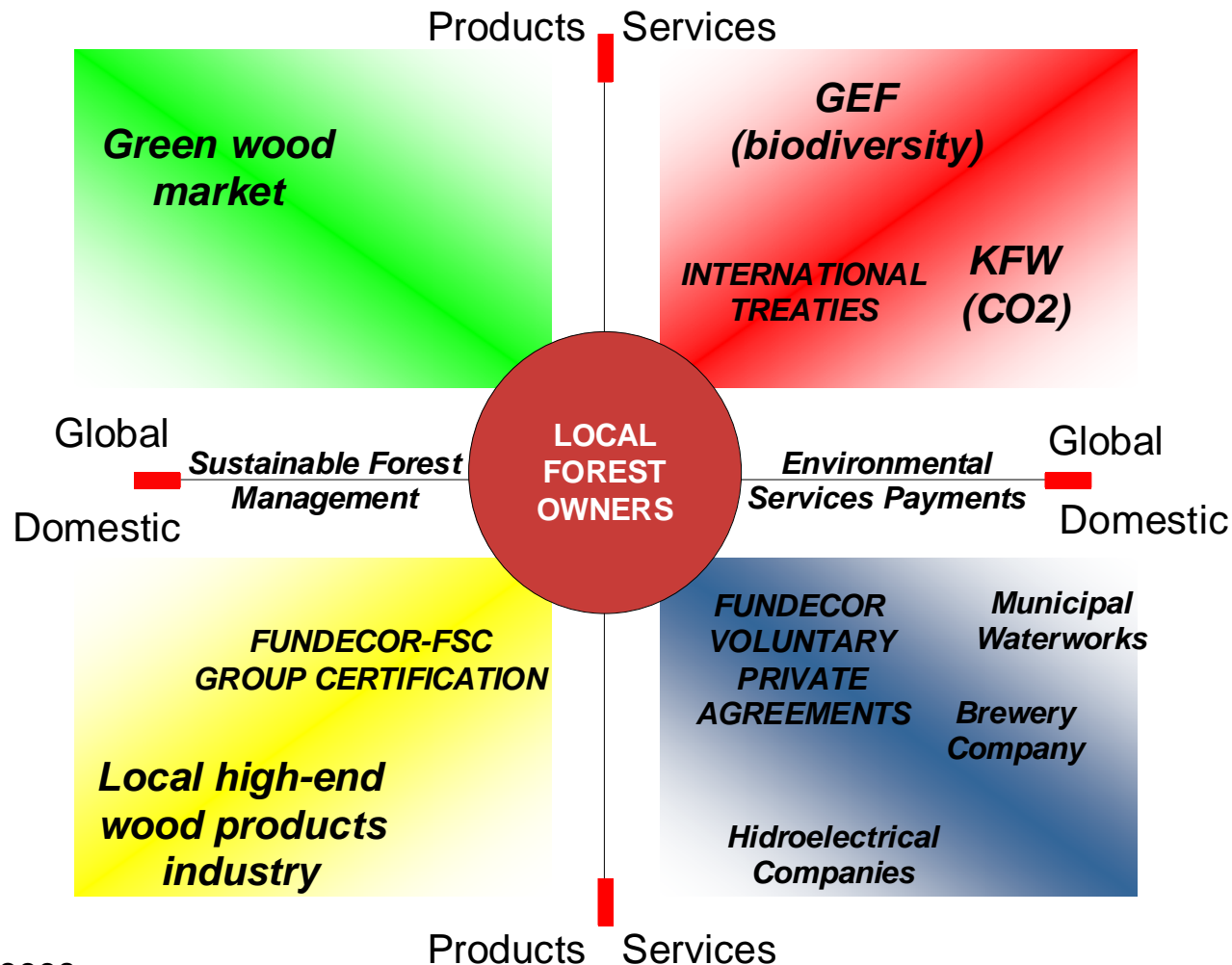
Products | Services

Green wood market

GEF (biodiversity)

INTERNATIONAL TREATIES   **KFW (CO2)**

Global

Sustainable Forest Management   **LOCAL FOREST OWNERS**   *Environmental Services Payments*   Global

Domestic   Domestic

FUNDECOR-FSC GROUP CERTIFICATION

Local high-end wood products industry

FUNDECOR VOLUNTARY PRIVATE AGREEMENTS   **Municipal Waterworks**

Brewery Company

Hidroelectrical Companies

Products | Services

04/12/2003

19

Monitoring of the effect of FUNDECOR operations
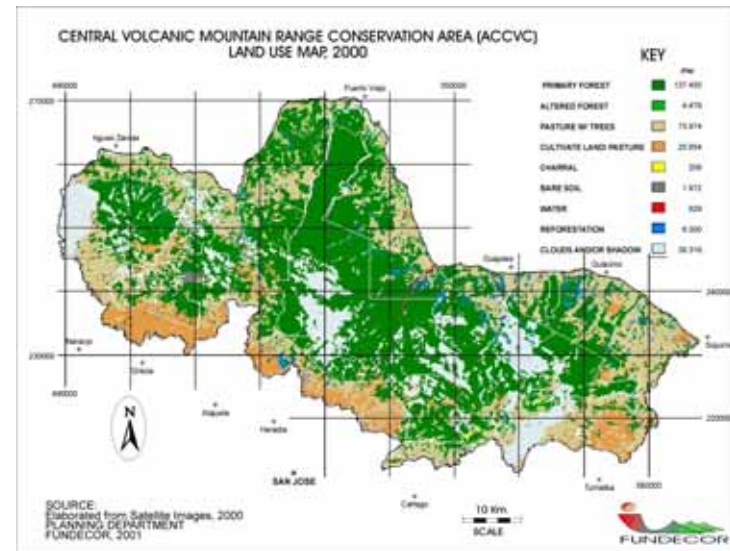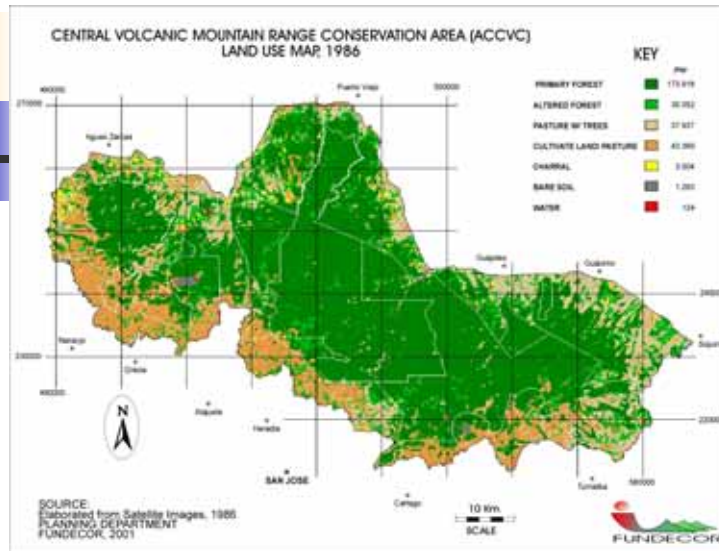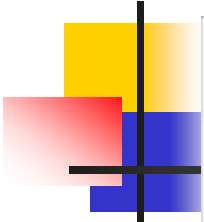
Monitoring of the effect of FUNDECOR operations

CUADRO N° 3.
TASA (%) ANUAL DE
DEFORESTACION 1986-1992-1996-2000

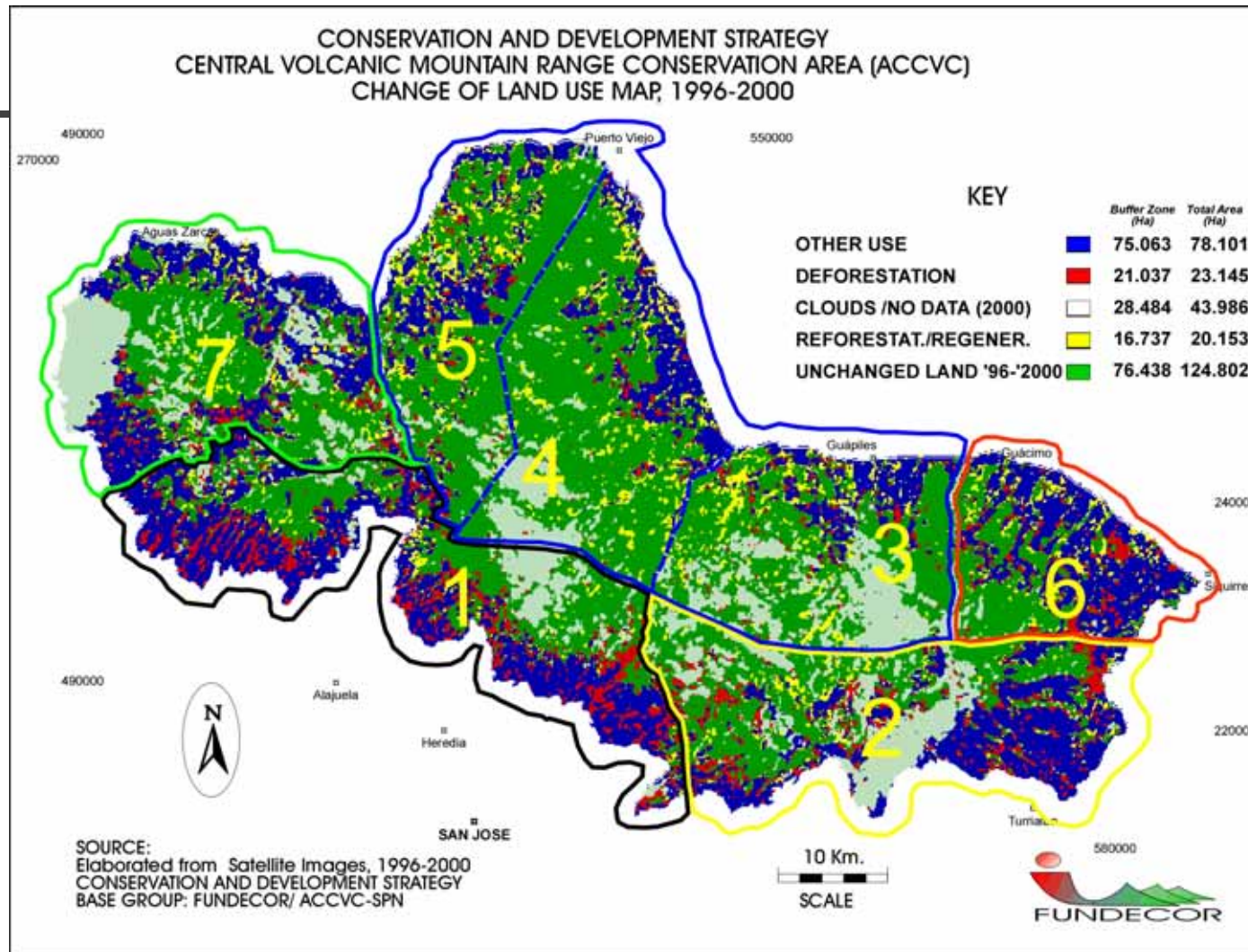| DEFORESTACION | | | Zona de Amortiguamiento | | | | |
| | | | | | Zona de Amortiguamiento sin VC | | |
BRUTA	ACCVC	PN	TOTAL	VC	TOTAL	ZT FUNDECOR*	OTROS**
86/92	5.7	2.4	7.3	9.4	7.0	7.6	8.3
92/96	4.4	1.7	6.0	5.3	6.1	5.0	7.4
96-2000	4.2	1.1	5.9	14.6	4.4	2.3	7.3
DEFORESTACION NETA							
86/92	3.8	1.8	4.7	2.6	5.3	5.9	5.2
92/96	-2.6	-1.9	-2.9	-9.8	-1.8	-0.7	-3.1
96/2000	0.5	-0.6	1.1	11.0	-0.5	-2.7	2.5

Deforestación Bruta

$$1-(B_{final}/B_{inicial})^{1/n}$$

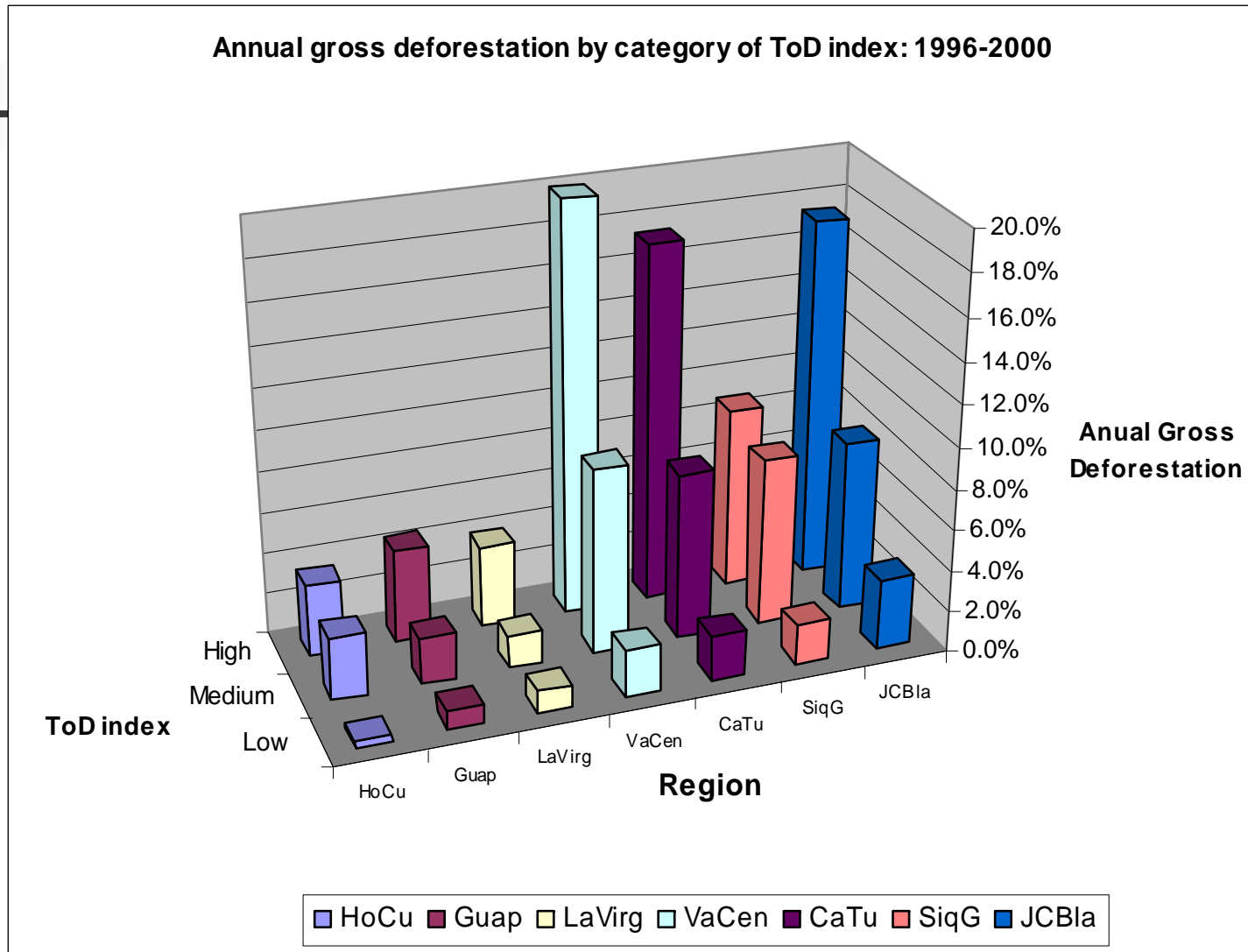Deforestación Neta
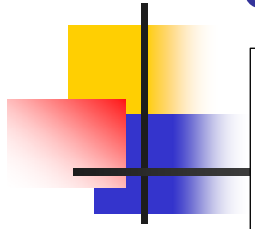
$$1-[(B_{final}+Reg)/B_{inicial}]^{1/n}$$

*Horquetas, La Virgen, Guácimo
**Juan Castro Blanco, Siquirres-Guácimo, Cartago-Turrialba

Monitoring of the effect of FUNDECOR operations

Monitoring of the effect of FUNDECOR operations

Annual gross deforestation by category of ToD index: 1996-2000

Deforestation as function of FUNDECOR's relative presence

$$\ln\left(\frac{d_r^{00}}{1-d_r^{00}}\right) = a + bP_r$$

$$a = -1.80591; b = -8.44113$$

$$R^2 = 0.94 / t_a = -11.402 / t_b = -7.906$$

Anual gross deforestation rate

FUNDECOR's relative presence (% of total forest under ESP &/or SFMgmt agreements)