

# Invasive Alien Species Pole

## **Population Regulation of Rusa deer in New Caledonia: Constraints and Initiatives Towards a Major Invasive Species of Strong Conflicts of Interests**

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# VULNERABILITY to IAS

**NC isolated for 50 M years**

Rich Biodiversity

Unique habitats

High levels of endemism

**NO native ungulate browsers**

**NO adaptation to defend against ungulates**

Strong “within habitat” local plant diversity

Difficult access to **humid forests**

(Central Chain)

Forest Management:

**Big Challenge**



# Rusa DEER ORIGIN & IMPACTS

*Rusa timorensis russa* (de Blainville, 1822)

**INTRODUCED IN 1870** (from Indonesia)

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	< VULNERABLE >	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX

## Biological factors

- Rapid acclimation
- Food plant resources
- NO predator nor competitor (except Humans)
- Opportunistic diet
- Important reproduction capacity (polygynous)

## Human social factors

- No management even protection (hinds)
- Bambi Syndrome
- Selective culling of males

12 years later: **1882: First local impacts**

# NEGATIVE IMPACTS

On both NATURAL and AGRICULTURAL AREAS





















# STRONG CONFLICTS of INTERESTS

« Also VERY POSITIVE IMPACTS »

Recreational  
hunting



Pet



Low cost (bush)  
Food Value



Economical value

*Formal farmed deer market*  
*Informal venison bush market*  
*Hunting tourism*



Sociocultural value



No longer considered as an alien but as a symbol

# 2006 CONSENSUAL REGULATION PLAN

**NO CONSENSUS** For a long time:

**Exclosures** (dry forests): **The single management action**

**HOW TO MAKE A DECISION (between actors) TO ACT ?**

**2005-2007: Several independent expertise's**

- Deer: on of the major environmental threat
- Need of URGENT ACTIONS

**2006: Consensus**

- |                        |  |
|------------------------|--|
| <b>To refuse :</b>     | 1080 poison,<br>search & destroy<br>professional regulation                        |
| <b>To accept:</b>      | a “Big Game Regulation Plan”   |
| <b>IF and only if:</b> | Concerted decisions<br>Participative actions<br>Transparent survey and restitution |

# 2006 CONSENSUAL REGULATION PLAN

**Late 2007:**

**Creation of:**

**The Big Game Regulation Center**

to coordinate actions-actors

to develop tools

to operationally regulate

to survey operations, population & habitats

**WITH ALL THE LOCAL PARTNERS**

**WITH 2 MAIN OBJECTIVES**

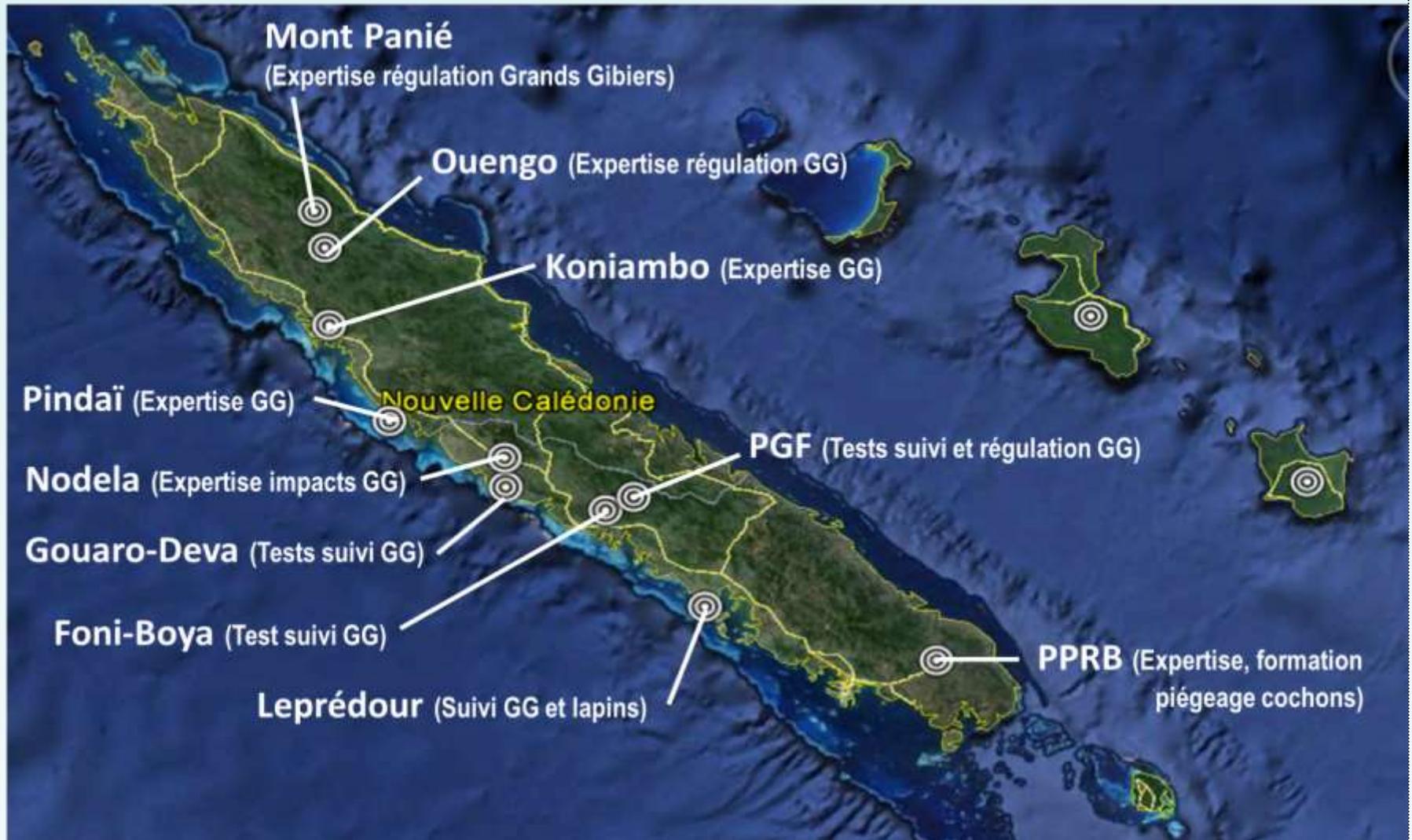
to make the deer impact acceptable

to maintain optimal deer populations

productive, structure, physical condition

# 2006 CONSENSUAL REGULATION PLAN

## FIRST STEP: TO BEGIN ON PILOTE SITES



# CAPTURE OPERATIONS with deer breeders-trappers

**ATTRACTIVE CAPTURE PENS** in easy access private lands

Capturing-breeding activity born during 80's

At least 2 or 3 ha in size (1M FCP)

Capture bounty (GNC): 1 500 CFP (2009) - 5 000 CFP (2014) / deer

Also with "only" trappers (since 2009)



# CAPTURE OPERATIONS with deer breeders-trappers

**Several hundreds deer / sess°**

when high abundance.

**Wild deer are tagged**

- put in breeding parcs at least 3 months become farmed deer

- slaughtered (exported to France)



# CAPTURE OPERATIONS with deer breeders-trappers



# CAPTURE OPERATIONS with deer breeders-trappers

**Deer breeders (2011-2014):**

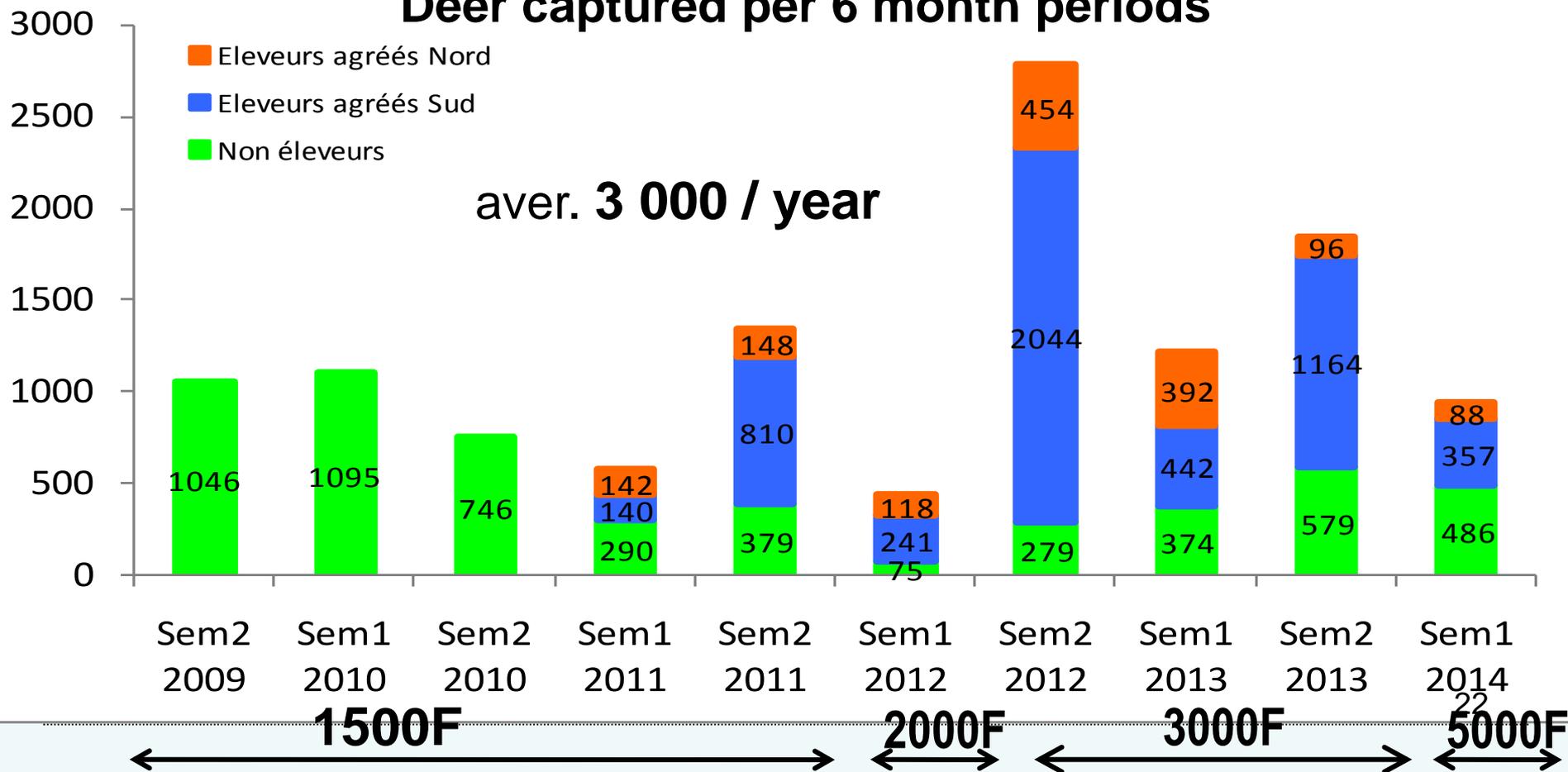
**15 breeders; more than 150 sessions; more than 7 000 captures**

**Deer trappers only (since 2009): 9 trappers; 50 sess°s; 6 000 deer**

## Deer captured per 6 month periods

- Eleveurs agréés Nord
- Eleveurs agréés Sud
- Non éleveurs

**aver. 3 000 / year**



# CAPTURE OPERATIONS

**WHAT ABOUT CAPTURE FEASIBILITY IN THE HEART OF  
THE VULNERABLE ISOLATED HUMID FOREST ?**

TEST under progress (PGF)



# REGULATION HUNTING with Hunt. Federation & Ass

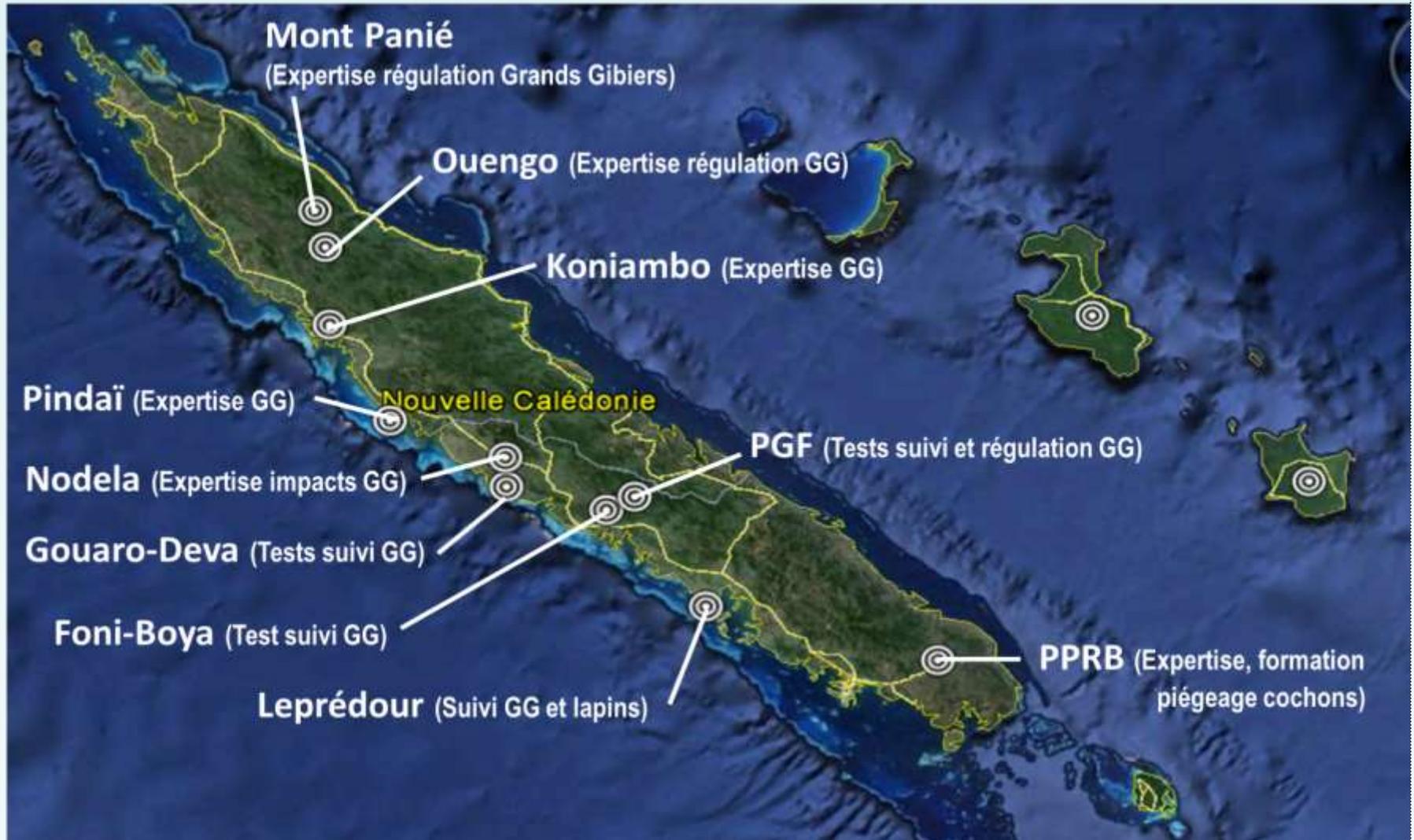
ORGANIZED – COLLECTIVE – SECURITY ACCREDITED HUNTERS

(2 000 / 4 000)



# REGULATION HUNTING with Hunt. Federation & Ass

**LOCALIZED ACTIONS (10)** in quite easy access areas (including HF)



# REGULATION HUNTING with Hunt. Federation & Ass

## **SUCCESS:**

- **Deer eradication on Lepredour isl (800 ha)**
- **Deer eradication into exclosures**  
(Foni-Boya, forest industry)

## **NO measurable SUCCESS YET** (regarding restauration survey):

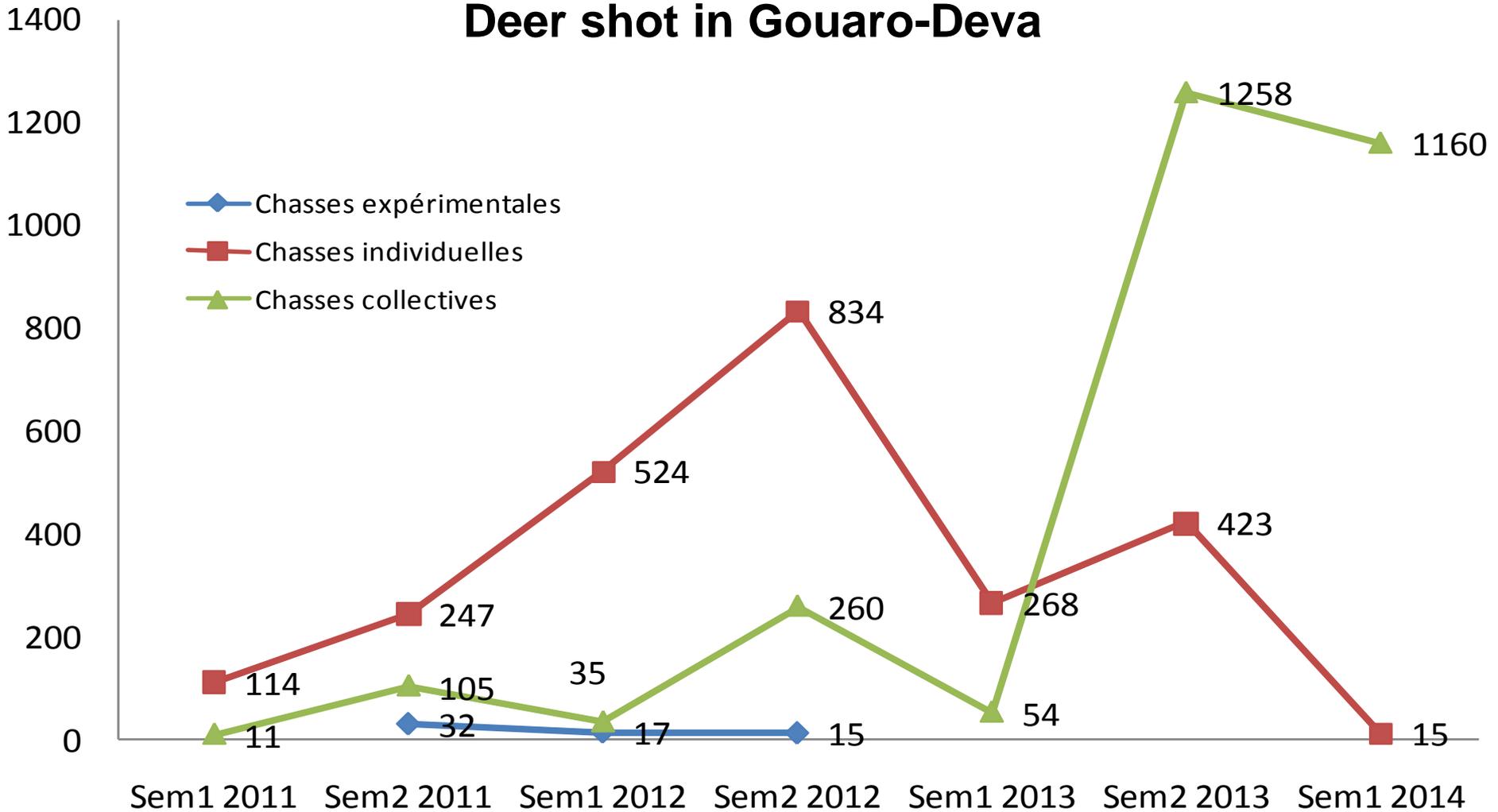
- **Deer control on “open” areas**  
**Specially in difficult access Humid Forest**  
(PGF)  
**But also in mixed savannah-dry forest areas**  
(Gouaro-Deva)

# REGULATION HUNTING with Hunt. Federation & Ass

**LOCALIZED ACTIONS** (10) in quite easy access areas (including HF)

## Deer shot in Gouaro-Deva

- Chasses expérimentales
- Chasses individuelles
- Chasses collectives



# RECREATIONAL HUNTING with individual hunters

## INCENTIVE REGULATION in recreational easy access area (priv, public lands)



**CREG**  
Centre de REGULATION  
des GROS GIBIERS

### MACHOIRES de cerf

## Nouvelles Primes:

À compter du 1<sup>er</sup> Janvier 2011

<p><b>Femelle</b> (plus de 12 mois)</p>	<p>ou</p> <p>avec calotte crânienne:</p> <p><b>5 000 F</b></p>	<p>sans calotte:</p> <p><b>1 000 F</b></p>
<p><b>Faon</b> (0 à 12 mois)</p>	<p><b>Mâle</b> (plus de 12 mois)</p> <p><b>1 000 F</b></p>	

### Points de collecte

**A Nessadiou, Bourail :** Directement au CREG

#### En Province Nord :

- CANALA, Place du marché : 1<sup>er</sup> Mardi : 08-12H
- HIENGHENE, Dayu Bek : 1<sup>er</sup> Mardi : 08-12H
- HOUAILOU, Place du marché : 1<sup>er</sup> Mardi : 08-12H
- KONE, District forestier : 1<sup>er</sup> Mercredi : 08-11H30
- KOUAOUA, Place du marché : 1<sup>er</sup> Mardi : 13-16H
- KOUMAC, District forestier : 1<sup>er</sup> Mercredi : 08-11H30
- POINDIMIE, Antenne DDEE : 1<sup>er</sup> Lundi : 08-11H30

**A POYA, Basse-Poya :** 1<sup>er</sup> Lundi : 14-16H30

#### En province Sud :

- BOULOUPARIS, Aire de repos sortie Nord : 1<sup>er</sup> Mercredi : 08-12H
- BOURAIL, Marché municipal : 1<sup>er</sup> Lundi : 08-12H
- FARINO, Marché municipal : 1<sup>er</sup> Lundi : 08-12H
- LA FOA, Hippodrome : 1<sup>er</sup> Mercredi : 08-12H
- MOINDOU, Sortie Nord : 1<sup>er</sup> Lundi : 12H30-15H30
- NOUMEA, DDR, parking intérieur : 1<sup>er</sup> Lundi : 08-12H00
- PAITA, Marché municipal, centre ville : 1<sup>er</sup> Lundi : 14-17H
- SARRAMEA, Mairie : 1<sup>er</sup> Mercredi : 12H30-15H30
- THIO, Marché de St-Philippo 1 : 1<sup>er</sup> Mercredi : 14-16H30

### Contacts

#### Animateurs :

- Région de BOULOUPARIS-THIO au sud de la Grand Terre : J. POULET : 89 05 56
- Région de MOINDOU à KOUAOUA et de LA FOA à CANALA : K. ROLLAND : 89 05 57
- Région de BOURAIL-HOUAILOU au nord de la Grande Terre : J.M. MATUFAUFAU : 89 05 58
- Chef de centre :** 75 18 36 **Biologiste :** 75 30 78

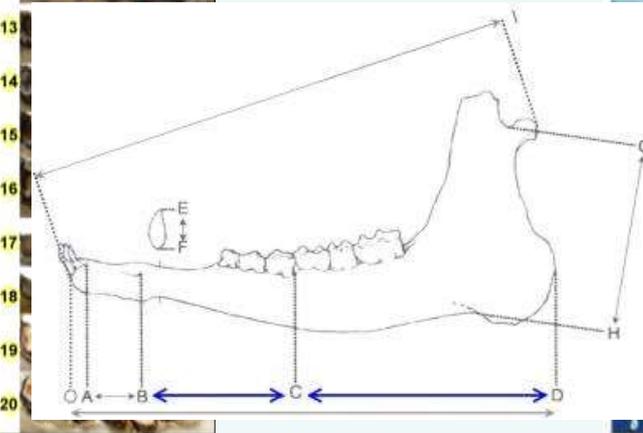
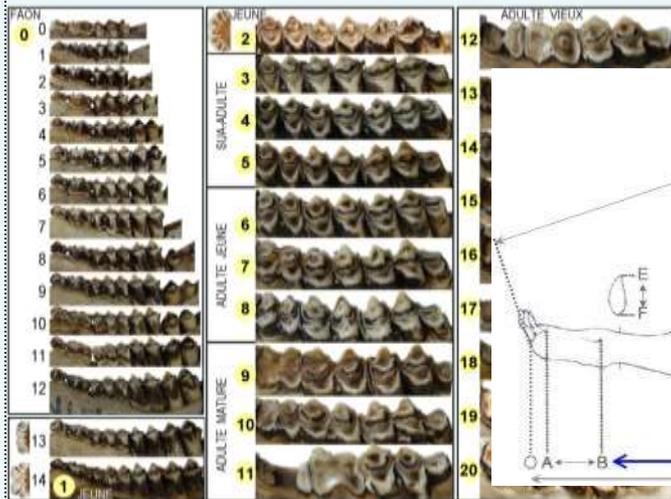


# RECREATIONAL HUNTING with individual hunters

## OBJECTIVES:

- **Awareness** (urgent need to better hunt ( regulate)
- **Incentive hunting-regulation** (priority: reprod. females)
- **Survey**
  - \* Geographic penetration of RH / Management Unit
  - \* Estimation of hunting effort – success
  - \* Population survey (F age structure, physical condition)

*in a context of adaptive management*

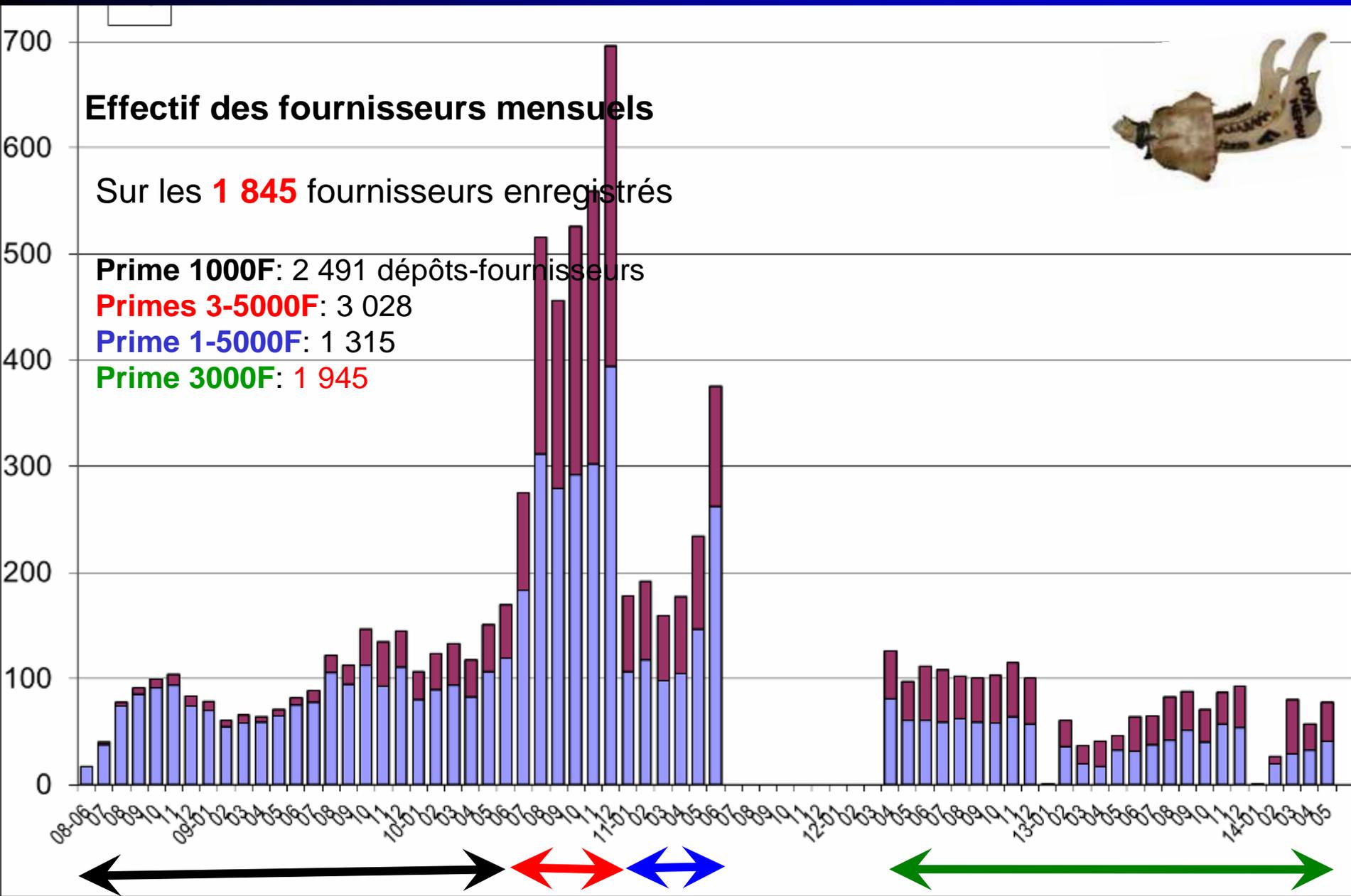


# RECREATIONAL HUNTING with individual hunters

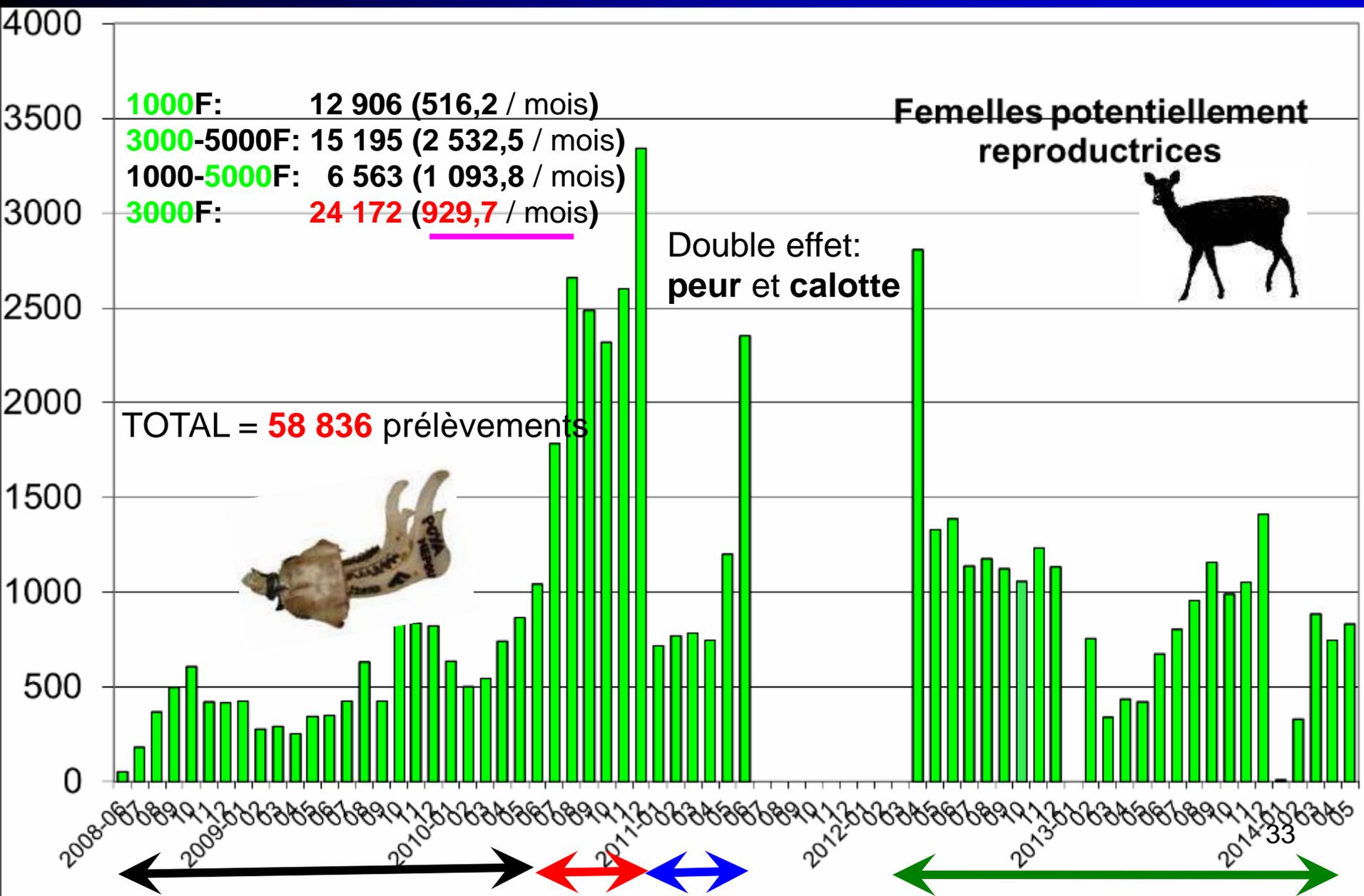
## RESULTS

- more than 1 800 registered hunters
- 150 000 lower jaws collected since 2008
- including 60 000 reprod females (1 year and older)
- Year 2013 cost: 25 M CFP / 200 M CFP for all deer-pig actions

# RECREATIONAL HUNTING with individual hunters



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## RESULTS

- more than 1 800 registered hunters
- 150 000 lower jaws collected since 2008
- 60 000 deer reprod females (1 year and older)
- 2013 cost: 25 M CFP / 200 M CFP for all deer-pig actions
  
- NO bounty effect onto:
  - Males (1 year and old, already selectively over shot)
  - Fawns (Bambi syndrome – low meat quantity)
  
- Bounty Effect onto :
  - Females (1 year & older)
  
- Since 2012:
  - A single bounty (3 000 CFP) onto target females
  - to reduce pop size (70% F)
  - and pop. Dynamics (polygynous sp)

# RECREATIONAL HUNTING with individual hunters

Analyse des mâchoires primées

## RESULTS

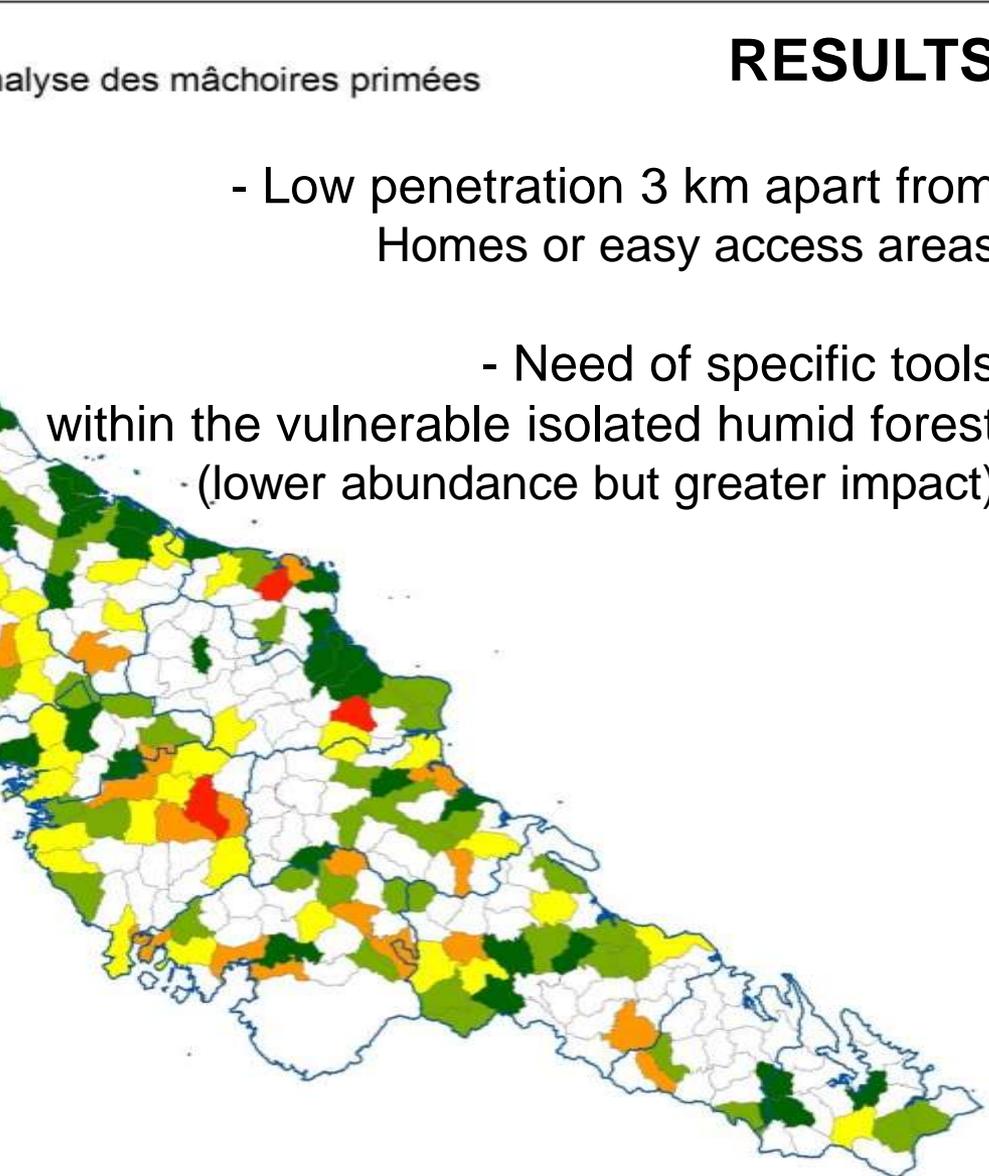
- Low penetration 3 km apart from Homes or easy access areas
- Need of specific tools within the vulnerable isolated humid forest (lower abundance but greater impact)

### Légende

- Communes PN
- Bassins versants

### Succès de chasse

- 9.1 - 26.5
- 5.8 - 9.0
- 3.9 - 5.7
- 2.4 - 3.8
- 1.0 - 2.3



# PROFESSIONAL HELIHUTING REGULATION

## VERY FIRST AERIAL CULLING TEST

Late 2013

Context of a three-years-pilot project in Northern province (ICONE)

Top of the central mountain chain (Panié Mount)



## OBJECTIVES

Operational & secure feasibility

Efficacy & efficiency / cost

## MEANS

DoC NZ prof. shooter

Local helicopter company

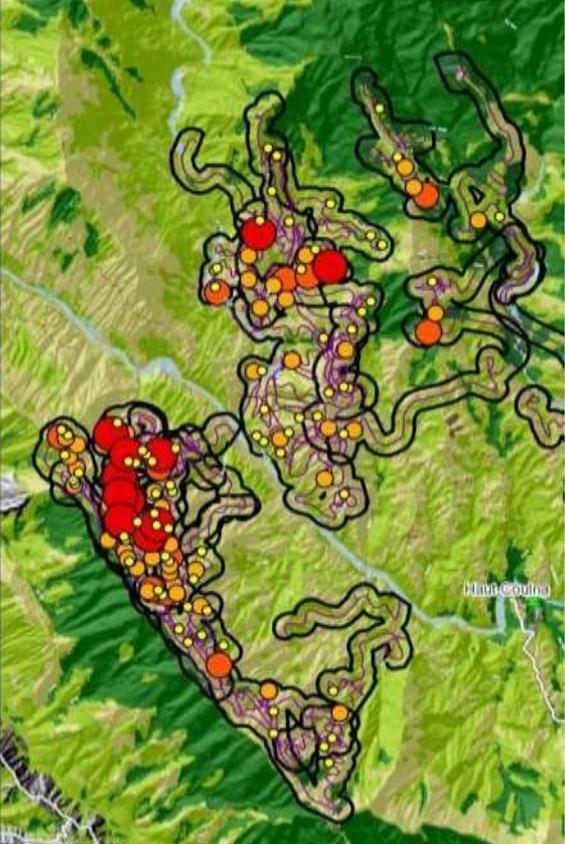
(B2)

Strong coordination

& consultation

(CI & ICONE partners)

# PROFESSIONAL HELIHUTING REGULATION



## RESULTS

7 regulation flight (5-8 Dec 2013)  
7 hours-25 minutes

*492 observed* (70% females)  
**249 deer shot** + feral pigs

For 3 significant flight > 1 hour:  
**250 ha, 30 deer shot, 55% shooting index**

***Max : 68 deer shot/1hour ; 75% shooting index***

Cost 1 600 CFP/ha savannah/year  
between 10.000 - 20.000 CFP/deer shot.

# PROFESSIONAL HELIHUTING REGULATION



## **MAJOR FACTORS** influencing efficacy

- Deer abundance
- Plant cover
- Time, weather, deer behavior / day
- Pilot & team experience

## **CONCLUSION**

- Feasibility and efficiency confirmed
  - Specially where no ground access
  - Less costly than ground regulation
  - Social acceptance
- Even if carcasses recovery very difficult



# PROFESSIONAL HELIHUTING REGULATION

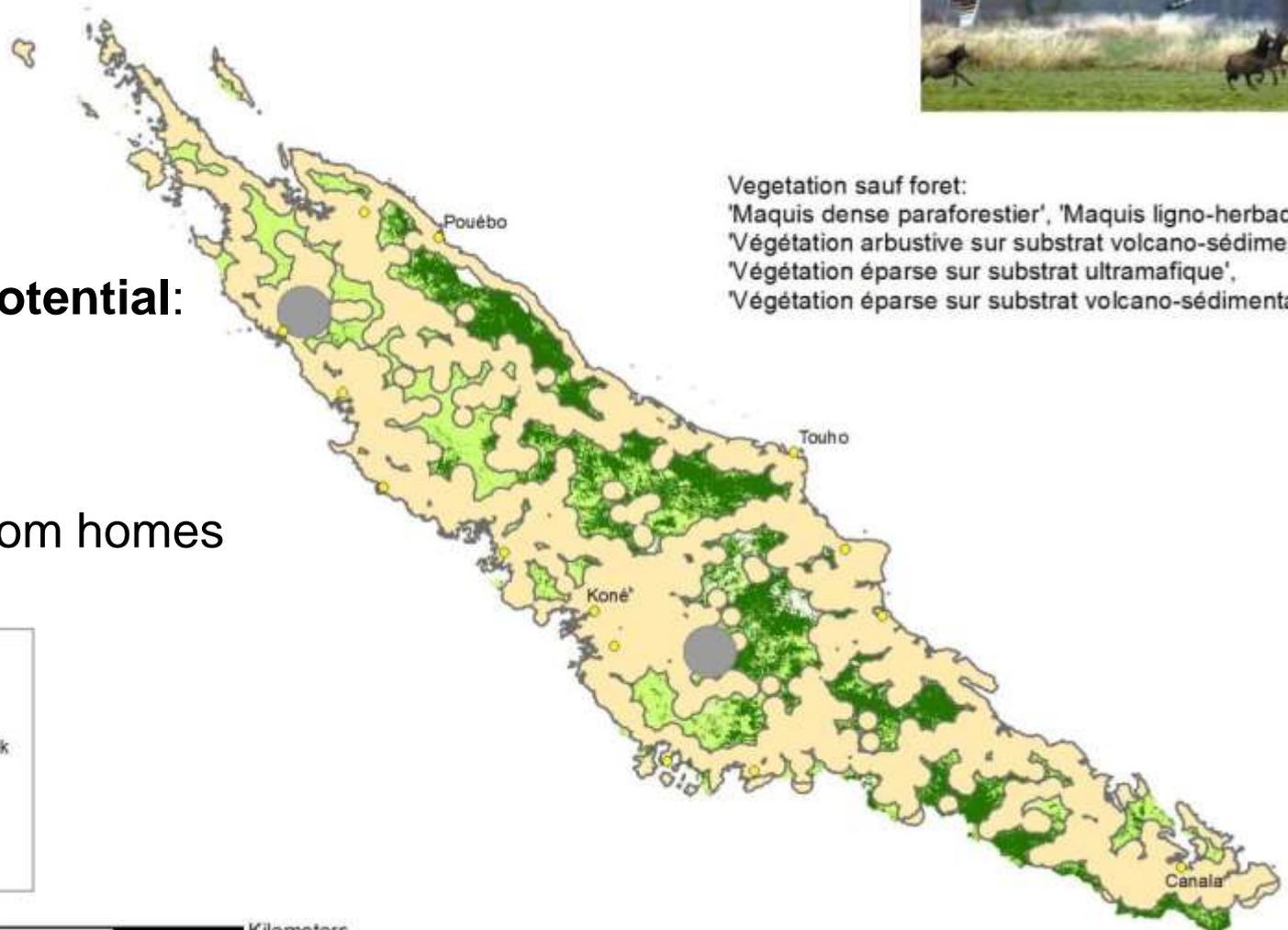
## PERSPECTIVES

New era

North prov. potential:  
125.000 ha  
Open habitats  
(savannah)  
> 2 km apart from homes



Vegetation sauf foret:  
'Maquis dense paraforestier', 'Maquis ligno-herbacé'  
'Végétation arbustive sur substrat volcano-sédimentaire'  
'Végétation éparsse sur substrat ultramafique',  
'Végétation éparsse sur substrat volcano-sédimentaire'



# HUNTING MEAT COMMERCIAL MARKET

**OFFICIAL Local – Export market for FARMED DEER**

**NO LEGAL (“parallel”) market for Hunting Bush Meat**  
even if : **80 000 – 100 000** deer exchanged / year

Several attempts to formalize – regulate this “hunt” market  
without success still (fear of competition risk by farmers)



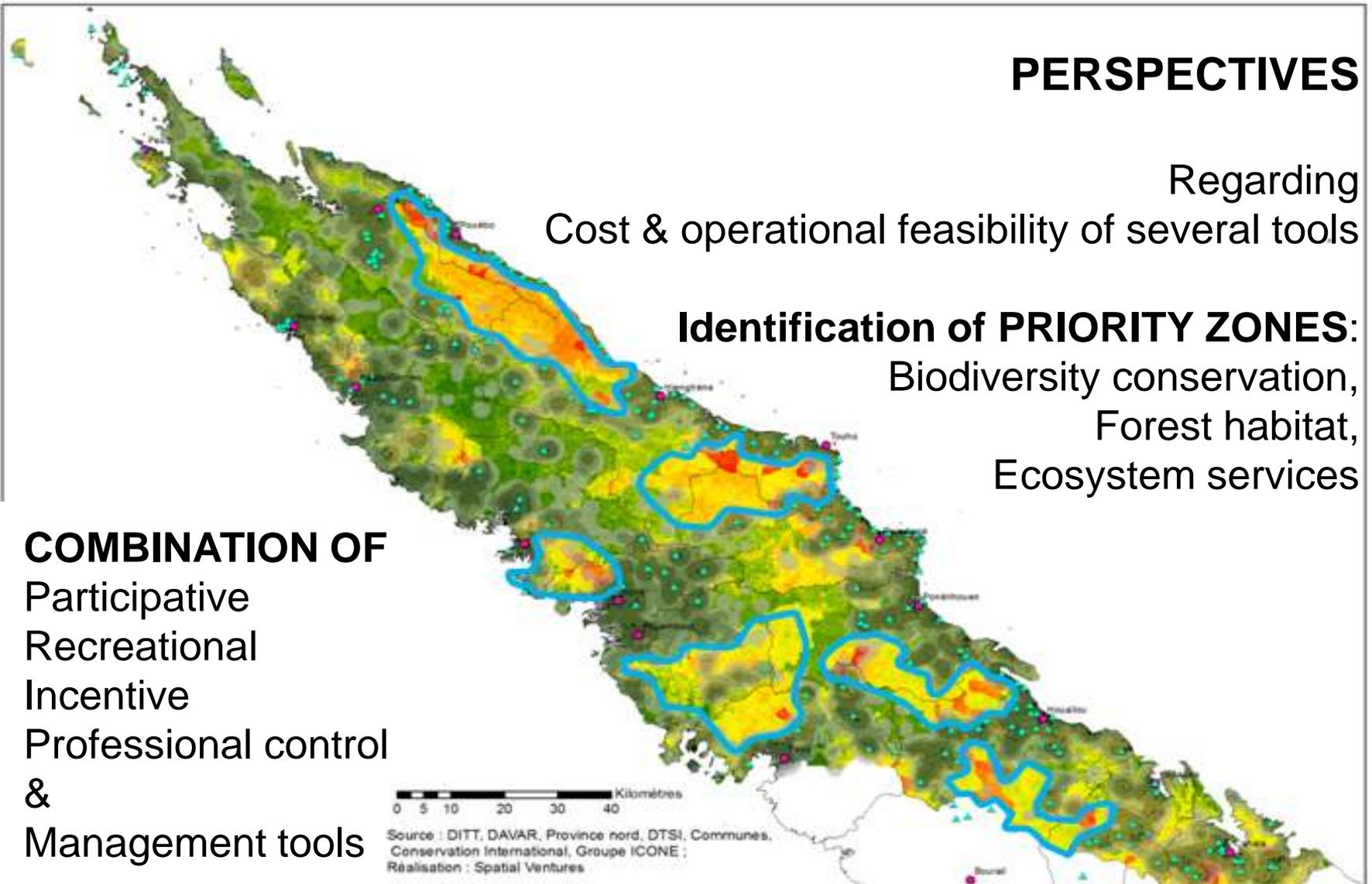
# HOPES & PERSPECTIVES

## PERSPECTIVES

Regarding  
Cost & operational feasibility of several tools

**Identification of PRIORITY ZONES:**  
Biodiversity conservation,  
Forest habitat,  
Ecosystem services

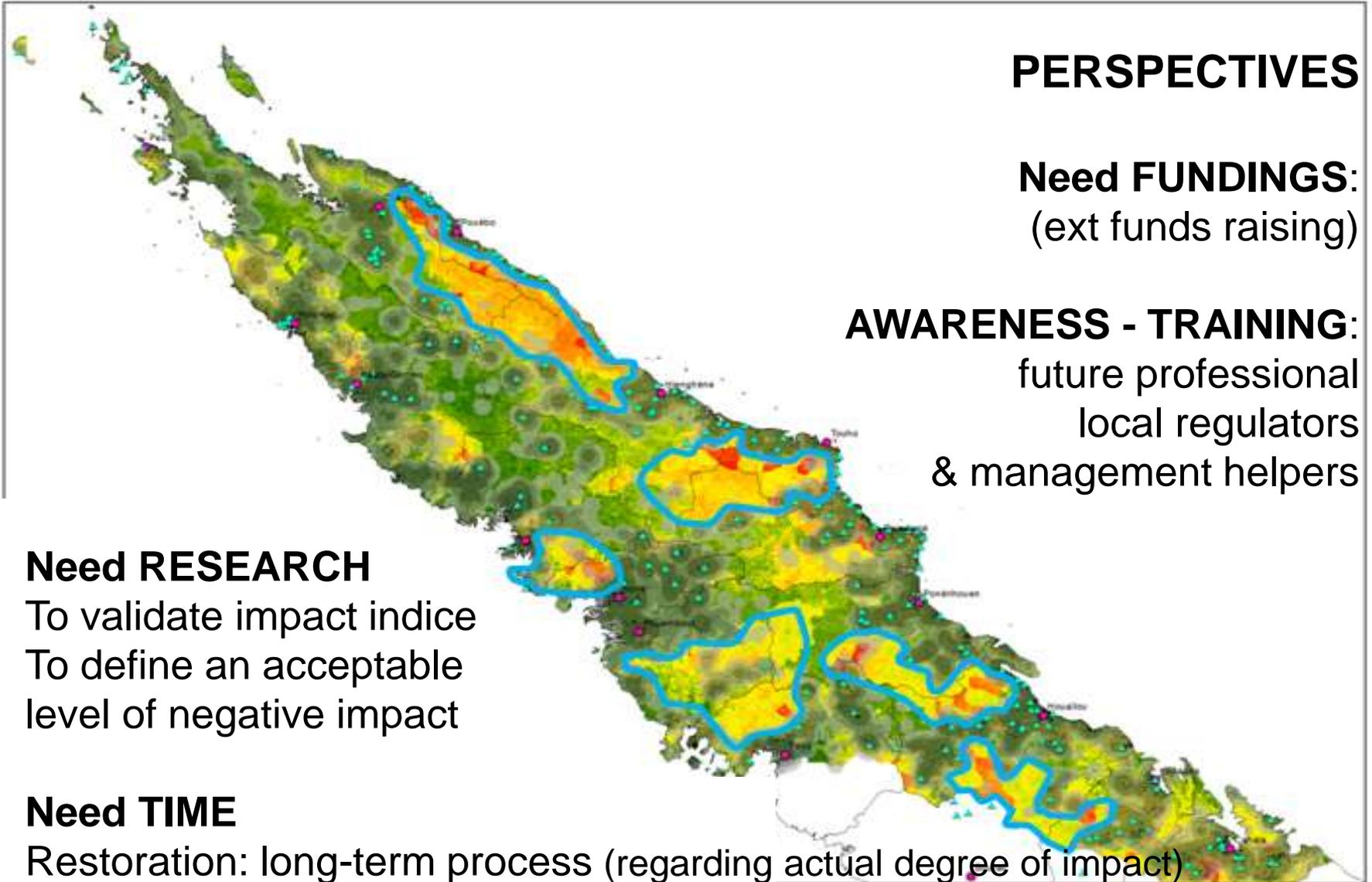
**COMBINATION OF**  
Participative  
Recreational  
Incentive  
Professional control  
&  
Management tools



0 5 10 20 30 40 Kilomètres

Source : DITT, DAVAR, Province nord, DTSl, Communes,  
Conservation International, Groupe ICONE ;  
Réalisation : Spatial Ventures

# HOPES & PERSPECTIVES



## PERSPECTIVES

**Need FUNDINGS:**  
(ext funds raising)

**AWARENESS - TRAINING:**  
future professional  
local regulators  
& management helpers

## Need RESEARCH

To validate impact indice  
To define an acceptable  
level of negative impact

## Need TIME

Restoration: long-term process (regarding actual degree of impact)

# THANK YOU !

## ENJOY !



**100%**

**Pur Cerf**

