Screwworm Eradication From Cuba: How Might This Proceed & How Could ARS Contribute?

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1st an Important Consideration

In the New World, Foot & Mouth Disease, Classical Swine Fever & New World Screwworm are the most important transboundry diseases of livestock.

14th Inter-American Meeting (2005)
RIMSA-14
Pan-American Health Organization
World Health Organization

The Screwworm in Cuba

Cuba acknowledges a screwworm problem in 1995.

1997 survey by FAO:

- 2 – 3% mortality in all species annually;
- Direct annual losses of $773,172;
- Survey costs $1,036,980 annually;
- Annual treatment costs $31,878,000
- Total annual losses about $33.7 million

The Screwworm in Cuba (cont.)

1997 FAO survey (cont.):

- 4,500 cases reported in ’97 (est. 22,000 actual);
- Estimated cost of eradication was $38 million over 4 years;
- Estimated ‘payback’ (5:1 benefit:cost) in 5 years;

1997 FAO survey (cont):

	1995	1996	1997	Total
Reported cases	**394**	**1,102**	**4,407**	**5,903**
of which:				
Cattle	48%	60%	62%	61%
Pigs	22%	22%	21%	21%
Sheep	20%	11%	8%	10%
Horses	5%	5%	6%	5%
Goats	3%	1%	2%	2%

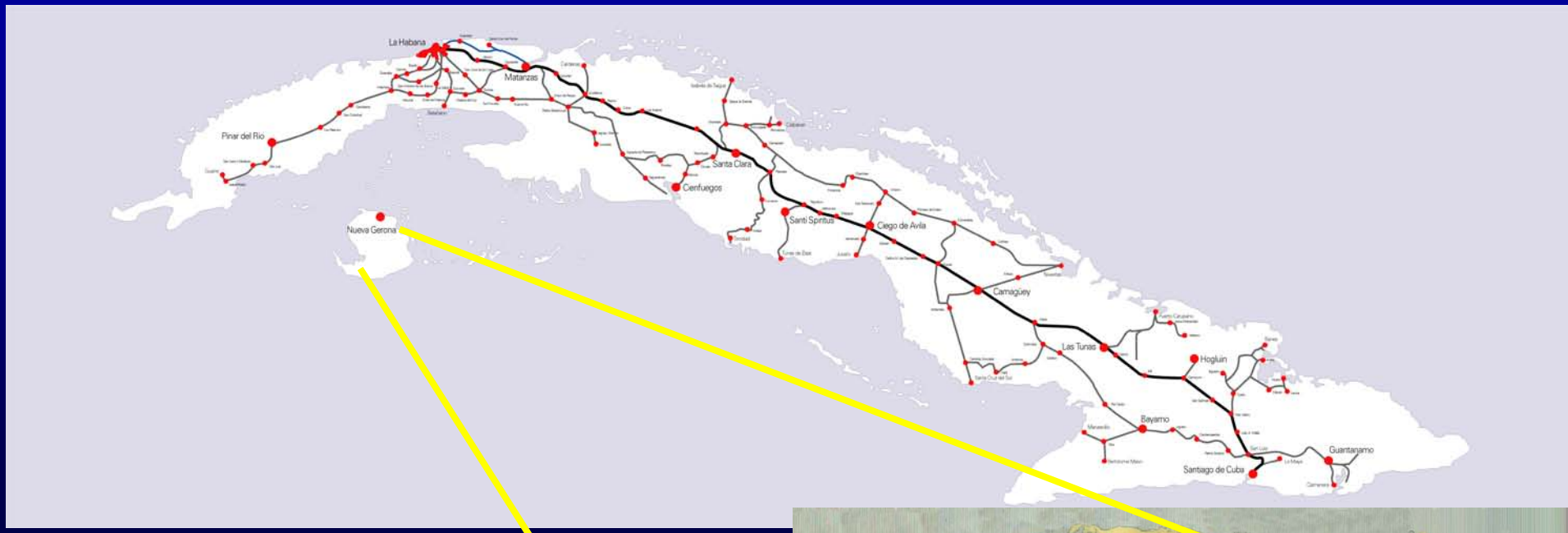
Thematic Plan developed in 1998

Regional Meeting, 2000, in Panama

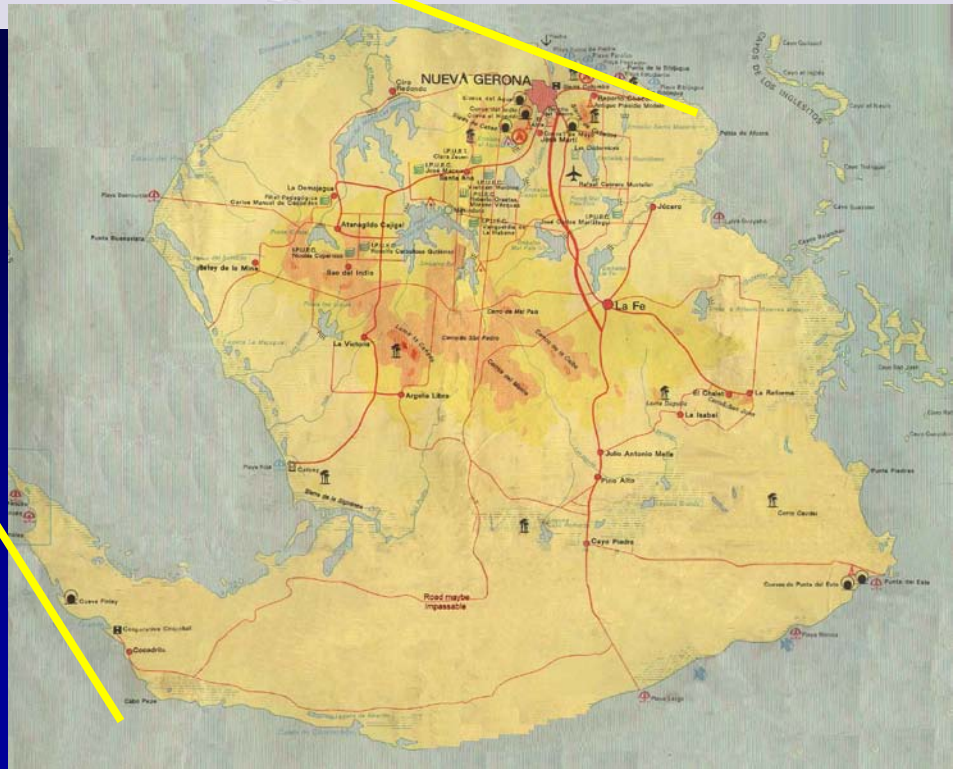
- Screwworm eradication from all Caribbean Nations
- Representatives of all Caribbean Nations attended

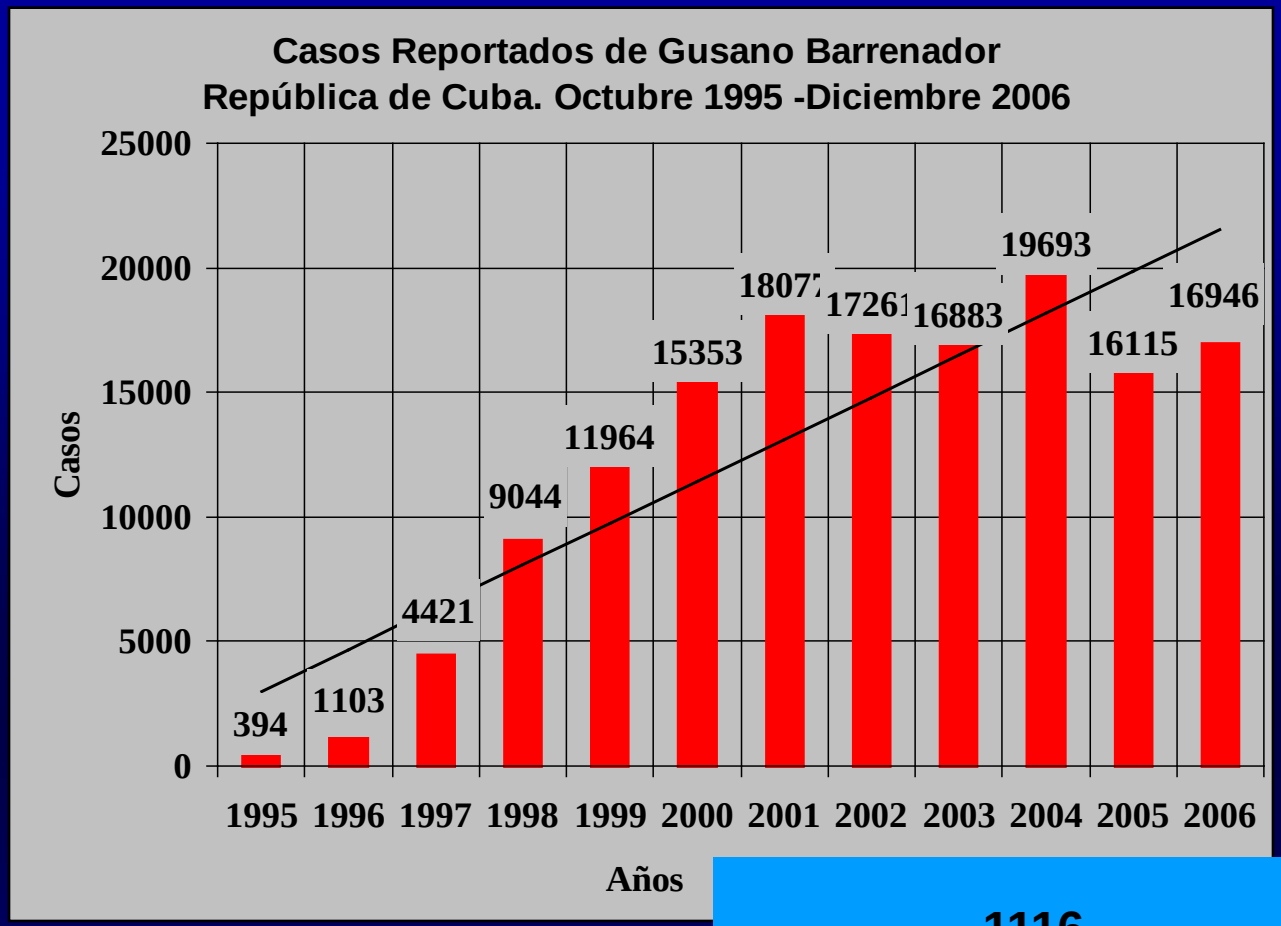
Evaluation of wound treatment on Isla de la Juventud

- Initiated in 2000
- Many individuals trained

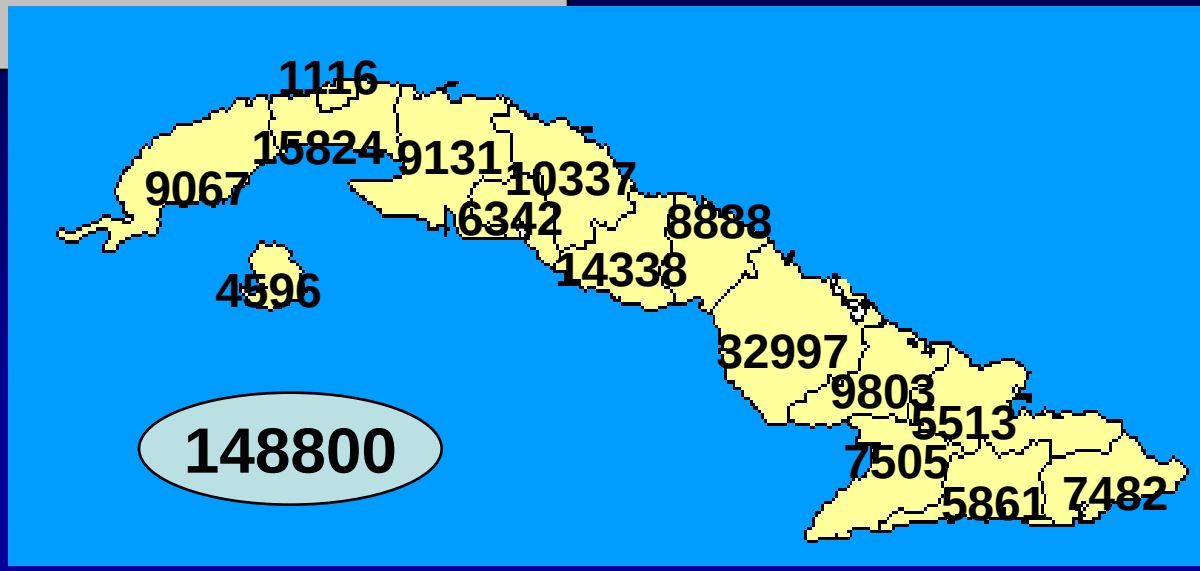


Isla de la Juventud

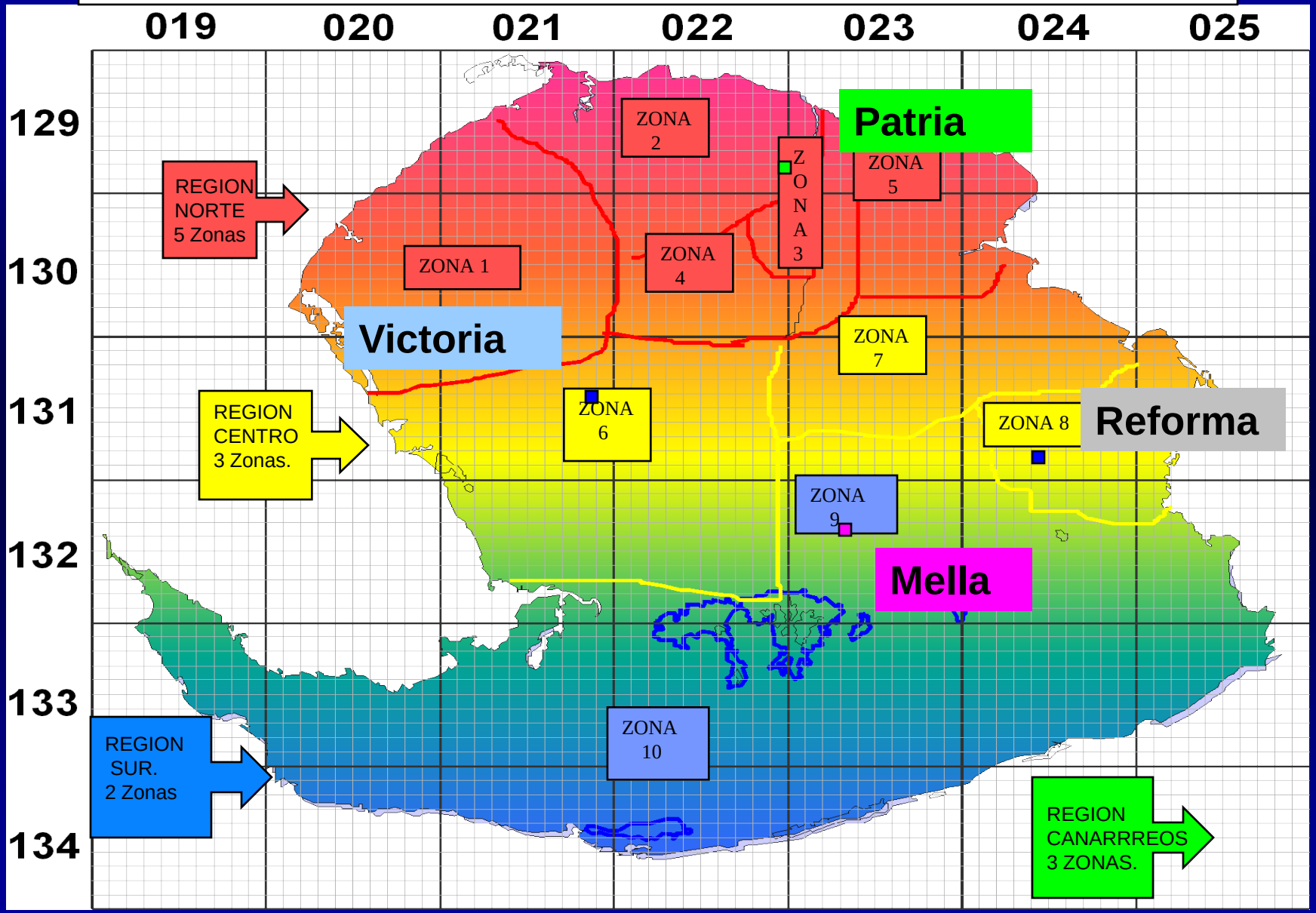




From a presentation by
Dr. Luis Méndez Mellor



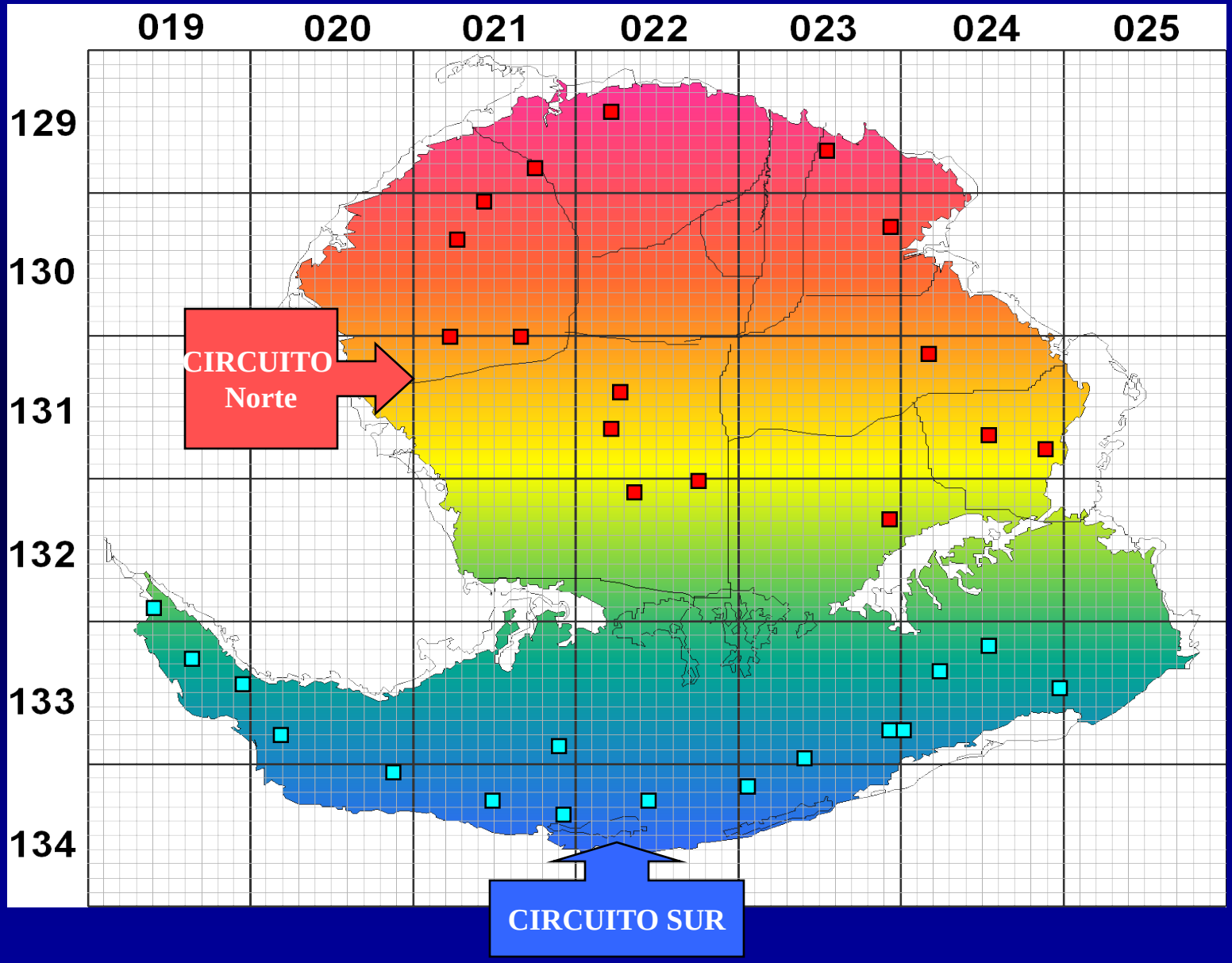
DIVISION GEOGRAFICA DE LA ISLA POR REGIONES Y ZONAS.
(No incluye la Región de los Canarreos)



From a presentation by Dr. Luis Méndez Mellor

CAPTURA DE MOSCAS SILVESTRES DE GBG POR CIRCUITO

Febrero-Mayo/2001



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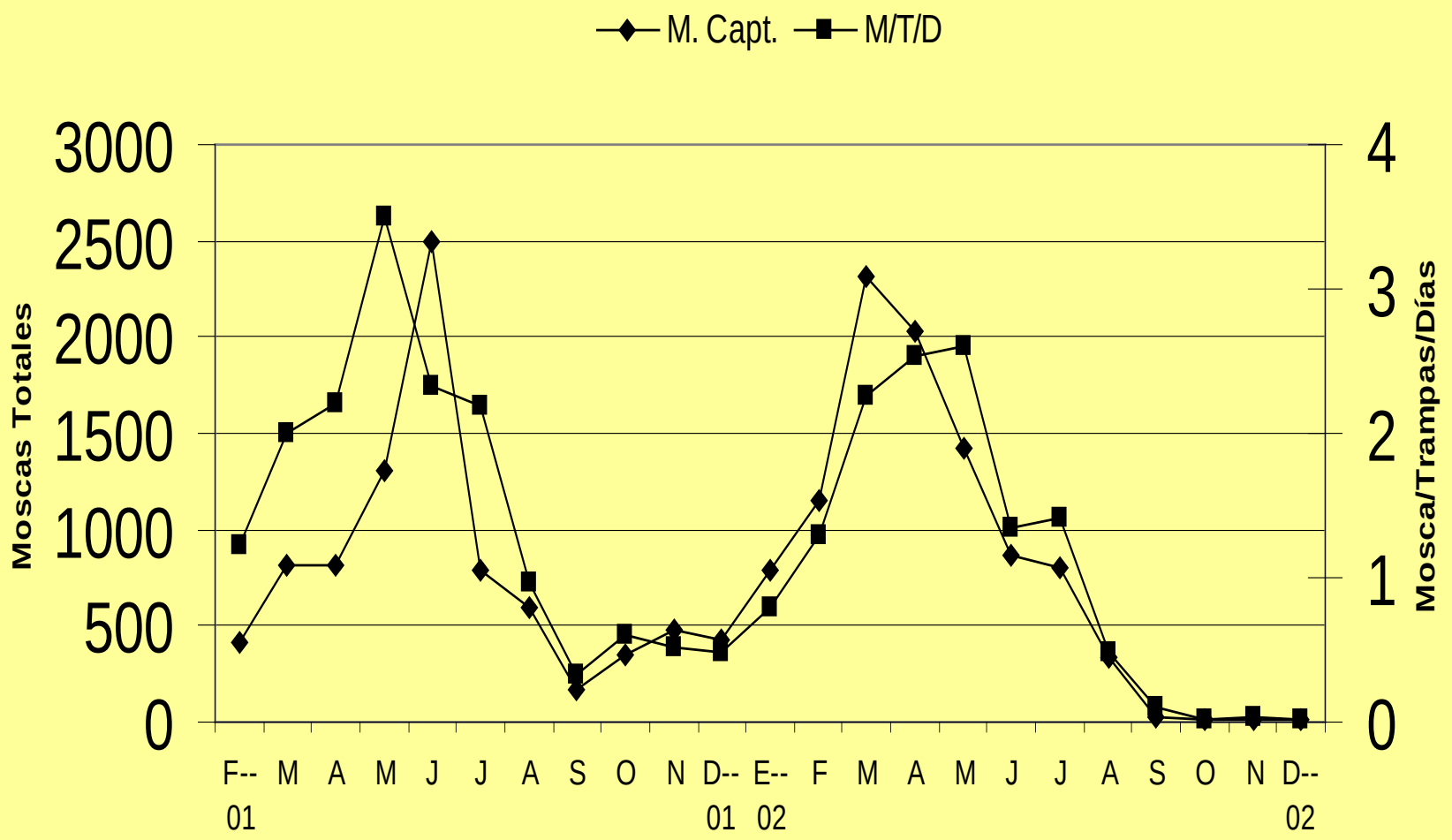
Capturas de Adultos



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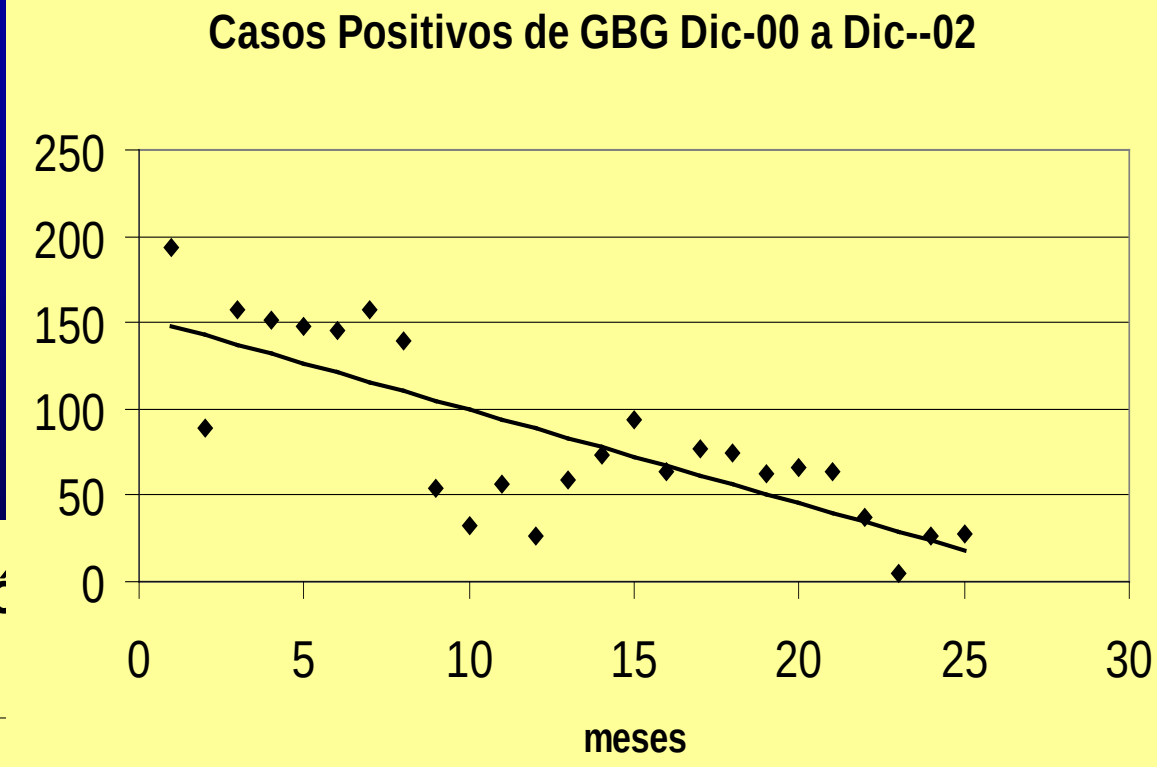

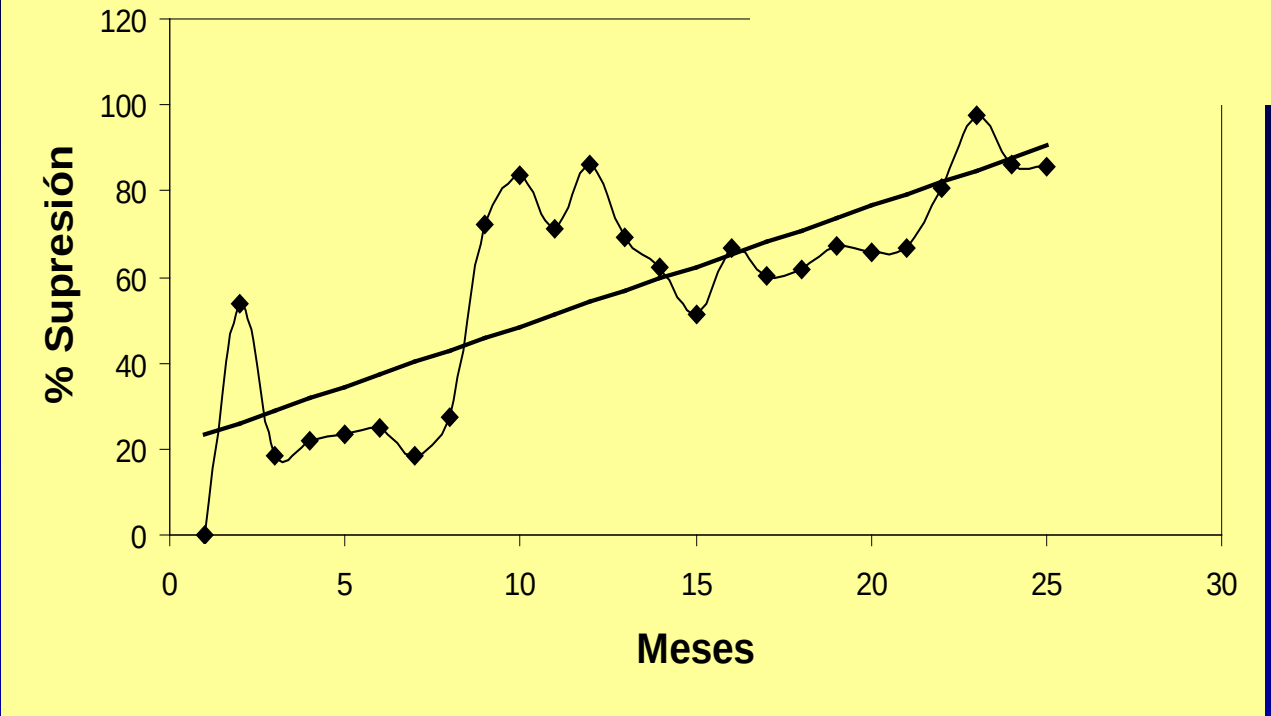

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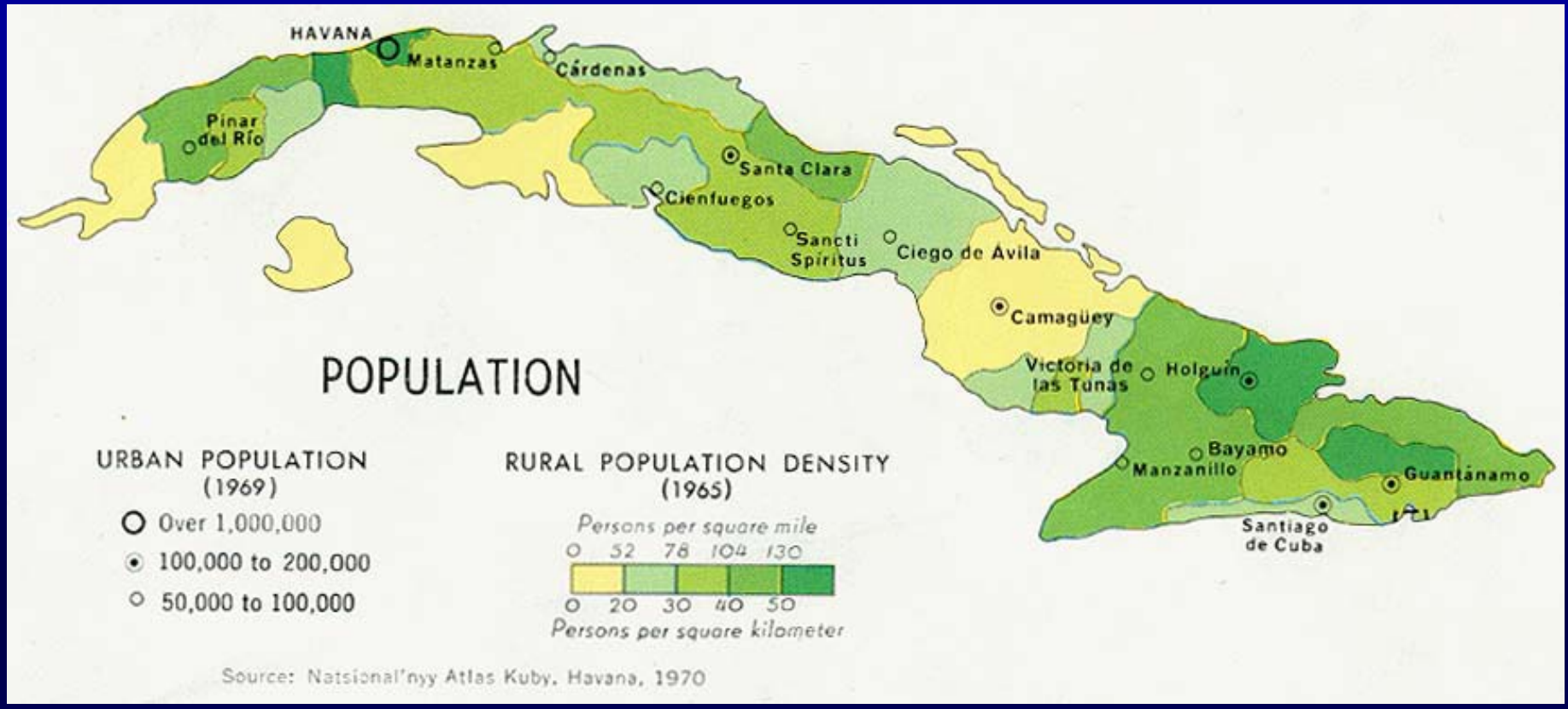
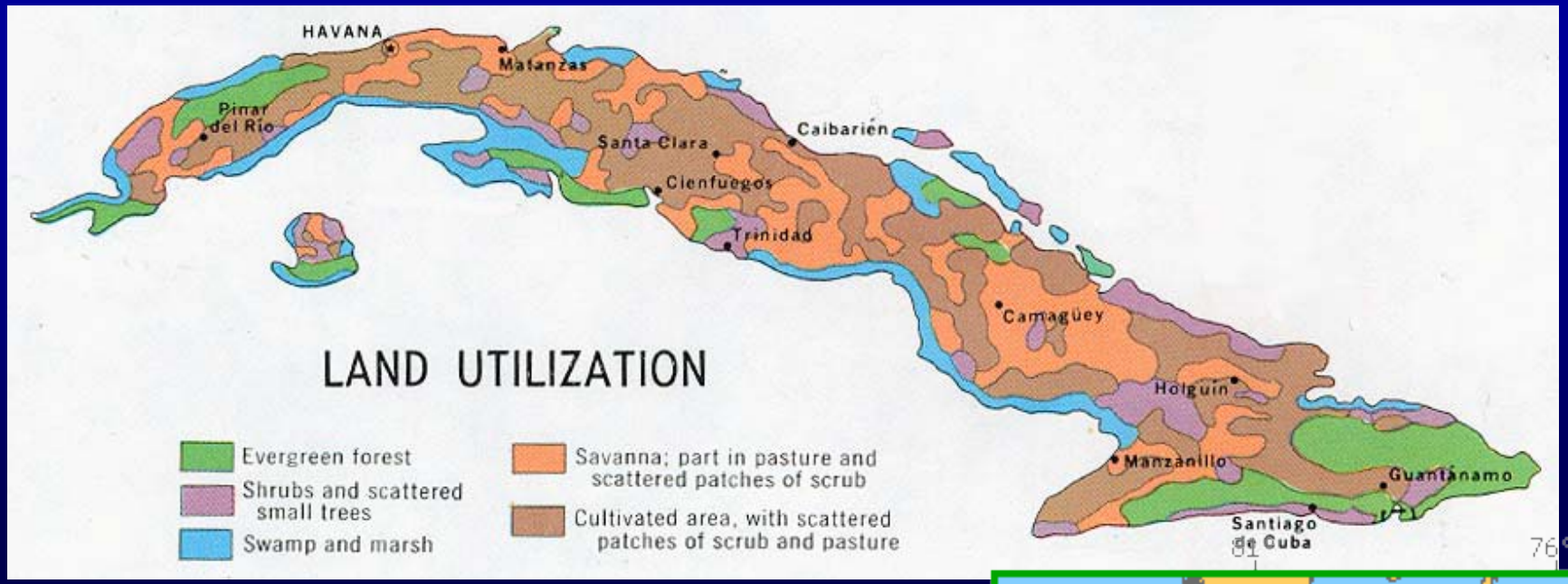
Largest island in the Caribbean - about 110,860 sq. Km. (42,800 sq. mi.), 1271 km. (790 mi.) long, average 88 km. (55 mi.) wide.

The area of Costa Rica and Panama - about 129,300 sq. km. (49,923 sq. mi.), 1150 km. (714 mi.) long, average 112 km. (69 mi.) wide.



Cuba's population is about 11,425.000 (2008 est.)

Costa Rica's & Panama's population is about 7,535,000 (2008 est.)



About 30% of the land in Cuba is arab

< 5% Costa Rica; > 7% in Panama of

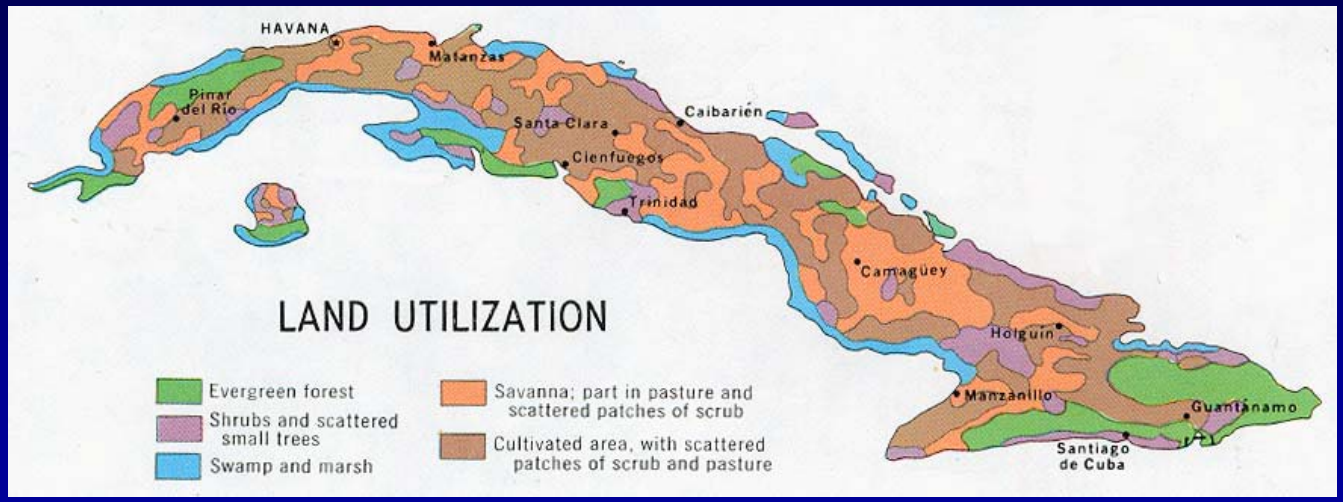
Climate is similar in Cuba to Costa Ri

Cuba is less forested than
Costa Rica & Panama.

Cuba employs most people in agriculture and service industries.

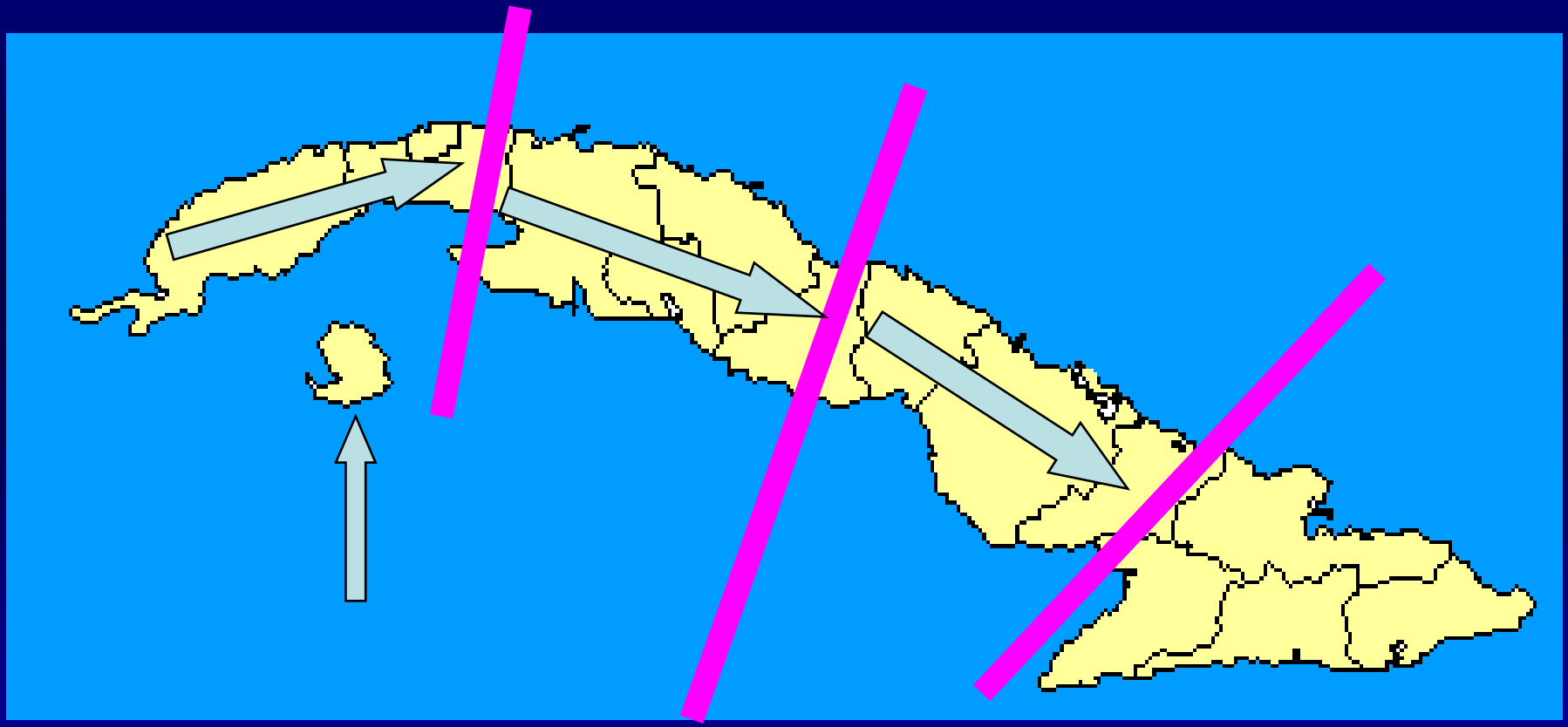
Costa Rica employs most people in tourism, agriculture & electronics.

Panama employs most people in agriculture, service industries & construction.

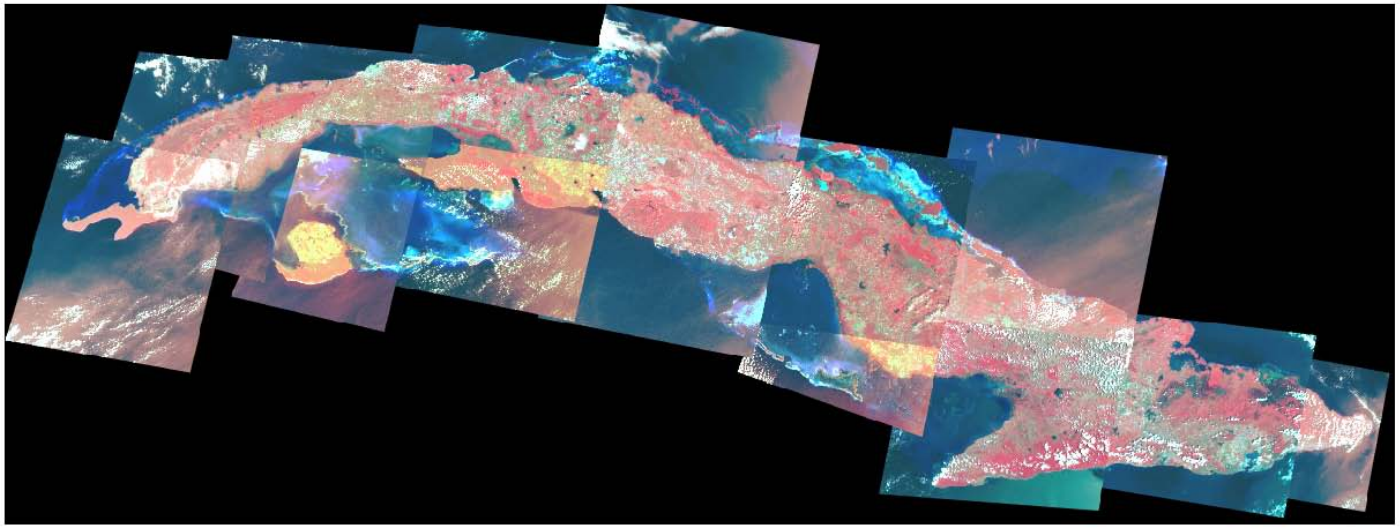


From these maps the concentration of livestock is not adjacent to optimal habitat of screwworm.

An eradication program in zones is recommended



Landsat 7 Image Mosaic of Cuba, 2000-2003



0 40 80 160 240 320 400
Kilometers

ARS contributions would include:

- Direct/consult for development of appropriate strain(s);
- Develop sterile release strategies considering habitat-host location;
- Collaborate in determining initial fertile screwworm populations;
- Suggest placement of traps to monitor sterile/fertile populations;
- Other contributions as needed.

BEFORE BEGINNING WE SHOULD KNOW:

- Distribution and seasonal occurrence
- Population density
- Incidence and severity of myiasis
- Economic impact studies
- Studies on screwworm migration behaviour
- Application of geographic information systems
- Genetic diversity
- Risk analysis

Taken from:
Vargas-Terán et al. 2005
IMPACT OF SCREWWORM ERADICATION PROGRAMMES USING THE STERILE INSECT TECHNIQUE

DURING THE PROGRAM WE SHOULD MAINTAIN:

- Treatment of individual animals/groups to prevent or cure infestation, especially before movement
- SIT to suppress and eradicate the fly
- Quarantine and movement controls in declared areas to prevent movement of infested animals
- Tracing and surveillance to determine the source and extent of the infestation, and provide proof of freedom from the disease
- Zoning to define infected and disease-free areas
- Public awareness campaign to encourage rapid reporting of suspected infestations, and to facilitate cooperation from industry and communities

THANK YOU

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United States Department of Agriculture