

# Neo-tropical Animals and Agro-tourism: A Republic of Trinidad and Tobago Opportunity

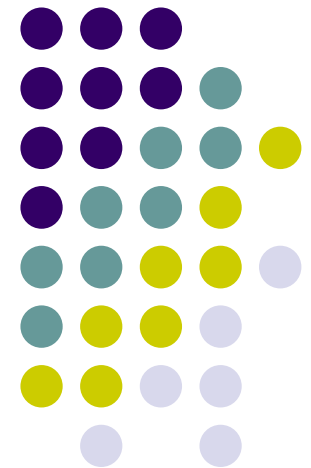
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St. Augustine.



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Community Development***

***Sir Arthur Lewis Institute of Social and Economic Studies [SALISES]***

***UWI, St Augustine, Trinidad and Tobago, W.I.***

***July 28-29, 2009***

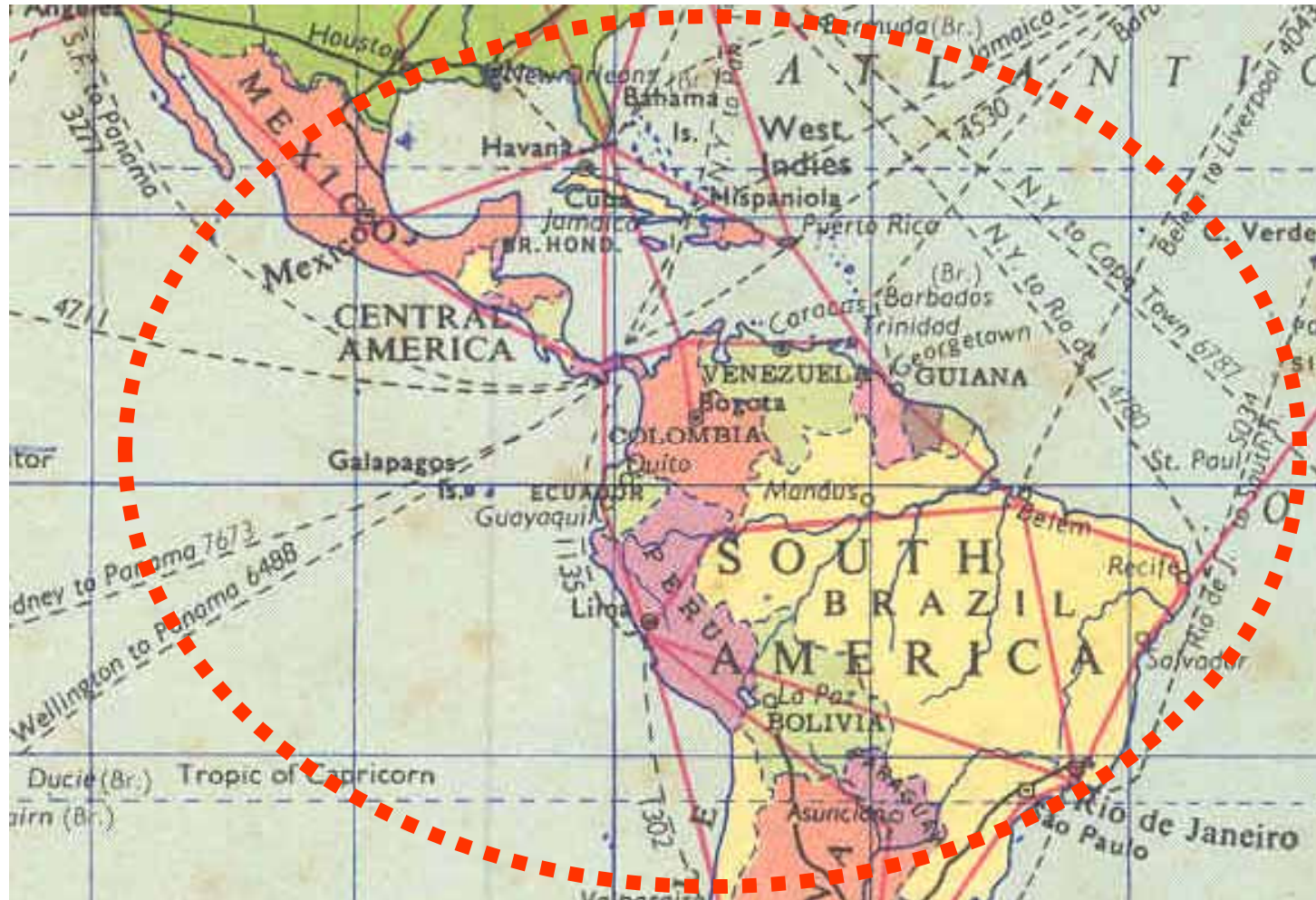
# **1.0 Presentation Outline**



- 1. Where is the Neo-tropics?**
- 2. What is meant by the term “Animal” within the context of this paper?**
- 3. Why the use of the term “Neo-tropical Animals” and not “Wildlife”?**
- 4. Utilization of Neo-tropical Animals &/ the Global Value of Wildlife.**
- 5. Agro-tourism.**
- 6. The problems that we have with Neo-tropical Animals.**
- 7. Neo-tropical Animals of Importance to Trinidad and Tobago within the Agro-tourism context.**
- 8. The Opportunities for Neo-tropical Animals in Trinidad and Tobago within the Agro-tourism context.**



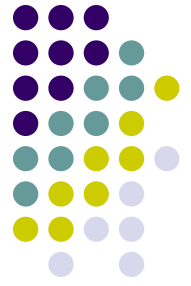
## 2. Where is the Neo-tropics?



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# 3. What is an Animal?



Garcia 3 X 3 classification of **Animals/Livestock** as follows:

## 1] Domestic Animals

- (i) Food Animals
- (ii) Companion Animals
- (iii) Laboratory Animals

## 2] Animals on the Verge of Domestication [Semi-wild/Semi-domesticated]

## 3] Zoo and Truly Wild Animals

This simple classification is necessary because the Vets mean one thing, the Agriculture people mean one thing and the Conservationists mean another.



**4.0 Why are we  
using the term  
Neo-tropical  
Animals and not  
Wildlife OR Wild  
Animals?**

# 4.1 Wildlife



**“Wildlife”** includes all life that have not been domesticated by humans

**“Wildlife”** to mean

**“terrestrial and aquatic non-domestic animals”.**

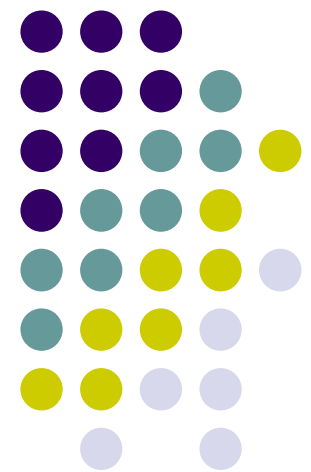
**At VIII International Congress on the  
Management of Wildlife in Amazonia**

**and Latin America, September, 2008,**

**Acre, Brazil],** it was suggested that

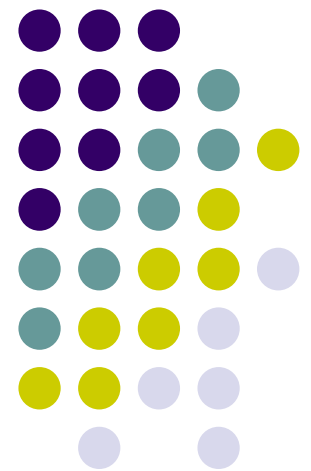
we should begin to use the term

**“Neo-tropical Animals”** instead of “Neo-tropical Wildlife” or “Amazonian Wildlife”.



The above suggestion was made to ensure that we differentiate the approaches being developed for **Latin**

**American** solutions to “Wildlife” management from the **Eurocentric** approaches.





Ojasti (1996) [pioneer on Latin American Wildlife Management, trained in Europe and USA before going to work in Venezuela] his thinking:

*“Most of the information now available is descriptive and/or anecdotal,*

*based on the experiences,*

*views or beliefs of hunters and*

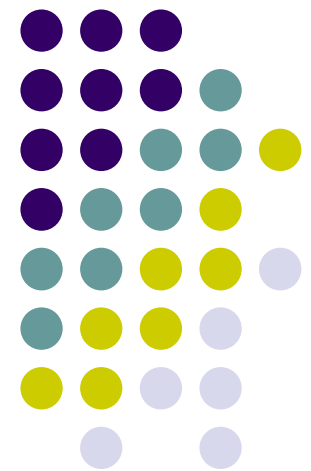
*campesinos, or on naturalists’*

*accounts observations of animals in captivity,*

*and so forth. The diffuse information is*

*repeatedly cited but there is no way*

*to check its origin and accuracy.”*





*“The problem of Latin American Wildlife requires its own solutions, geared to the specific realities of the countries, the region and the type of user”.*

## 4.2 Biodiversity

### [Sometimes an overused and misunderstood term]



- The collection [physical, active and dormant] and range of plant and animal genetic material contained within an environment [Garcia, unpublished] OR
- contained in the wildlife of our rangelands and forests, and in the fisheries or other aquatic life of the sea and fresh waters (Conway, 1997).



## **4.3 Animal Diversity/Assets within the Neo-tropics [excluding aquatic species]**



## **MAMMALS**

**>25% of all known mammals**

## **BIRDS**

**33% of all Birds of the World**

## **REPTILES**

**19% of World Reptiles**

## **AMPHIBIANS**

**≈46% of World Amphibians**



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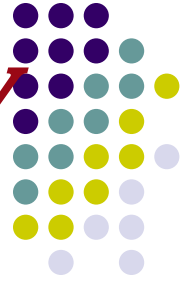


Today there is widespread confusion within the minds of the different conservation groups and wild animal lovers' camps.



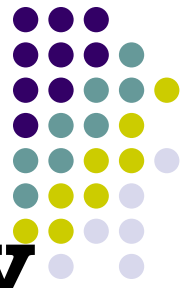
It is my perception that many of our “**Wildlife Conservation Aficianados**” [or those who seem to be the most vocal on animal wildlife issues] have forgotten [or seem to have **amnesia**] that all present day domestic species of animals were once wild or undomesticated. **It is also an historical accident that all present day domestic species of animals** [with the exception of the **Muscovy Duck** (*Cairina moschata*), the **Turkey** (*Melargis gallopavo*) and the **Guinea pig** (*Cavia porcellus*)] **are all non-neo-tropical in origin.**

*Which of the present day  
domestic species are  
from the Neo-tropics?*



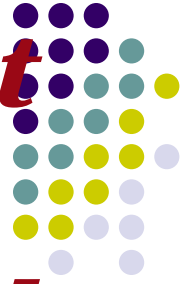
**Only**

- **The Muscovy Duck**
- **The Guinea Pig and**
- **The Turkey**

- 
- **YES the Dog, the Cat, Dairy and Beef Cattle, Sheep, Goats, Rabbits, Chickens, Pigs and Horses have all been imported into the New World / the Americas!!!!**

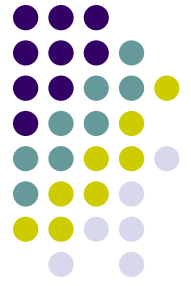


# *How much do we know about the important Neo-tropical Animal [wildlife] species of the Neo-tropics?*



- Do we know much about their anatomy?
- Do we know much about their digestive systems and their nutrient needs?
- Do we know much about their reproductive systems and how to predictably get them to reproduce in Captivity?
- Do we know much about the Turtles' Reproductive Systems and their Physiological Mechanisms involved in Egg Laying [like we know about for the Domesticated Chickens and Turkeys]?

# Types of Production and Utilization Initiatives on Neotropical Animal [The Trinidad and Tobago and South American Experience]




- ✓ Wildlife Farmers- most now registered with the **Wildlife Unit of the Forestry Division** of the Ministry of Public Utilities and the Environment
- ✓ **The Open Tropical Forage-Animal Production Laboratory [OTF-APL]** Wildlife Unit at the University Field Station, Valsayn.



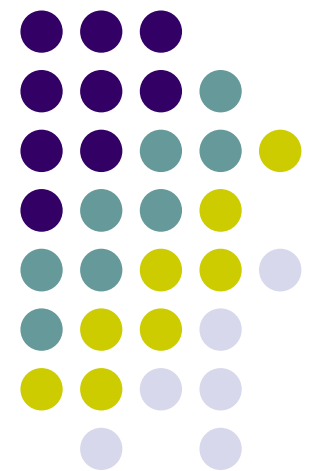
# Initiatives in Latin America

- ✓ **The Soucoumou Station of the Chambre de l'Agriculture in French Guyana [Focus on Production with the Technical support from OTF-APL, UWI]**

- 
- ✓ **Work at the University Estadual do Santa Cruz in Bahia, Brazil [Focused on an understanding of these animals and animal production modelling; and linked to a funded and supported M.Sc. Programme in Applied Zoology]**
  - ✓ **Work in Iquitos in Peru [Here the work on many farms are linked to a Peruvian National Biodiversity Management and Production Initiative]**

**So does that mean that the native peoples of the Caribbean before the arrival of Columbus had access to little animal protein?**

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Well I would quote the following and leave it up to you to judge for yourselves.

- **“...horses and camels had their center of origin within the Americas but had become extinct for reasons unknown...and before Columbus... the natives of the Caribbean had no shortage of animal protein “**
  - **Williams, H. E. (2002): The genesis and dynamics of animals and their diseases in the Caribbean (in parallel with human endeavor). *J. Caribb. Vet. Med. Assoc.* Volume 2, number 1: 12-16**

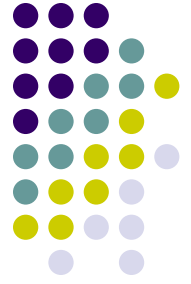


## **4.4 The Caribbean is a Conservation Hotspot BUT Trinidad and Tobago is NOT!**

Conservation International (2004) have suggested that **11.3% of the Caribbean** [including southern Florida and excluding Trinidad and Tobago] **remain in its natural state.**

**Trinidad and Tobago, however, has about 33 % of its landmass under natural vegetation**

**[Nelson 2002]**



**This is the Agro-tourism opportunity for the Republic of Trinidad and Tobago under the following:**

**1] the Education,**

**2] the Ethnocuisineology [Garcia *et al* (2005)],  
and**

**3] the Farm Living and Visits Experience.**

**This would be elaborated on later in this paper.**





## **4.5 Animal Biodiversity of the Republic of Trinidad and Tobago:**

### **An Eco or Agro-tourism Opportunity!**



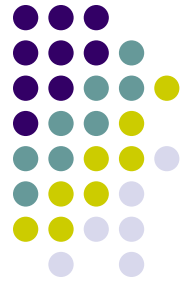
<b>Vascular Plants</b>	<b>2160</b>
<b>Mammals</b>	<b>95</b>
<b>Birds</b>	<b>450</b>
<b>Reptiles</b>	<b>85</b>
<b>Snakes</b>	<b>41-47</b>
<b>Insects</b>	<b>5000 (ESTIMATED)</b>
<b>Butterflies</b>	<b>600+</b>
<b>Amphibians</b>	<b>30</b>
<b>Fresh Water Fishes</b>	<b>45</b>
<b>Marine Fishes</b>	<b>345</b>
<b>Reef Building Corals</b>	<b>6</b>
<b>Nematodes</b>	<b>200-300</b>

[Kenny, Comeau and Katwaru (1997) as cited by Cross (2001)]



# **5.0 NEO-TROPICAL ANIMAL UTILIZATION IN LATIN AMERICA AND THE CARIBBEAN**

# 5.1 Patterns of Utilization of Neo-tropical Animals [Wildlife]



In Latin America and the Caribbean from an administrative and legal standpoint there are five [5] kinds of hunting:

- 1. **Subsistence Hunting**
- 2. **Hunting for Sport**
- 3. **Commercial Hunting**
- 4. **Hunting for Scientific Purposes**
- 5. **Culling Pest Species.**

# Traditional Hunters

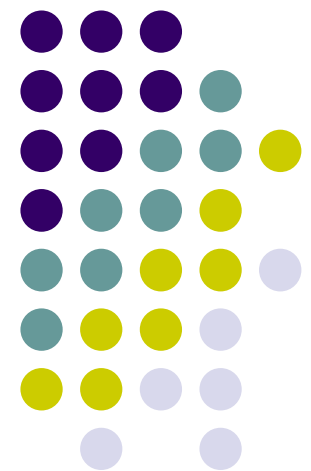


-**primates, birds, rodents** and **peccaries** accounted for **75.6%** of the animals harvested

-*Dasyprocta* sp. [Agouti], *Agouti paca* [Lappe] and *Hydrochaeris* sp.

[Capybara] accounted for **16.5%** of the harvest,

-while **Peccaries or Quenk** accounted for **13.1%** of the animals harvested  
Ojasti (1996)

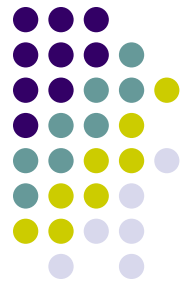


## **5.2 The Value of Wildlife: A Global Perspective**



- 1] The Economic Importance of Wildlife**
- 2] The Nutritional value of Wildlife**
- 3] The Ecological Role of Wildlife**
- 4] The Socio-cultural significance**

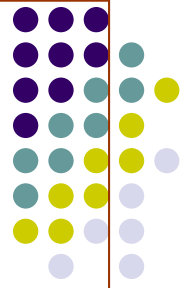
[Chardonnet *et al* (2002) citing Anon (1996)]



- In the USA in 1996 it was estimated that **35.2 million individuals fished, 14 million individuals hunted, 9.5 million individuals hunted and fished, and 62.9 million individuals participated in at least one type of wildlife viewing activity** [Chardonet *et al* (2002) citing Anon (1996)].
- They also reported that the **total expenditure** on all wildlife related activities in **1996** was estimated at **US\$101 billion**.
- These types of records are not available from within the neo-tropics very easily.



## **5.3 The Value of a selected group of Neo-tropical Animals of Trinidad and Tobago**



**- Work done by the OSTAS&P  
Roopchand (2002) M.Sc. Project**

**The Roopchand Factor = Official Value x 4.7**

**Mollineau 2002 to 2009 M.Sc and Ph.D. Research**

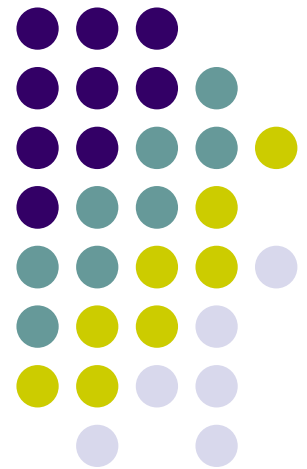
**90,000 Agouti @ \$200 each**  
**= \$18,000,000**

**8,415 Deer @ \$1000 each**  
**= \$8,415,000**

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**1,466 Quenk or Wild Hog**  
**@ \$1000 each = \$1,466,000**

**Total Street Value**  
**= \$27,881,000TT\$.**



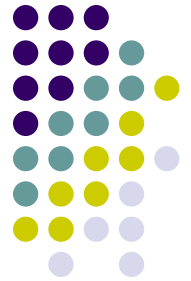
The 90,000 Agouti could be produced annually on about **100 farming units**.

The 8,415 Deer could be annually produced on about **20 farming units**, and

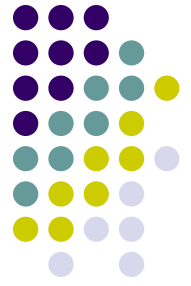
the 1,466 Quenk could be annually produced on about **20 farming units**

[Garcia Unpublished].

**Therefore these animals could be produced on about 140 Neo-tropical Animal Farming Units in Trinidad and Tobago.**



## 6.0 Agro-tourism Visited

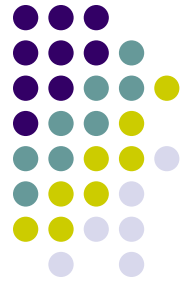


Most of this section comes from a Distance Course on Agro-tourism

**Garcia, G. W., Young, G., Joseph, M.,  
Ramnarine, A. and Phillips, W. 2002:  
*Agro-tourism and agro-environmental  
linkages for development.***

Distance Course [4 Credits], Faculty of  
Science and Agriculture, The University of  
the West Indies, St. Augustine, Trinidad,  
Trinidad and Tobago, W.I.

## 6.1 Agriculture



It is defined in Collins English Dictionary (1982) as

**"the science or occupation of cultivating land and rearing crops and livestock".**

# Multifunctionality of Agriculture



- 1] The Production of food and non-food items**
- 2] It involves both production and processing**
- 3] It produces both material and immaterial wealth**
- 4] It produces both public and private goods**
- 5] It produces market and non-market goods**

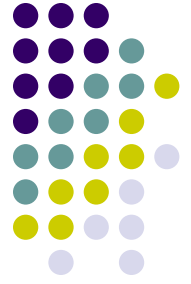
[Source: Bertrand Hervieu, President of Institute Nationale pour la Recherche Agronomique (INRA), Paris, France: **The Multifunctionality of Agriculture**. Lecture delivered at UWI, St Augustine, 28<sup>th</sup> June, 2002.]

## 6.2 The Tourism Industry



*“Tourism comprises the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes.”*

[World Tourism Organization (1993)]



- *“Tourism is of considerable economic significance in raising national income, in generating wages, and in raising tax revenues; but the islands have the dubious distinction of having the lowest multiplier rate (from tourist spending) of countries with known tourism surveys. The reason for the above is a result of...lack of diversity in the economy of the islands and...because of the very high leakages.”*



# LEAKAGE and LINKAGE



## What is a leakage?

*Leakage in an Economy refers to money leaving the economy.*

## What are “Linkages”?

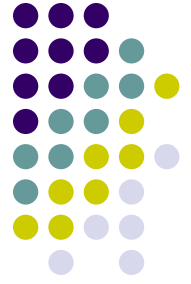
Noel (2000) suggested approaches in Developing the Linkages between the Tourism and Agricultural Sectors. **In IICA (2000), pp 51-53**

# Eco-Tourism

*“responsible travel to natural areas*

*which conserves the environment and*

*improves the welfare of local people”*,





## **6.3 Agro-Tourism**



**It can be thought of as "the Tourism of Agriculture", and examples of this would be by way of short-term activities:**

**-touring a factory's or farm's operations, mainly while the operations are proceeding;**

**-horse-back riding in the surrounding countryside;**

**-visiting a traditional farm;**

**-participating in a forest hunt;**

**-selling agricultural products to tourists;**

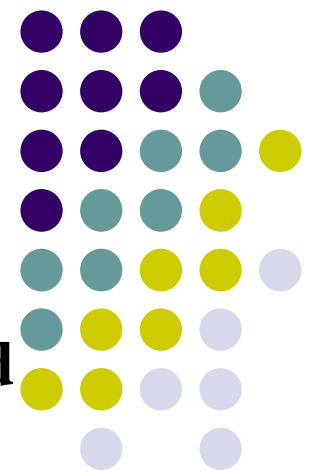
**-touring a winery; etc.**

**It may also be of a long-term nature in terms of:**

**spending one's vacation on an actual farm or winery and**

**participating in the different farm operations, or**

**participating in a two-week cruise that visits different gardens in different islands.**



**Agro-Tourism linkages has the potential of capturing up to 59.9% of the tourist spending with no leakages.**



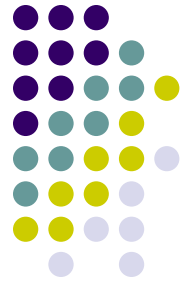
**This can be summarized as follows:**

**Food and Beverage, 13.4% of the Tourist Money spent** [if these are locally produced] –All food can be obtained from the Farm or farm based enterprise.

**Accommodation, 31.5%** [if the Tourist is encouraged to live on the farm] and

**Sightseeing, part of the 15% spent by the Tourist,** if we include Agro-tours.

- **And this can be done on at least 140 farms as earlier indicated. This model could be developed on existing farms using a modification and adaptation of the French Agro-tourism Model that would be briefly outlined in the following section.**



# 6.4 The French Agro-tourism Model



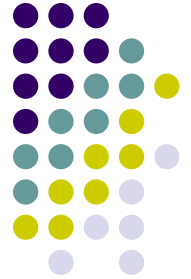
In France [mainland Europe] and French Guyana [that is geographically and culturally similar to Trinidad and Tobago] Agro-tourism Networks promote local produce and organic farming.

**This model has four main activities**

- 1] Bienvenue à la Ferme [**Welcome to the farm**],
- 2] AB [**Agriculture Biologique, or ‘Organic Farming’**],
- 3] Accueil Paysan [**‘Small Farmer’s Welcome’**], and
- 4] Bistrots de Pays [**Country Cafes**].



# “Bienvenue a la Ferme” [“Welcome to the farm”]



**BIENVENUE  
A LA FERME**

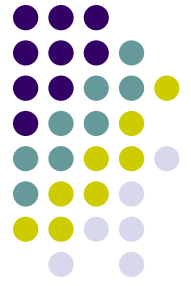
Vous avez le sens de l'accueil...

Vous êtes un professionnel  
sérieux avec des produits  
et des prestations de qualité...

Vous aimez parler  
de votre métier...

*Rejoignez*  
**BIENVENUE À LA FERME**  
pour une meilleure valorisation  
de vos activités et de vos produits !

- **Ferme Auberge [Inn on the Farm]**
- **Ferme de découverte [The Open Farm]**
- **Ferme Equestre [Equestrian Farm]**
- **Ferme Pédagogique [Education or Learning Farm]**
- **Ferme de Séjour [The Vacation Farm]**
- **Goûter a la Ferme [Tasting at the Farm]**
- **Chambre d'hotes [Farm Bed and Breakfast]**
- **Table d'hôtes [Pot Luck Bed and Breakfast]**
- **Gîte Rural [Rural Home]**
- **Gîte d'étape [Stage Stop]**
- **Gîte de séjour [Overnight Stop].**





# **7.0 THE PROBLEM WITH REGARD TO NEO-TROPICAL ANIMAL WILDLIFE INCLUDING THAT OF TRINIDAD & TOBAGO**





## The Contradictions

- **Private vs Public Sector or Governments**
- ***In situ vs Ex situ* Conservation**

**Little Awareness, Knowledge and Education on the Animal Wildlife of the Americas**

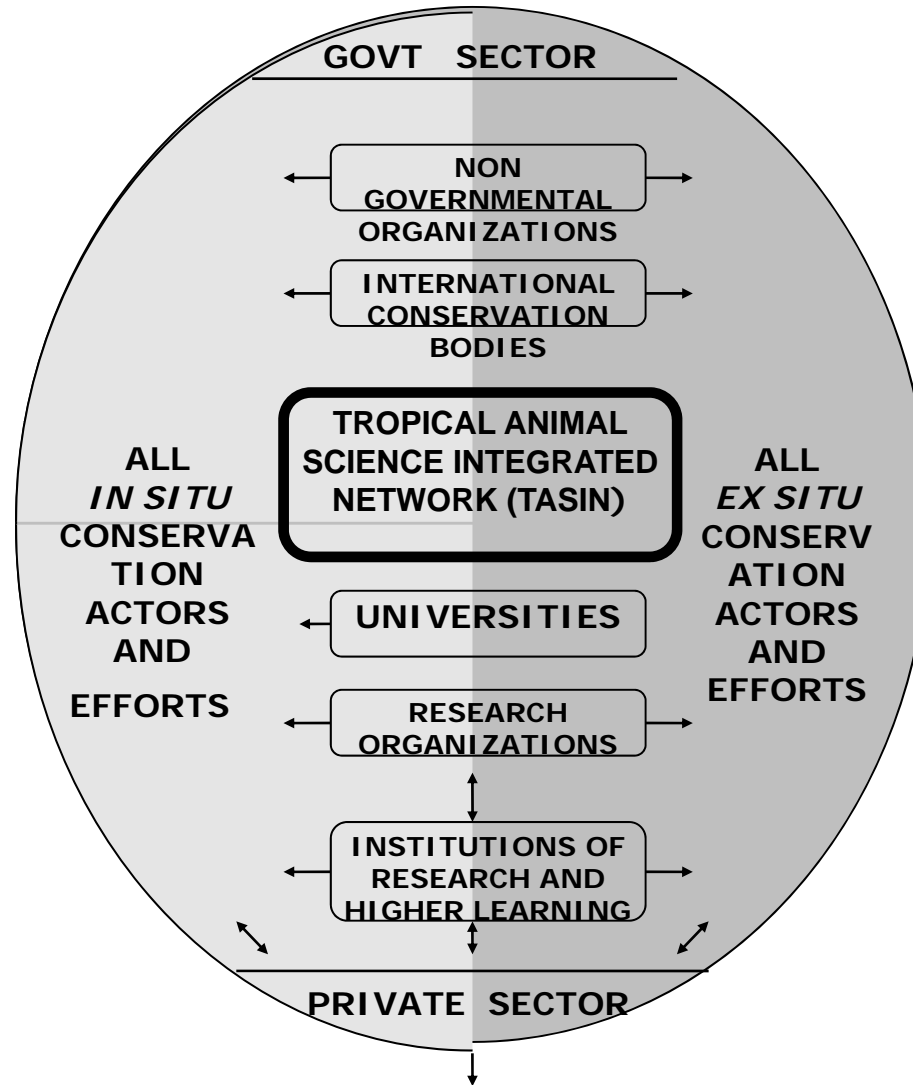


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OUTPUT

LEGISLATIVE :- AVOIDANCE OF  
OR THE MINIMIZATION OF TROPICAL ANIMAL  
EXTINCTIONS



OUTPUT

INCREASED UTILITY KNOWLEDGE ON THE HOUSING AND ENVIRONMENTAL NEEDS, NUTRITION, HEALTH, REPRODUCTION AND GENETICS, UTILIZATION AND PRODUCTION OF TROPICAL ANIMALS.



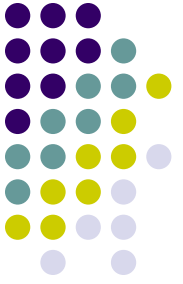
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# The Agouti Producers' Manual

# The Quenk Producers' Manual







**8.0 SOME OF OUR  
TRINIDAD AND TOBAGO NEO-  
TROPICAL ANIMAL SPECIES  
WITH OPPORTUNITIES  
WITHIN THE AGRO-TOURISM  
CONTEXT**



- Rodents: Agouti (*Dasyprocta leporina*)
- Capybara (*Hydrochoerus hydrochaeris*)
  - Lappe (*Agouti paca*)
  - Guinea Pigs (*Cavia porcellus*)



## Reptiles:

- Iguana (*Iguana iguana*)
- Red tailed Boa (*Boa constrictor constrictor*)
- Spectacled Caiman (*Caiman crocodiles/*  
*Caiman sclerops*)



Marsupials:

Opossum/ Manicou

*(Didelphis marsupialis insularis)*

Ruminant:

Red Tailed Deer (*Mazama americana*)

- Avian: **Cocrico** (*Ortalis ruficauda*)
- **Scarlet Ibis** (*Eudocimus ruber*)
  - **Pawi/ Piping Guam** (*Pipile pipile pipile*)

### **Wild Ducks [16 SPECIES]**

- **Fulvous whistling duck** (*Dendrocygna bicolor*)
- **White faced whistling duck** (*Dendrocygna viduata*)
- **Black bellied Whistling duck** (*Dendrocygna autumnalis*)
- **Snow Goose** (*Chen caerulescens*)
- **Mallard** (*Anas platyrhynchos*)
- **Green-winged Teal** (*Anas crecca*)
- **American Wigeon** (*Anas Americana*)
- **White-cheeked Pintail** (*Anas bahamensis*)
- **Blue-winged Teal** (*Anas discors*)
- **Northern Shoveler** (*Anas clypeata*)
- **Southern Pochard** (*Netta erythrophthalma*)
- **Lesser Scaup** (*Aythya affinis*)
- **Ring-necked Duck** (*Aythya collaris*)
- **Comb Duck** (*Sarkidiornis melanotos*)
- **Muscovy Duck** (*Cairina moschata*)
- **Masked Duck** (*Oxyura dominica*)



- Suiformes: Collared Peccary/Quenk/Javelina  
(*Pecari tajacu*, *Tayassu tajacu*)



Felines: Ocelot (*Felis pardalis/ Leopardus pardalis*)

Armadillos: Nine banded Armadillo/Tattoo  
▪ (*Dasyopus novemcinctus*)

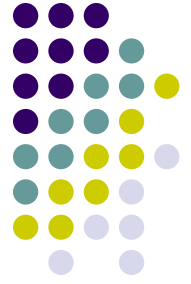
Anteaters: Lesser Anteater/Tamanduas/Matapel  
(*Tamanduas tetradactyla*)

Sloths: Po'me one (*Choloepus didactylus*)

# The Agouti

[*Dasyprocta leporina*]

Its' meat is now called “dasagu”



# Cocrico/ Chachalaca [*Ortalis ruficauda*]



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# The Green Iguana (*Iguana iguana*)







**Manicou/  
black eared opossum  
(*Didelphis marsupialis  
insularis*)**



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# Deer Production

## *Mazama americana*



# The Pawi/ Piping Guam [*Aburia pipile/Pipile pipile*]



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# Semi-intensive Peccary Production Bahia, Brazil



# Mr. Neto hand feeding one of his favorite Quenks/ Peccary



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# Lappe/ Labba/ Paca (*Agouti paca*)



# Capybara (*Hydrochaeris hydrochaeris*)

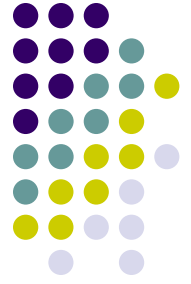




# **Black Bellied Whistling-Duck** *(Dendrocygna bicolor)*







# 9.0 THE OPPORTUNITIES

This new horizon first begins with the need for resolving the conflicts between the following:

- ✚ **Neo Tropical Animal Conservation**
- ✚ **Neo Tropical Animal Production**
- ✚ **Neo Tropical Animal Utilization and Cuisine.**

This would require:

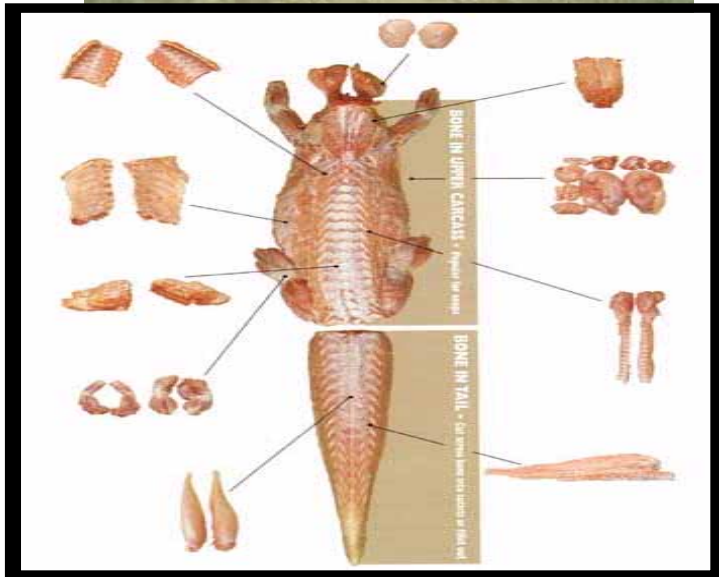
- **the Harmonious Coordination and Collaboration among all stakeholders with a clear unemotional articulation of their respective points of view;**
- **the Synergism of Neo-tropical Animal Conservation, Production, Utilization and Cuisine.**



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# The Synergism of Neo-tropical Animal Conservation, Production, Management, Utilization and Cuisine.



# The Crude Protein and Fat Content of some of our Neo-tropical Animals



	<b>Peccary</b>	<b>Agouti</b>	<b>Broiler Chicken</b>	
				
<b>% Crude Protein</b>	<b>21</b>	<b>22</b>	<b>16 to 22</b>	
<b>% Fat</b>	<b>1.2</b>	<b>2</b>	<b>2.4 to 32</b> <b>Very Unhealthy</b>	

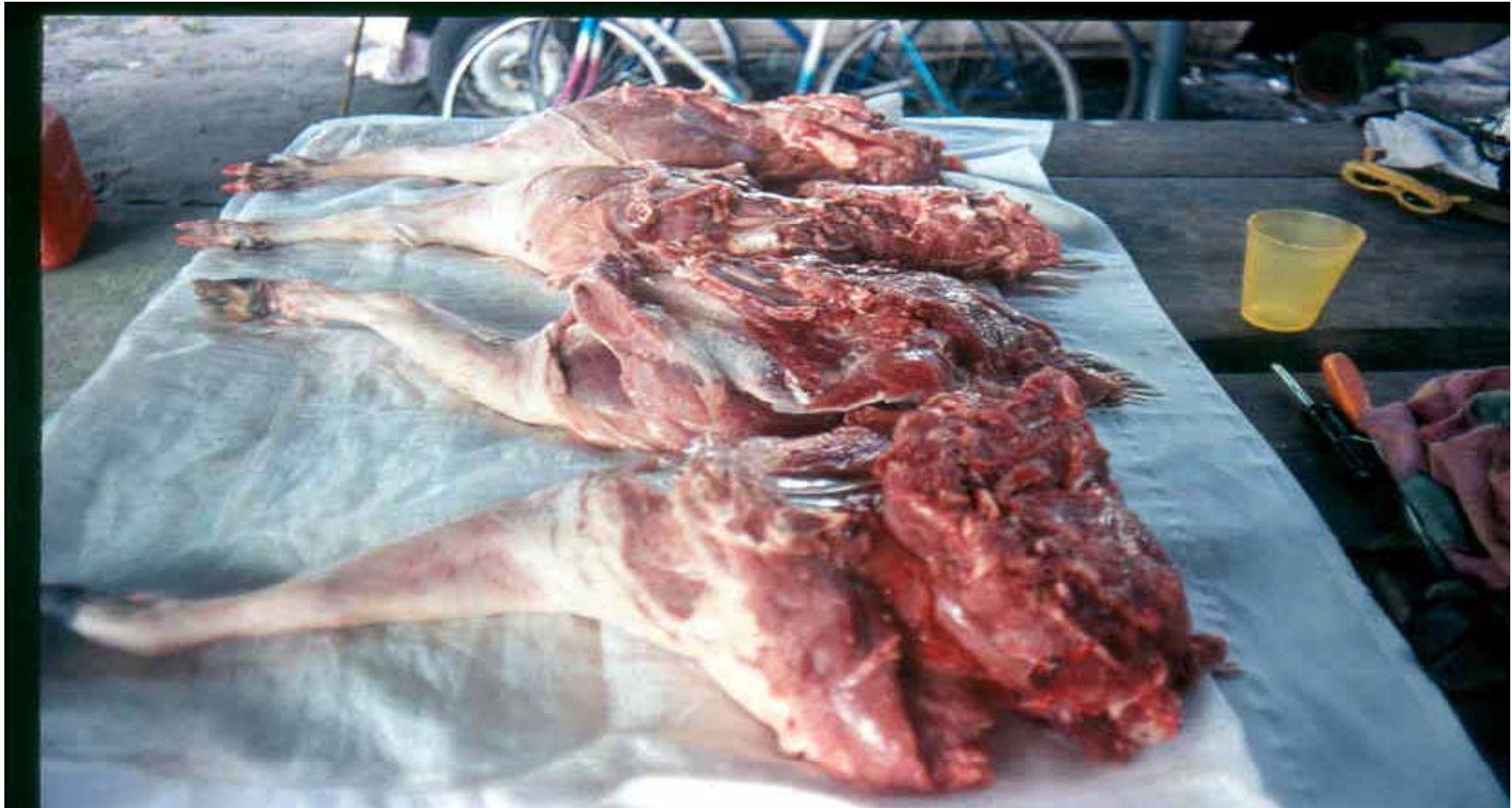
# The Four Quarters of A Peccary Carcass from French Guyana



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# Peccary Quarters





# Peccary Carcass Fabrication into meat cuts from Trinidad and Tobago



# Fricassée d'Peccari Chez Ma Cuisine, French Guyana



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ALL FETE AND



NO SLEEP 'POSSE'.

ALL FETE & NO SLEEP POSSE

invites you to the long awaited

SECOND ANNUAL

Original

# WILD MEAT QUE

## SATURDAY 7TH FEBRUARY 2004

VENUE: 20 Nagib Elias Drive, Diego Martin TIME: 12 NOON - 4:00 PM

ALL FETE AND



NO SLEEP 'POSSE'.

Maggi

Maggi

SELECTION OF WILD MEAT INCLUDES

AGOUTI • LAPPE • IGUANA • TATTOO • WILD HOG • DEER • DUCK

LIMITED TICKETS ON SALE

pick up and run, if yuh want...

served with dumplings, plantain & provision.

LIMITED TICKETS ON SALE

pick up and run, if yuh want...

choice of three (3) meats  
**\$70.00 per box**



A MAN'S BEER

MILLHOUSE clothing

POYSON PRODUCTIONS graphic design solutions

IMAGINE IT ENTERTAINMENT BARBADOS W.I.

enchante

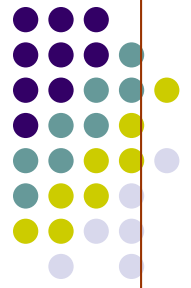
CODE Redefining Music

Washburn & Partners



# **10.0 Conclusions and Recommendations**

- [I] **Trinidad and Tobago is a leader in Neo-tropical Animal Conservation in the Caribbean**
- [II] **There is Value in the Neo-tropical Animals of Trinidad and Tobago**
- [III] **There are Opportunities for Linking Agro-tourism and Neo-tropical Animal Conservation, Utilization and Cuisine a “La Trinidad and Tobago” using a modification of the French Model of Afro-tourism and Ethnocuisineology**
- [IV] **New Horizons for the Resolution of the Contradictions**



# Some Final Remarks



*-We need to quantify the Value of our Turtles*

*-We need to take a page out of Brother King  
Book*

*Orton G. King*

*P.O. Box 36*

*Union Vale, Bequia*

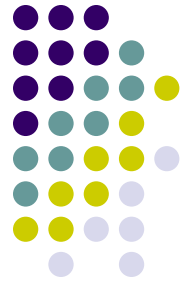
*St. Vincent & The Grenadines*

[oldhegg@vincysurf.com](mailto:oldhegg@vincysurf.com)

<http://turtles.bequia.net/>

*- We should visit with the Turtle Breeding  
Successes of the Cayman Islands.*

**Yesterday Professor Paulo Nunes indicated  
the need to link  
BIOLOGY, ECONOMICS and COMMUNITY.**



**The Biology is what is needed to inform  
everything. We need to get some funding for  
M.Sc., M.Phils. and Ph.Ds to work with me  
and my colleagues to Study the Biology  
[Physiology, Reproduction, Nutrition and  
Production ] of the Turtles as proposed by  
the Open School of Tropical Animal Science  
and Production.**

# The End



**I Thank You  
For Your Attention  
Gary Garcia**

**e-mail: garygwg1@gmail.com**

**Web Sites** <http://www12.brinkster.com/ostasp/>  
<http://ostasp.rizontt.com/>  
<http://vcnaw.rizontt.com/>  
<http://ejneaw.rizontt.com/>



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