

# **Animal Ecophysiology and Behaviour Lab**

## **LECA/DMFA/UFRPE**

### ***Extraordinary Aspects of The Lives of Common Marmosets.***

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# OUR TEAM



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In Pernambuco, in the northeast of Brazil, people say that **is easier to find a marmoset without forest than a forest without a marmoset!**

The total population is not known but the official assessment of the Ministry of the Environment is that the **population is stable.**

Estimates are that **the number of mature individuals of this taxon is more than 10,000** and the groups vary from 3 to 15 individuals.

**The extent of occurrence of the species is greater than 20,000 km<sup>2</sup>** and its area of occupation is greater than 2,000 km<sup>2</sup>.





**ÇA-COI (Tupi-Guarani Language) = bright eyes, intent eyes.**  
**White-tufted-marmoset, Northeast marmoset, Common marmoset.**

## ***Callithrix jacchus***

**Status: Least Concern**

**Small body size**

**High reproductive rate**

**High dependency on vocal and  
olfactory communication, and...**



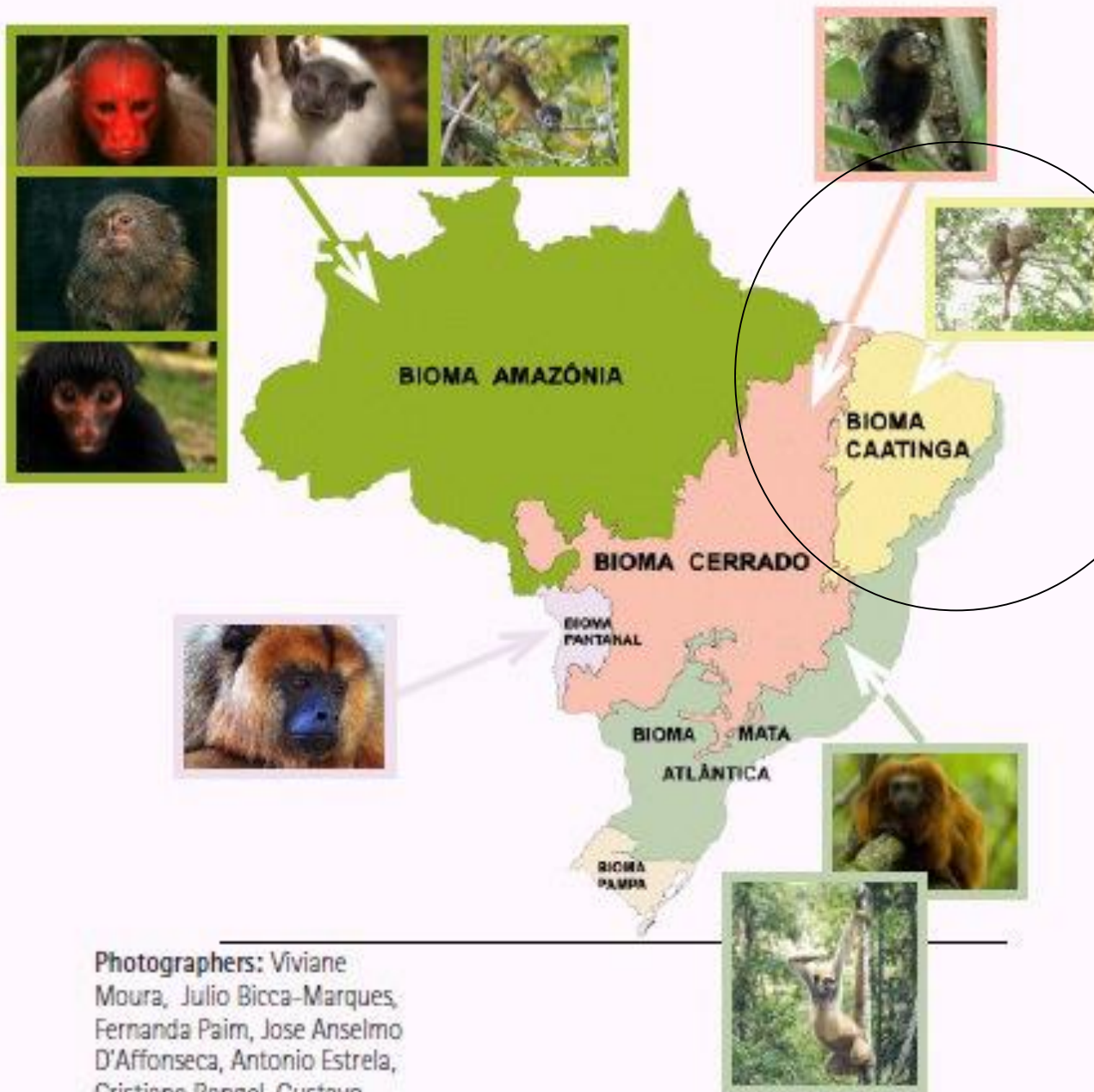


If you ask to  
someone that  
lives in the  
Caatinga  
Biome:

What does a  
common  
marmoset eat?

The answer  
will be just one  
thing:

**GUM!**



Photographers: Viviane Moura, Julio Bicca-Marques, Fernanda Paim, Jose Anselmo D'Afonseca, Antonio Estrela, Cristiane Rangel, Gustavo Pedro de Paula, Noemi Spagnoletti

## INTERNATIONAL SCIENTIFIC RESEARCH

1. Cooperative Research Application approved (Theme Number: 2017-B-54) for the period 2017-2019 from the Primate Research Institute, Kyoto University. Research Host at PRI: Hiroo Imai. Research Budget: 170,000 JPY. Title of the Project: **Absorption and Bioavailability of gum compounds used by marmosets in the field and laboratory conditions.**
2. 1. Cooperative Research Application approved for the period 2016-2018, from the National Science Foundation (NSF). Research Hosts: Chynthia L. Thompson from Grand Valley State University and Chris Vinyard from Northeast Ohio Medical University, USA. Research Budget: US\$ 26,498,00. Title of the Project: **Development of In-Field Methods for Analysis of Primate Olfactory Compounds.**



## INFICON GC-MS Hapsite portable.









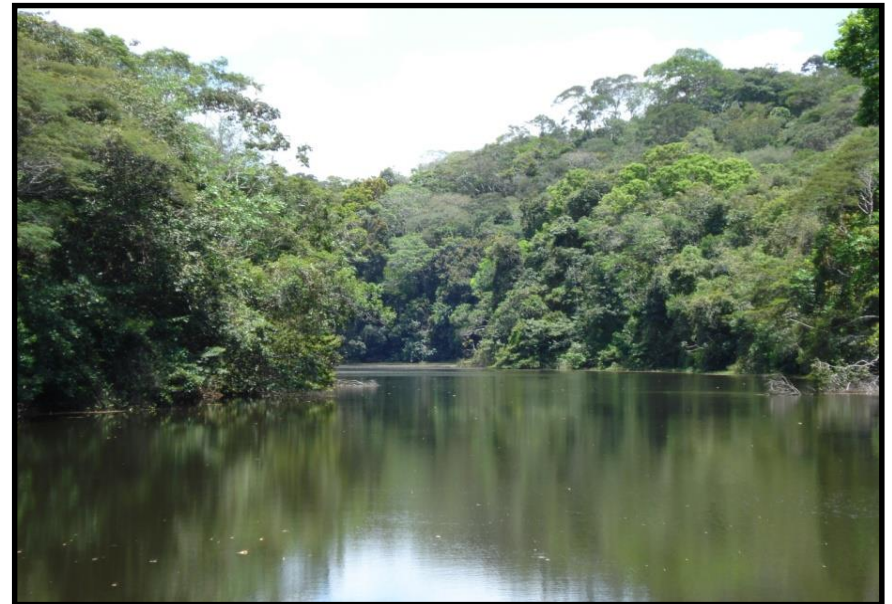
**Maybe, even the cooperative breeding system is closely dependent on gum feeding!**



**What a heavy load!**

**But we are also searching for other extraordinary aspects of the common marmoset's life!**

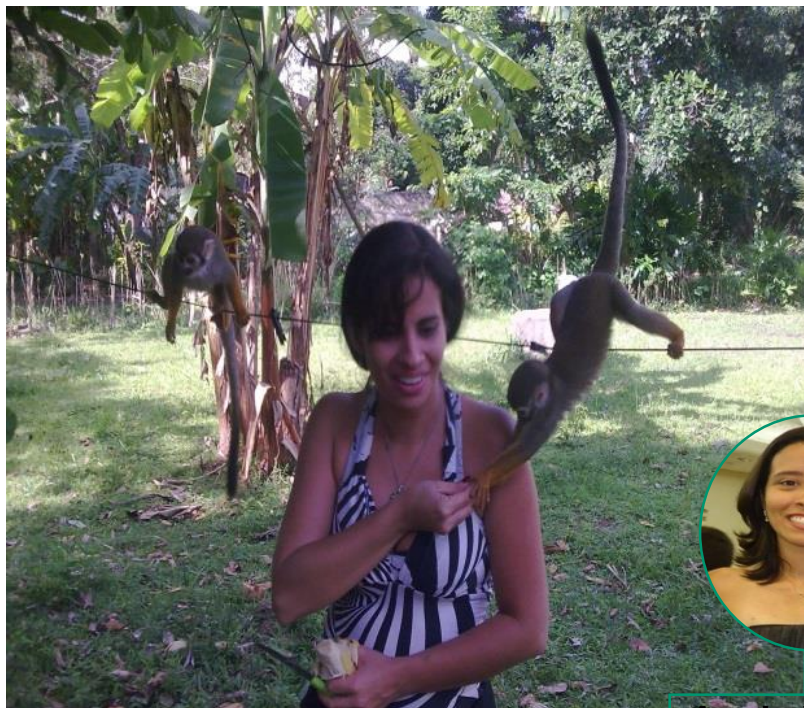
# Common Marmoset areas invaded by *Saimiri sciureus* in two reserves in Pernambuco: **REBio Saltinho** and **RVS Matas do Curado**







Falu



Annie Viviane





# The effects of introducing the Amazonian squirrel monkey on the behavior of the northeast marmoset

Fátima Luciana Miranda CAMAROTTI<sup>1\*</sup>, Valdir Luna da SILVA<sup>1</sup>, Maria Adélia Borstelmann de OLIVEIRA<sup>2</sup>



**Juliana R. Albuquerque**  
Diet and Lipid Profile...



**Marcelo B. Santino**  
Stress, cortisol, adrenals...

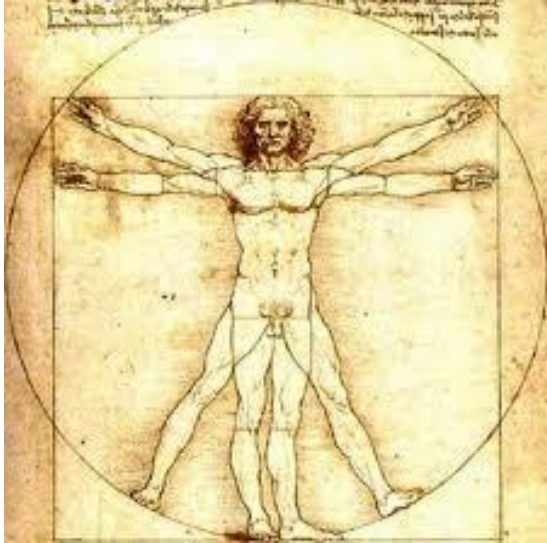


# All primates that lives in the state of Pernambuco are sensible to the arboviruses!



1. *Callithrix jacchus*
2. *Sapajus flavius*
3. *Sapajus libidinosus*
4. *Alouatta belzebul*
5. *Saimiri sciureus* (exotic and invador)

# Arboviruses' Vulnerability: HP X NHP



*Alouatta guariba*, RPPN Feliciano Miguel Abdala, Caratinga, Minas Gerais, Vale do Rio Doce.

**Yellow fever viremia: 5 days (PH) X 3 days (PNH).**

**Deaths between Dec 2016 and Jan 2018: 62 (PH) X 5.000 (PNH).**

**Access to vaccine: PH (yes) X PNH (no).**

**Out of 85% no vaccine PH were asymptomatics or develop the mild form of the disease.**





**Gleyce Nascimento  
(Brasil)  
PAN Protocols  
Application**

**Sofía Bernal  
(Costa Rica)  
Susceptibility to  
arboviruses**

**Between February  
2017 and January  
2018, 70 common  
marmoset deaths  
were notified in 25  
cities of Pernambuco  
State, BR!**

**No results were  
positive for yellow  
fever!**

**Nearly 100% of the  
identified causes  
were human  
aggression and  
mistreatment!**

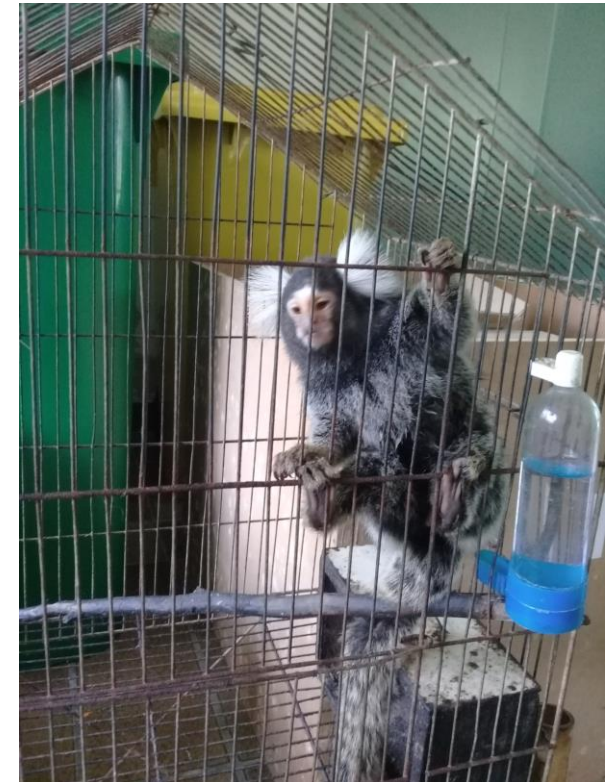


**Table 1****Spatial Recommendations For Laboratory Primates** Source: CONCEA (2014)

<u>Animals</u>	<u>Maximum Weight (kg)</u>	<u>Minimum Floor Area (m<sup>2</sup>)</u>	<u>Height (cm)</u>
Group 1	1,5	0,20	76,2
Group 2	3	0,28	76,2
Group 3	10	0,4	76,2
Group 4	15	0,56	81,3
Group 5	20	0,74	91,4
Group 6	25	0,93	116,8
Group 7	30	1,40	116,8
Group 8	>30 <sup>b</sup>	≥2,32	152,4
Chimpanzees (pan)	10	1,40	152,4
Young			
Chimpanzees (pan)	>30	≥2,32	213,4
Adults			

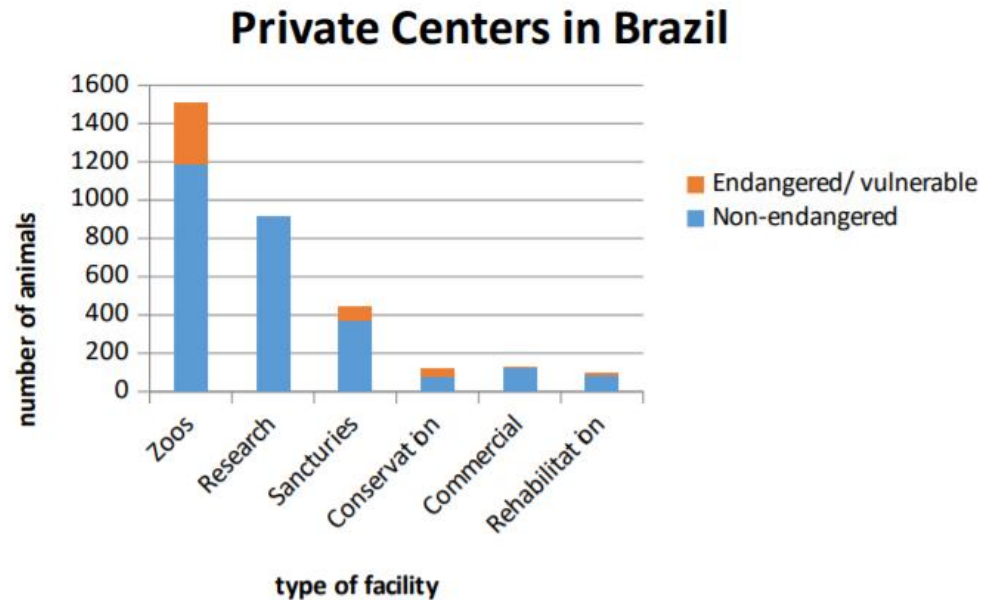
Group 1: Cebuella sp., Callithrix sp., Mico sp., Saguinus sp., Leontopithecus sp., Aotus sp., Callimico goeldii; Group 2: Cebus sp., Sapajus sp., Saimiri sp.; Group 3: Alouatta sp., Ateles sp., Chlorocebus aethiops; Group 4: Lagothrix sp., Brachyteles sp., Macaca sp., Papio anubis, Cercocebus sp., Erythrocebus sp.; Group 5: Papio papio. : Source: CONCEA (2014)

[ftp://ftp.saude.sp.gov.br/ftpsepp/bibliote/informe\\_eletronico/2015/iels.nov.15/iels212/U\\_RN-MCTI-CONCEA-28\\_131115.pdf](ftp://ftp.saude.sp.gov.br/ftpsepp/bibliote/informe_eletronico/2015/iels.nov.15/iels212/U_RN-MCTI-CONCEA-28_131115.pdf)



**A typical common marmoset cage in CETAS Tangara, PE, Brazil.**





**Figure 3.** Number of primates kept at private facilities. Species were considered critical endangered, endangered, or vulnerable according to the Portaria nº44 (17/12/2014, Brazil). The number of primates is based on records of licenses provided by SISFAUNA (IBAMA, 2016).

**From the chapter PRIMATES UNDER HUMAN CARE IN DEVELOPING COUNTRIES:  
EXAMPLES FROM LATIN AMERICA.**

**Ferreira et al. (in press at: Welfare of Nonhuman Primates)**

**Editors: Drs Lauren M Robinson and Alexander Weiss**

**Publisher: Springer**

**Expected completion: 2019/2020**

**Primates are used for more than 33 research areas in Brazil, including cancerology, parasitology, hepatitis, virology, malaria, comparative physiology, dermatology, glomerulonephritis, ophthalmology, toxicology, pharmacology, neuroethology, microbiology, terbiology, cognition, toxoplasmosis, arterial lesions, schistosomiasis, cell therapy, psychopharmacology, yellow fever, atherosclerosis, herpesviruses, lymphoblastoid cells and physiological stress (Pissinatti et al. 2014). The two longest established primate research centers in Brazil hold 774 primates in captivity currently.**

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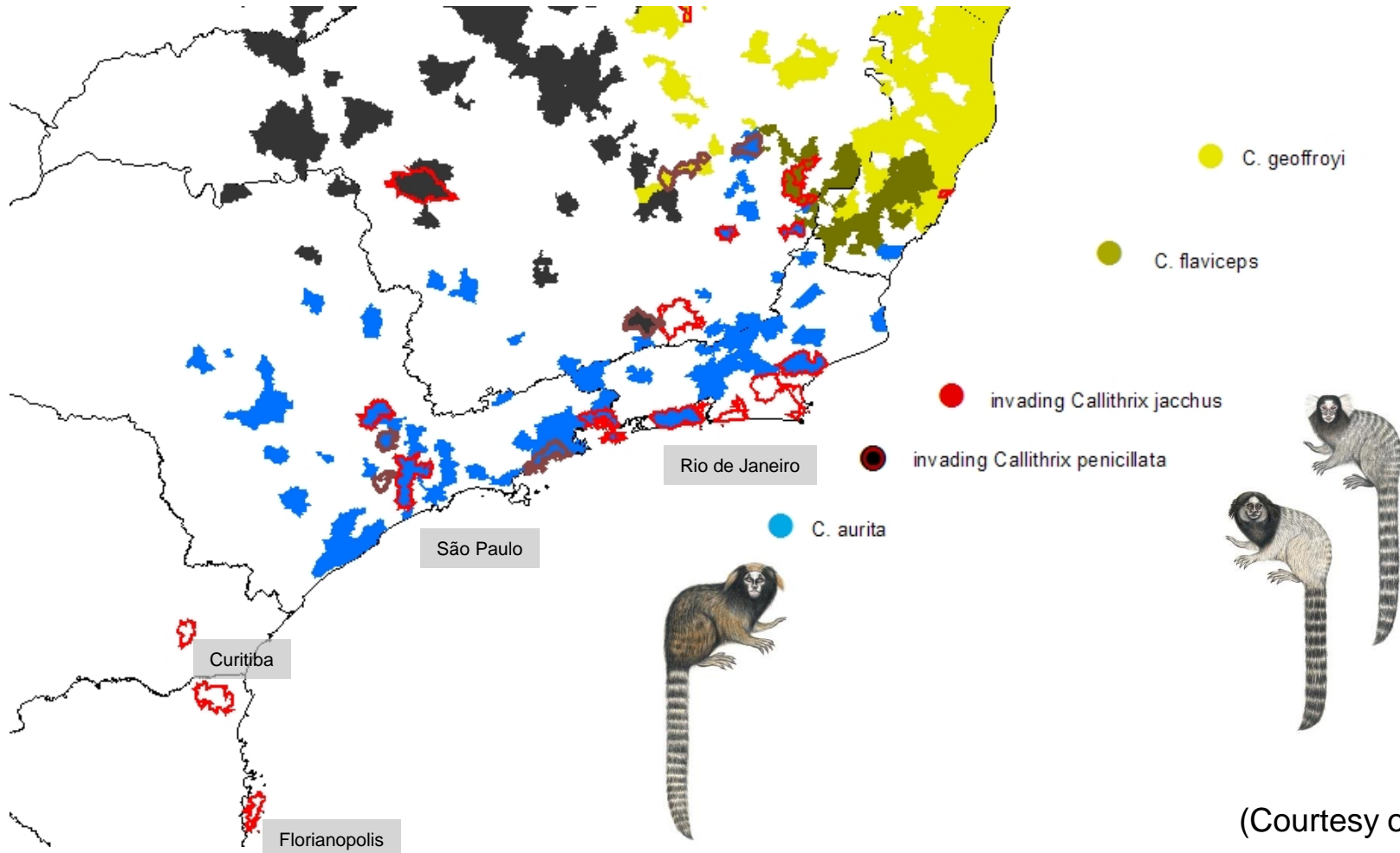
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# Areas being invaded by *C. jacchus* & *C. penicillata* and their hybrids



(Courtesy of C. Knogge)

Table 3

## Summary of Legal Protection for captive Primates in Latin America

<u>primate</u>	<u>#species</u>	<u>Pais</u>	<u>WP</u>	<u>AWP</u>	<u>RESLAB</u>	<u>Zoos</u>	<u>Captive</u>	<u>Circus</u>	<u>Primates</u>	<u>IACUC</u>	<u>min size</u>	<u>social</u>	<u>health</u>
y	75	Brazil	y	y-w	Y	Y	y	y-prohibits	y	Y	y	y	y
y	36	Colombia	y	Y	awp	awp	y	y-prohibits	n	Y			
y	32	Peru	y	y-w	awp	awp	y	W-prohibits	n	Y			
y	23	Bolivia	y	y	awp	awp	awp	y-prohibits	n				
y	16	Ecuador	y	y-w	awp	awp	awp	y-no wildlife	n	Y			
y	12	Venezuela	y	y	awp	awp	awp	awp	n	Y			
y	8	Guyana	y-recent	y-recent	awp	awp	n	n	n				
y	8	Suriname	y	??		n	n	n	n				
y	7	French Guyana	n	n	awp	awp	n	n	n				
y	7	Panama	y	y	awp	awp	awp	y-no wildlife	n	Y			
y	6	Costa Rica	y	y-w	y	y	y	y-prohibits	y	Y	y	n	y
y	5	Paraguay	y	y- recent	awp	awp	awp	awp	n	y			
y	3	Honduras	y	y-w	awp	awp	awp	awp-prohibits	n	y			
y	3	Nicaragua	y	y	awp	awp	rescue	awp	n	Y			
y	2	Argentina	y	Y	y	Y	awp	awp, St Proh	n	Y			
y	2	Belize	y	y partial	awp	awp	n	awp	n				
y	2	El Salvador	n	y	awp	n	zoocriador	W-prohibits	n	y			
y	2	Guatemala	y	y-recent	awp	awp	awp	awp	n	Y			
y	2	Mexico	y	y	y	awp	y	y-no wildlife	y	Y	y	y	
n	0	Chile	y	Y	awp	awp	y	awp	n	Y	n	n	n
n	0	Jamaica	y	y-w	awp	n	n	NA	n	Y			
n	0	Republica Dominicana	y general	y-no w	awp	n	n	n	n	Y	n	n	n
n	0	Uruguay	y	y	y	awp	y	y	n	y			

Summary organized by Carlos Ruiz-Miranda (part of the chapter coordinated by Ferreira et al (in press at: Welfare of Nonhuman Primates)

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**A recent analysis indicates that 90,000 monkeys were legally exported from South American countries to 23 other countries between 1977 and 2013 (Fialho et al., 2016).**

**According to CITES database, 2,392 squirrel monkeys (*Saimiri* sp.) and 1,626 marmosets (*Callithrix* sp.), 898 capuchin monkeys (*Cebus* sp.) and 192 guenons (*Cercopithecus* sp.) were legally traded for personal and commercial purposes between 2006 and 2012.**

**With the exception of marmosets, over 90% (94-99%) of these primates came from wild populations (Harrington, 2015). The trade of captive-born primates represents only 5% (about 5,000 individuals in 26 years) of the overall legal primate trade (Fialho et al. 2016).**

**This means that the legal trade is responsible for an annual take of thousands of New World monkeys from the wild.**

## **Portaria MCT nº 55, de 14.03.1990**

<http://www.mct.gov.br/index.php/content/view/19340.html#inexistente>

Approves the Regulation on the collection by foreigners of data and scientific materials in Brazil.

## **Lei Federal nº 11.794, de 8.10.2008**

Federal Law that establishes procedures for the scientific use of animals; revokes Law No. 6,638, of May 8, 1979.

## **Instrução Normativa nº 07 do IBAMA, de 30.10.2015**

It establishes and regulates the categories of use and management of wild fauna in captivity and defines, within IBAMA, the authorizing documents for the established categories.



