

# USE OF RICE FIELDS BY WATERBIRDS IN THE NEOTROPICS

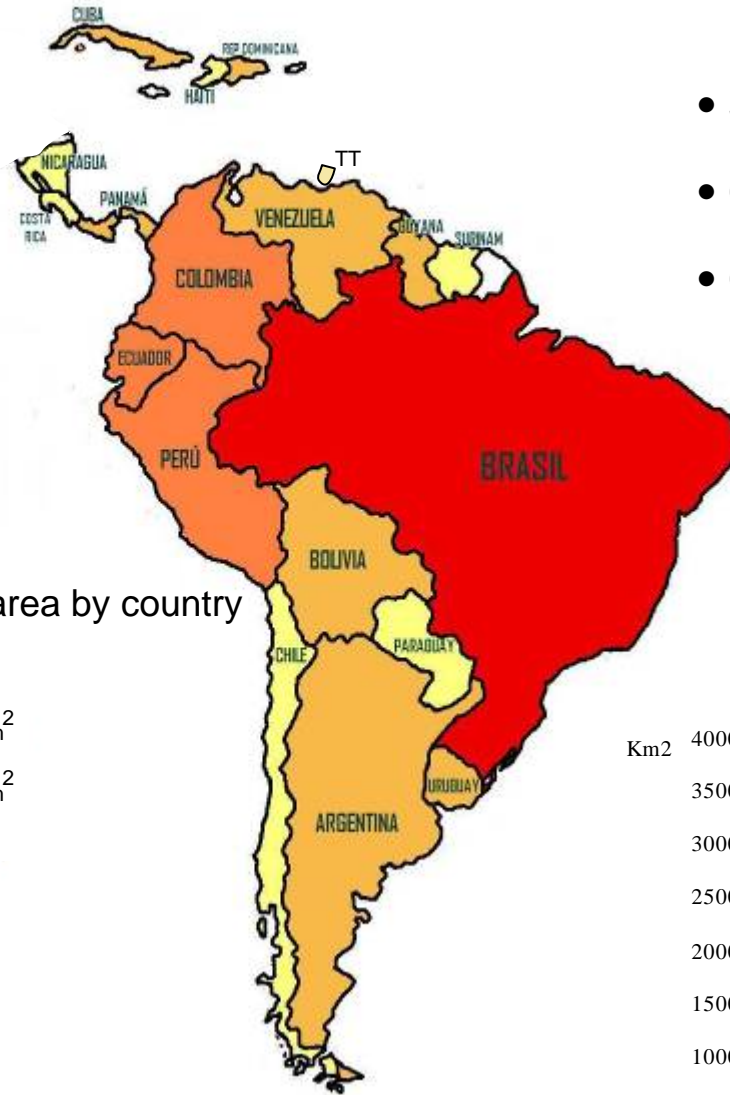


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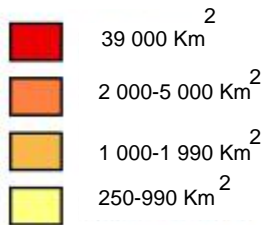
# INTRODUCTION

## Rice culture in the Neotropic

- South America 12 countries
- Central America 3 countries
- Caribbean Region 4 countries

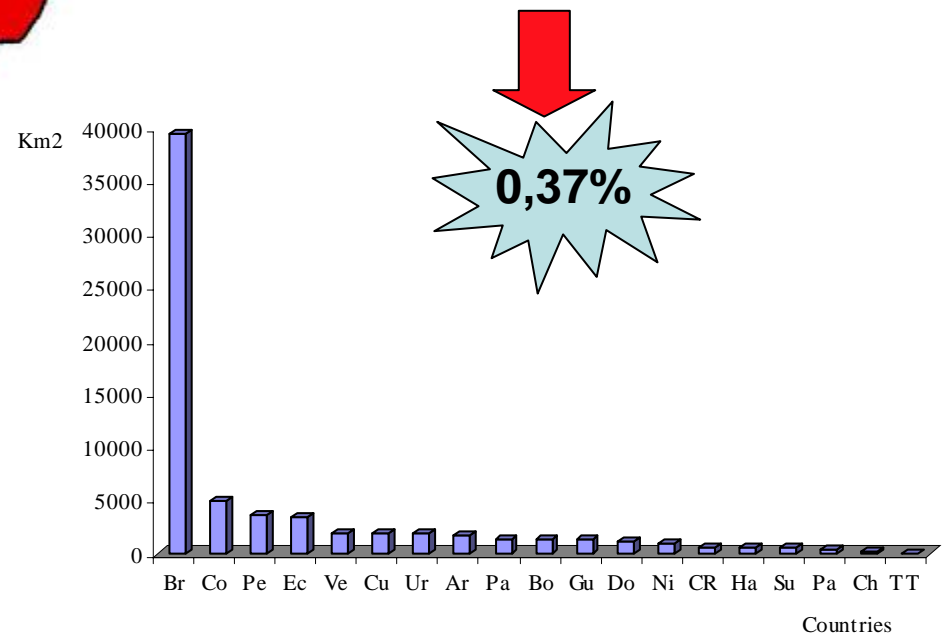


Rice plantation area by country



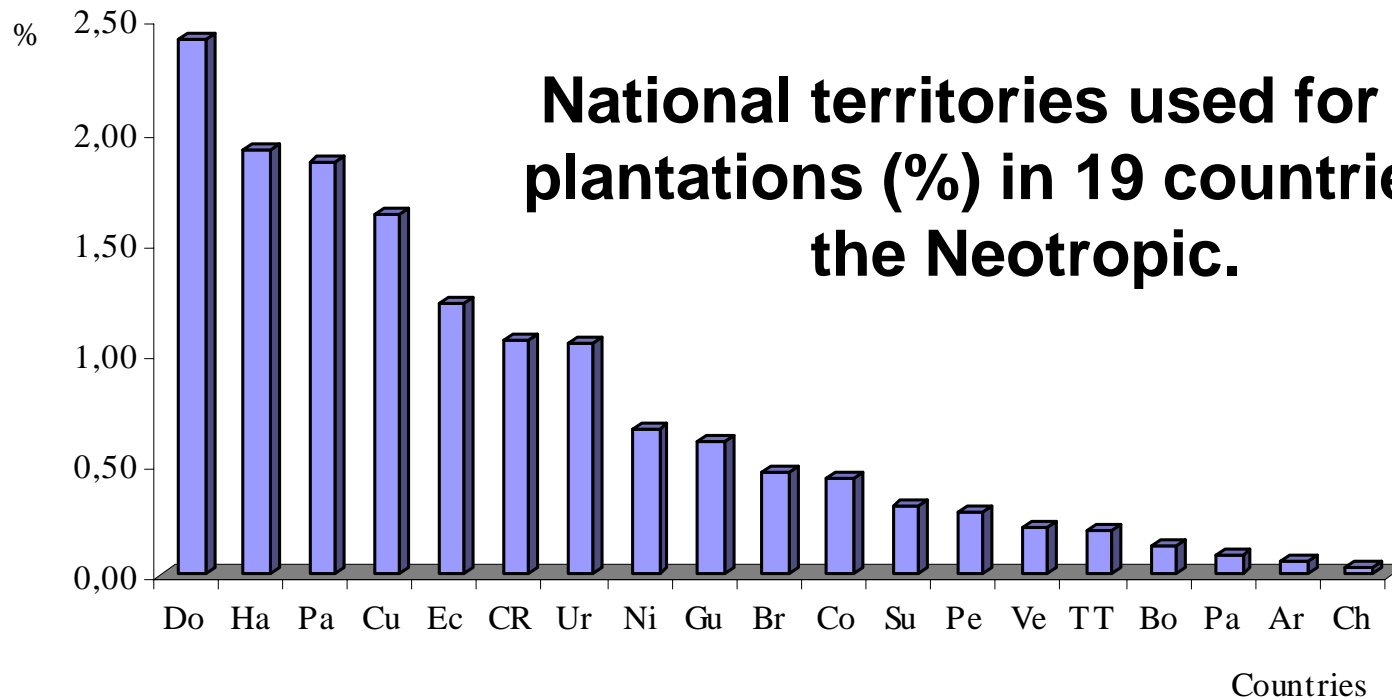
19 countries 18 211 540 Km<sup>2</sup>

Rice plantations 66 720 Km<sup>2</sup>



0,37%









## METHODS



Information on the bird communities composition was processed from published data, technical reports, graduate thesis and personal communications.

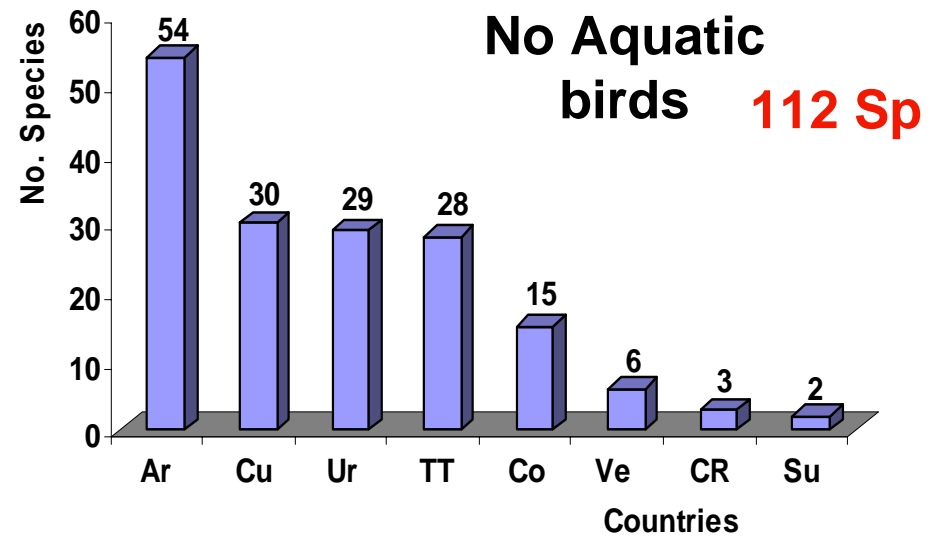
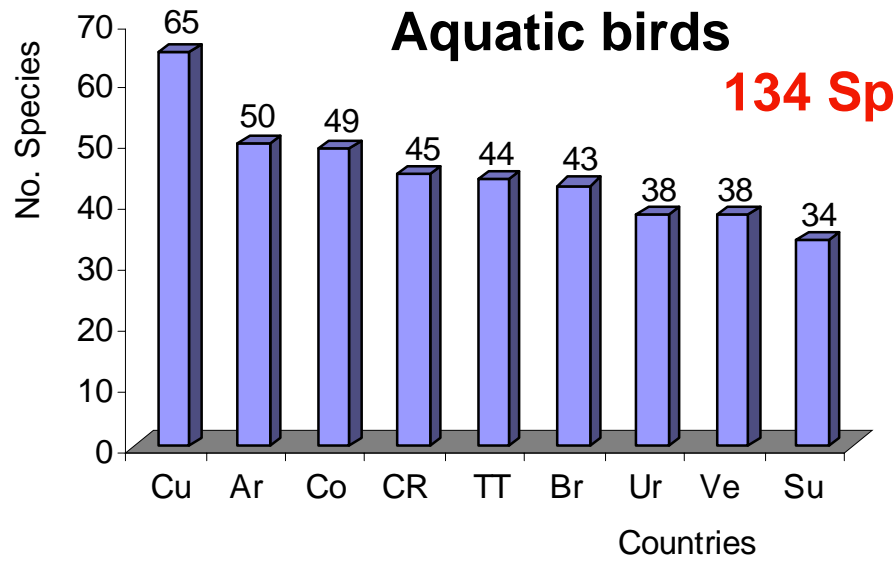
Different methods were used to evaluate bird's abundance, so the information was standardized calculating Relative Abundance in each sample.

Frequency was calculate using each country as a sample.

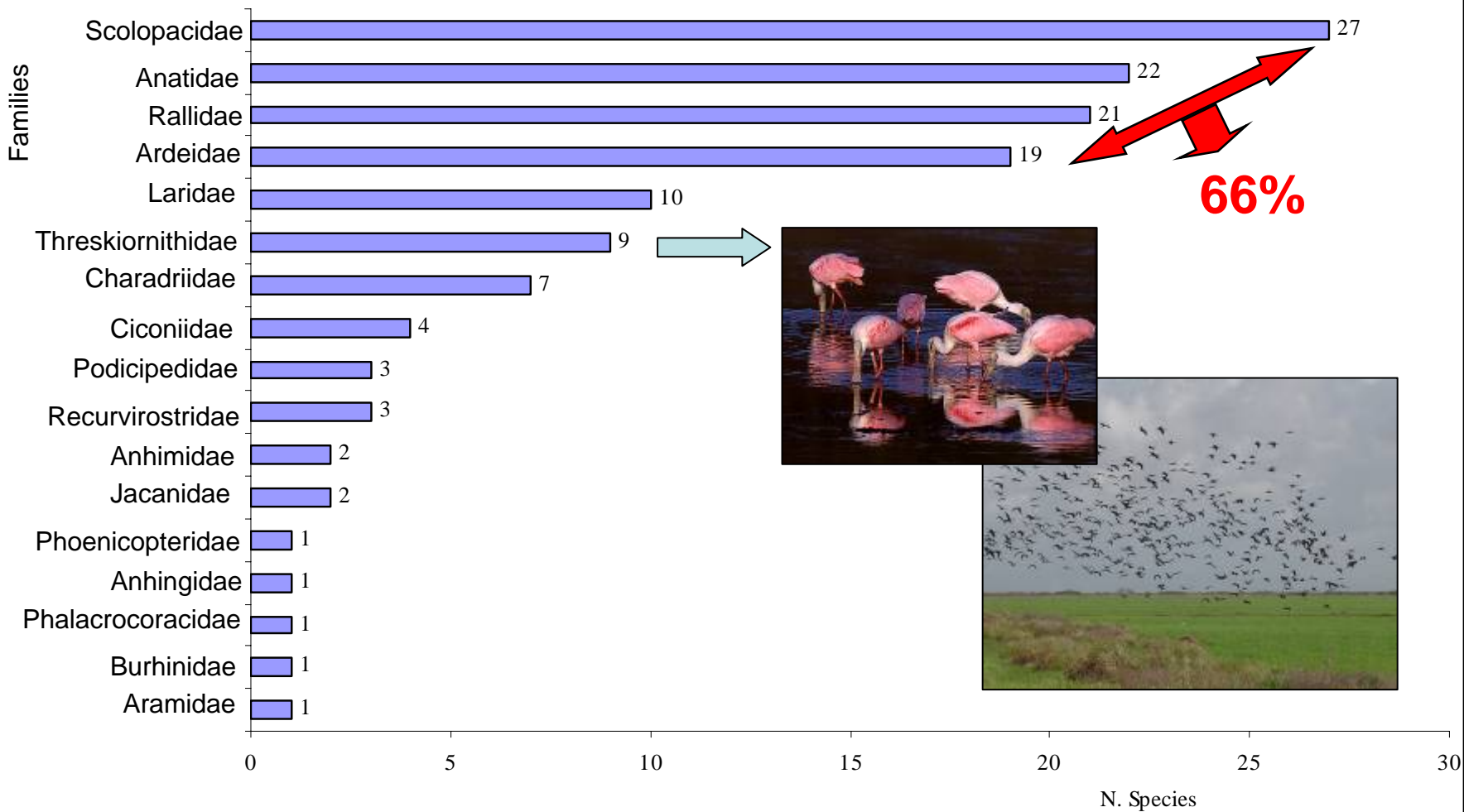
Genus with allopatric & sympatric species were identified. A mean sympatry index was calculated because some species in the genus could be allopatric.

The Cluster Analysis was made with presence/absence data of the species in each country.



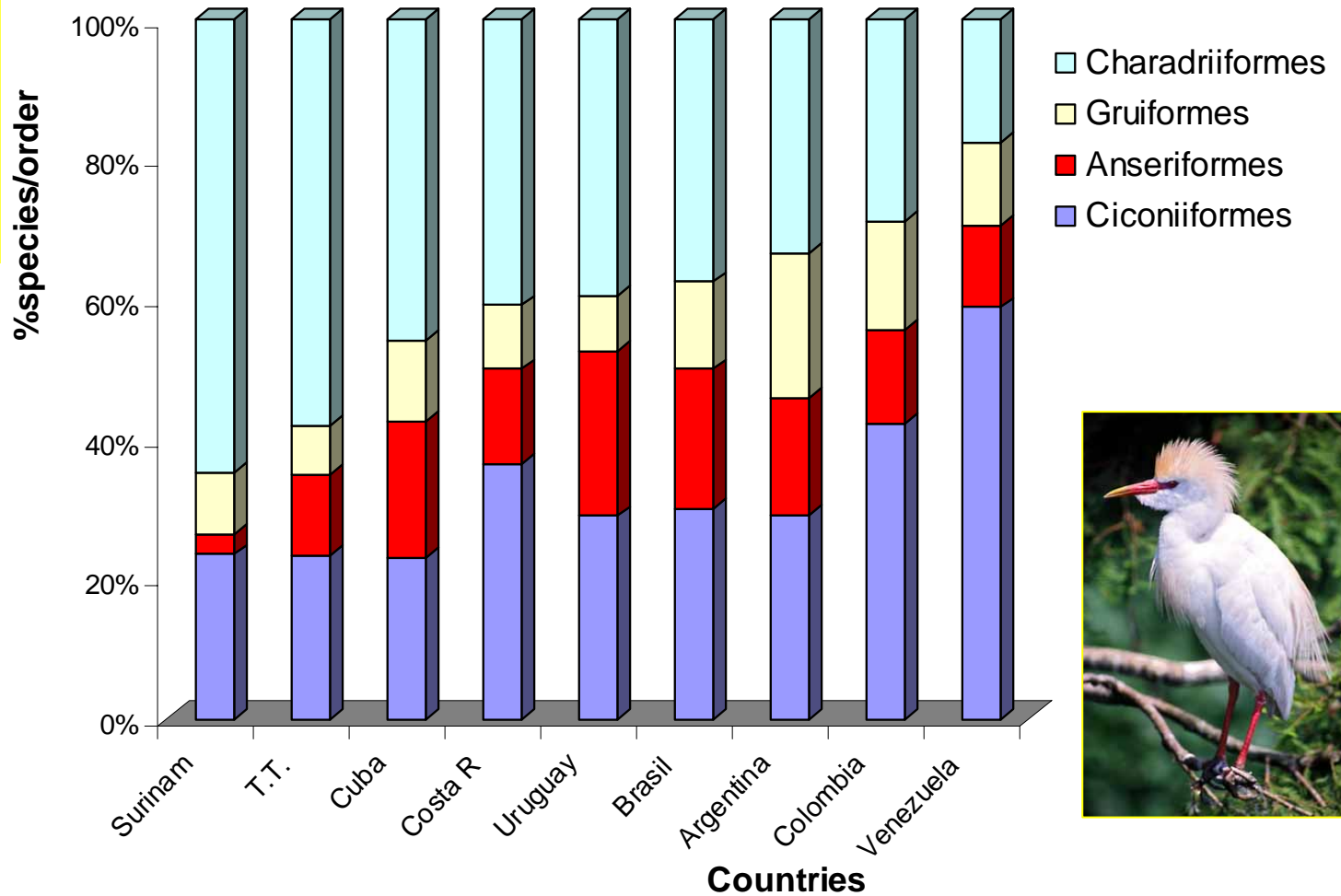


**Number of species by country**

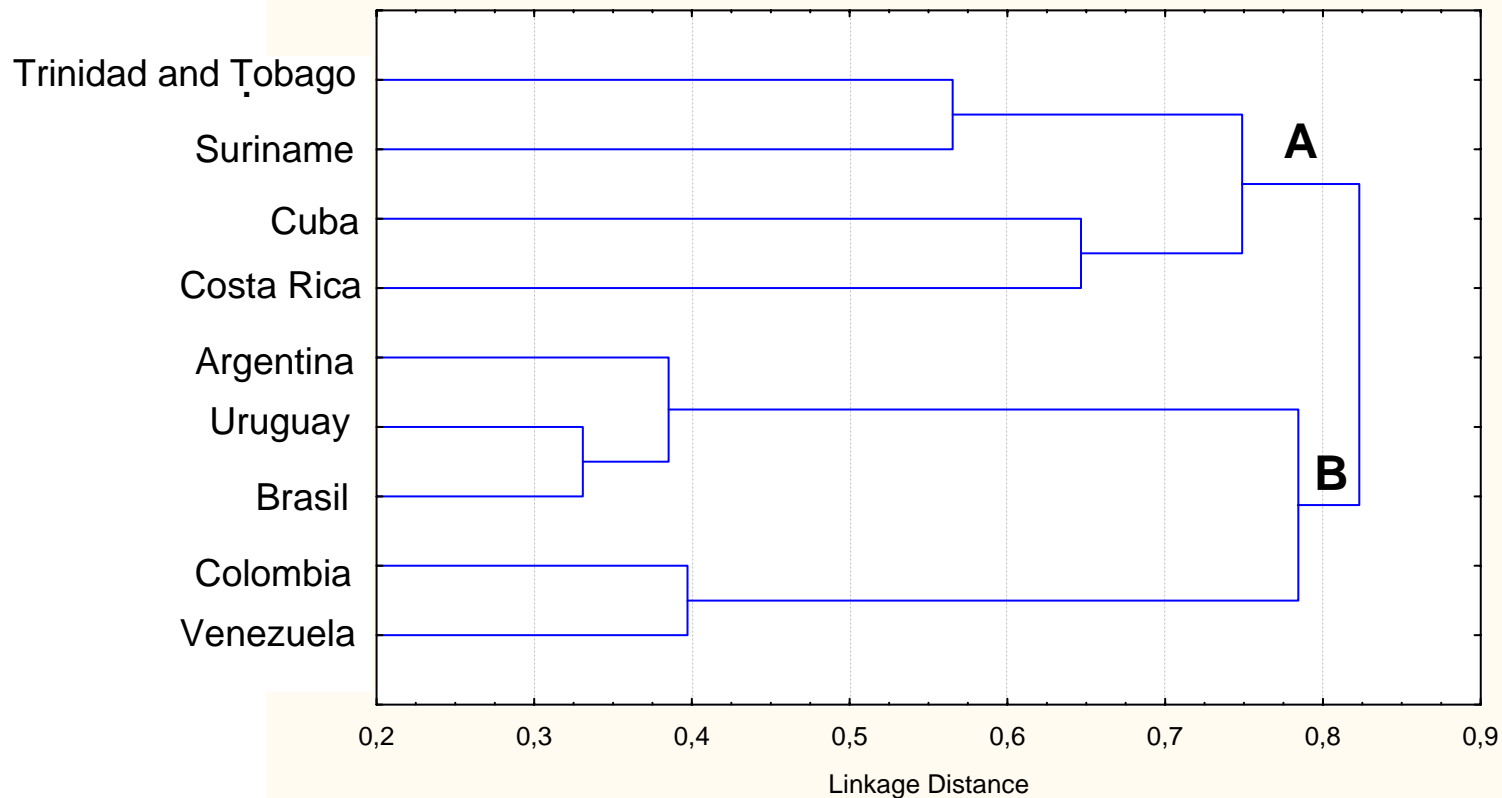


**Families and number of species of aquatic birds in the rice plantations of nine countries of the Neotropic**



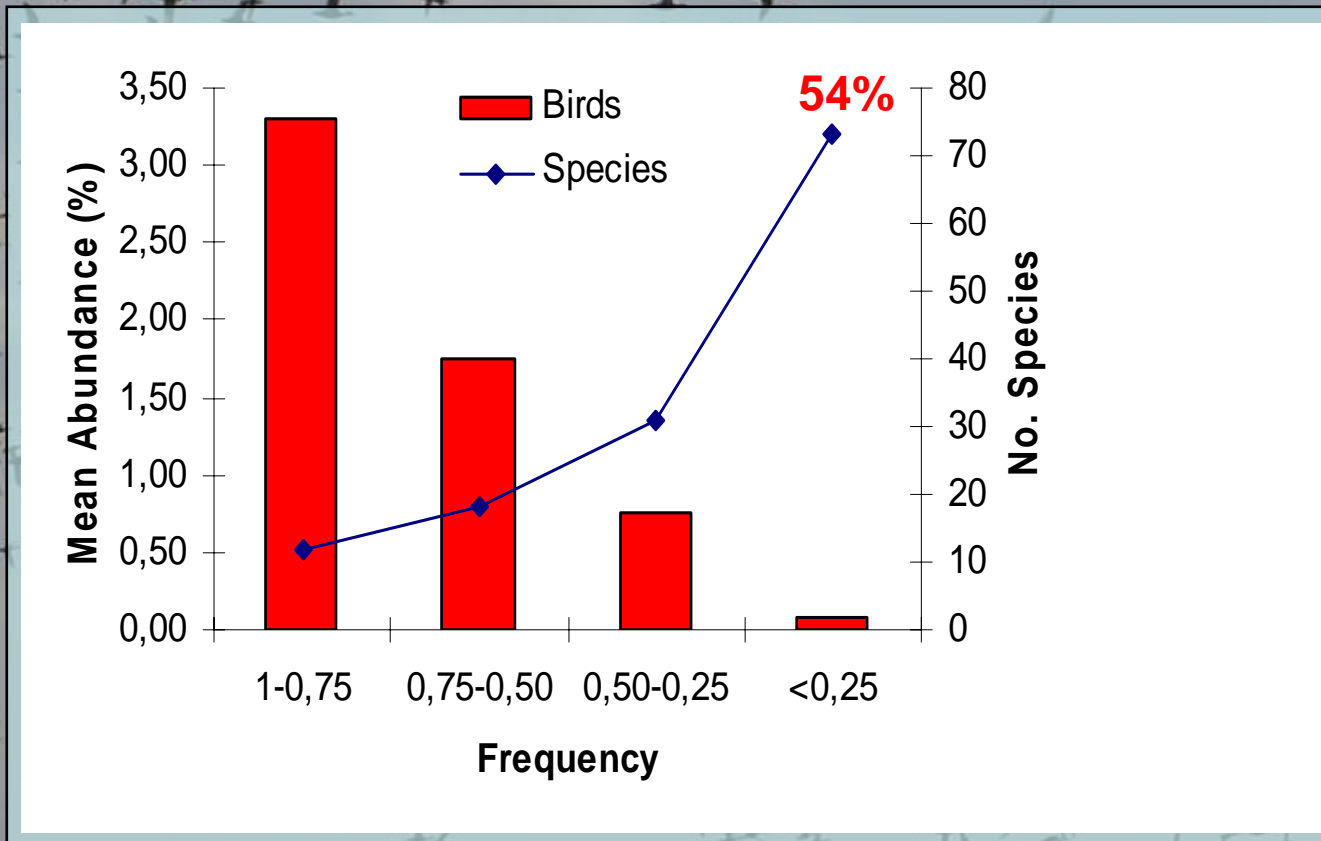


**Species porcentaje of the main orders present in rice plantations of nine countries of the neotropic**



**Similarity of the structure of aquatic bird communities in the rice plantation among nine countries of the neotropic**

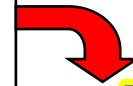


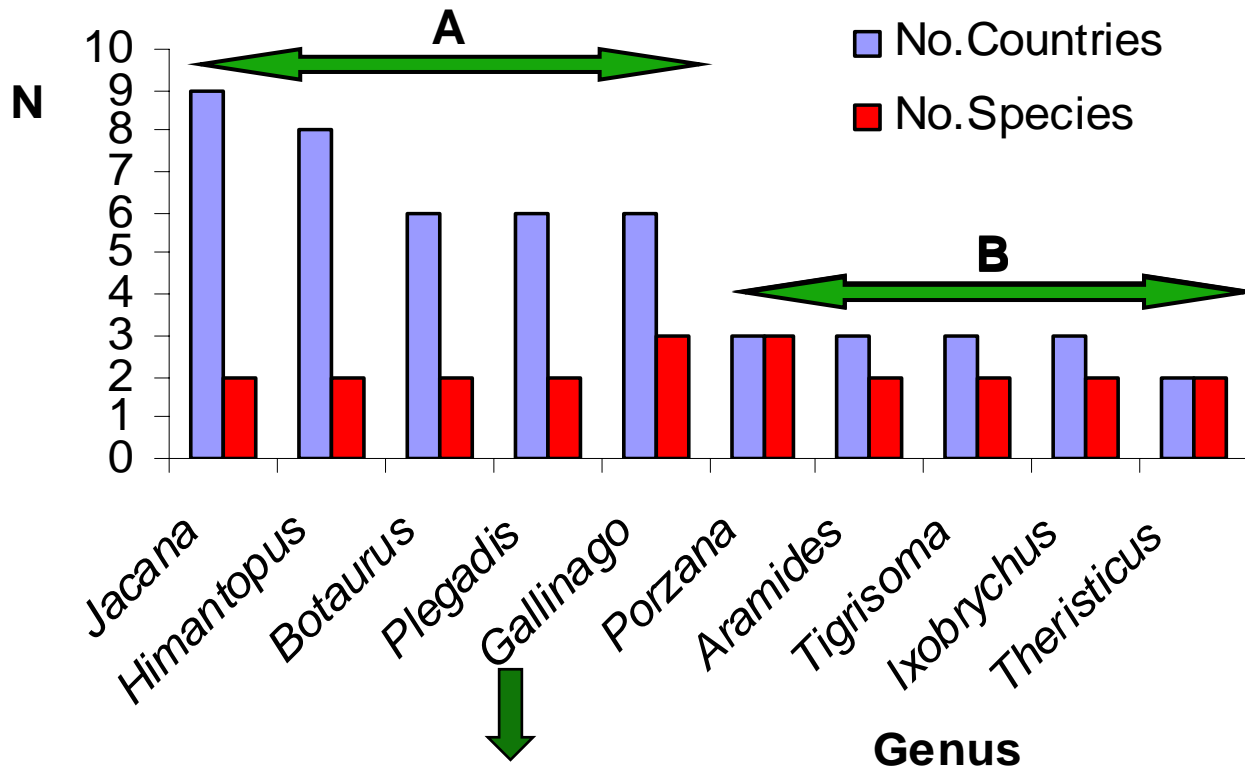


**Mean abundance (%) and number of species of aquatic birds detected in the rice plantations of nine countries of the Neotropic**

# Frequency and Mean Relative Abundance(%) of the most common species of aquatic birds of the rice plantations in the neotropic

SPECIES	F	MRA%
Cattle Egret	1	13,09
LesserYellowlegs	1	7,96
Great Heron	1	5,75
Snowy Egret	1	2,92
Greater Yellow Legs	1	1,93
Solitary Sandpiper	0,89	1,97
Northern Jacana	0,78	2,55
Fulvous Whisling Duck	0,78	1,67
Little Blue Heron	0,78	1,05
American Golden -Plover	0,67	5,27
White-Rumped Sandpiper	0,67	2,76
Collared Plover	0,67	2,05
Least Sandpiper	0,56	4,64
Pectoral Sandpiper	0,56	4,57
Southern Lapwing	0,56	3,35
Black-Necked Stilt	0,56	2,33
Blue Winged Teal	0,56	2,22
Black-bellied Whistling Duck	0,56	1,82





**Genus with allopatric species in nine countries of the Neotropic**



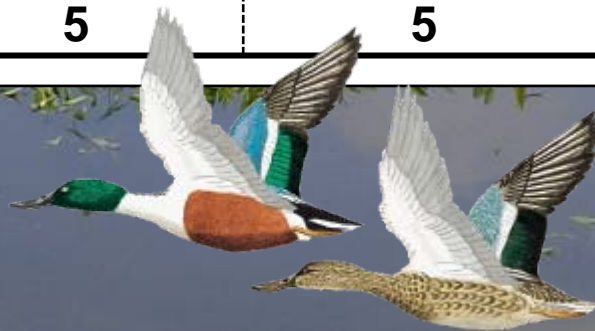
## Genus with species of lower sympatry

Genus	No. Species	No. Countries	Mean Sympatry
<i>Fulica</i>	4	5	<b>0,08</b>
<i>Butorides</i>	2	8	0,13
<i>Laterallus</i>	4	4	0,17
<i>Larus</i>	3	4	0,17
<i>Gallinula</i>	2	5	0,20
<i>Porphyrio</i>	2	7	0,29



## Genus with species of intermediate sympatry

Genus	No. Species	No. Countries	Mean Sympatry
<i>Ardea</i>	3	9	0,30
<i>Calidris</i>	9	8	0,30
<i>Pardirallus</i>	2	3	0,33
<i>Pluvialis</i>	2	6	0,33
<i>Limnodromus</i>	2	3	0,33
<i>Dendrocygna</i>	4	8	0,36
<i>Sterna</i>	4	4	0,36
<i>Charadrius</i>	4	8	0,38
<i>Anas</i> (neartic)	5	5	0,45



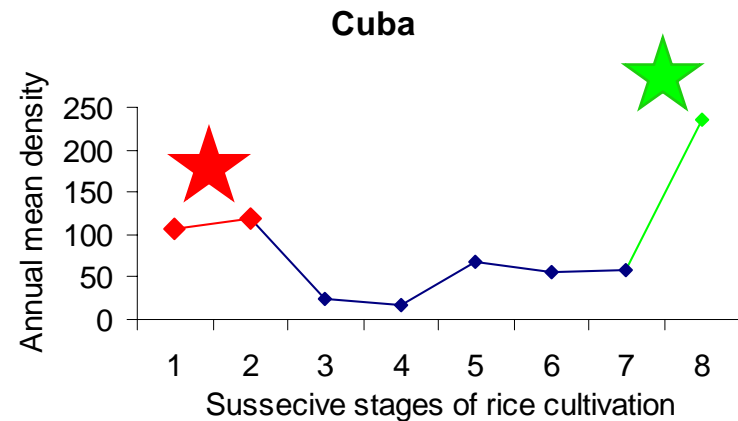
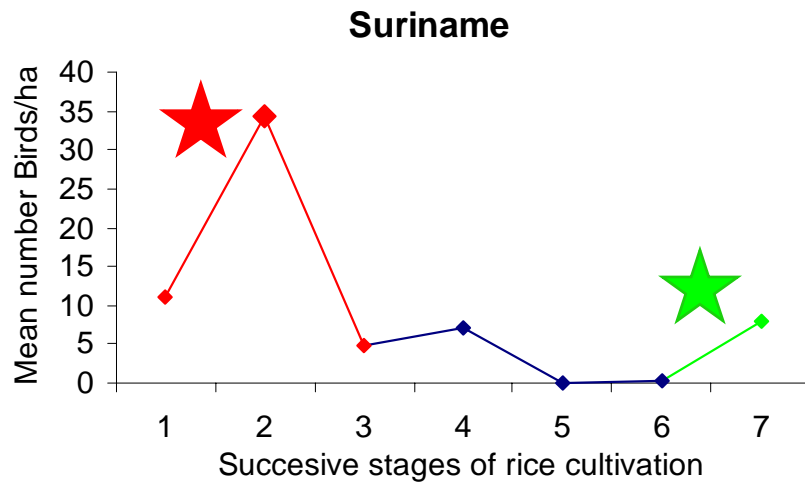
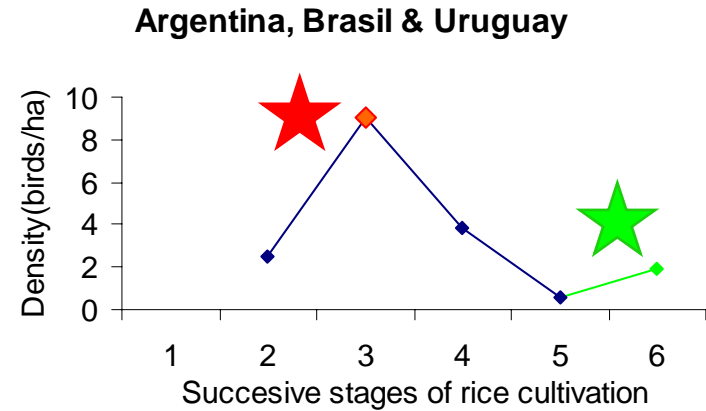
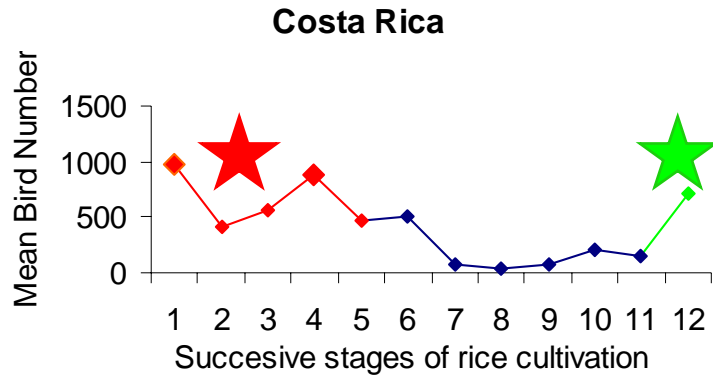



## Genus with species of higher sympatry

Genus	No. Species	No.Countries	Mean Sympatry
<i>Aythya</i>	2	2	0,50
<i>Oxyura</i>	2	2	0,50
<i>Eudocimus</i>	2	4	0,50
<i>Egretta</i>	3	9	0,51
<i>Anas (neotropic)</i>	3	3	0,77
<i>Tringa</i>	3	9	<b>0,93</b>



# Bird use of successive stages of rice cultivation



 Fields related to sowing preparation

 Flooded fields after harvesting

## **Main difficulties in assessing the role of birds in the rice paddies in the neotropical region**

- In 10 countries we found no information at all**
- Most sources of information used were in spanish and portuguese and papers were mainly from national journals**
- Few information is published, in 4 countries all the information used came from technical reports, graduate thesis, and personal communications**
- Data were taken in very different ways and timing, so quantitative comparisons among countries were not possible**



## Information available



Argentina	Blanco <i>et al</i> 2006
Brasil	Diaz y Burger 2005, Blanco <i>et al.</i> 2006
Colombia	McKay 1978 (Project report) Murillo <i>et al</i> and Personal Communications
Costa Rica	Hurtado (2003) Master Thesis
Cuba	24 papers, 2 PhD Thesis
Surinam	Hicklin & Spaans 1993 Technical Report Series
Trinidad & Tobago	Doodnath, L (Personal communication, Master Thesis in progress)
Uruguay	Blanco <i>et al.</i> 2006
Venezuela	Vilella & Baldasarre 2006 Final Report





