

# Conhecendo as rotas de Aves migratórias no Brasil

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# Bird Banding in Brazil

- Since the 80´s
- CEMAVE - IBAMA



MINISTÉRIO DO MEIO AMBIENTE  
INSTITUTO BRASILEIRO DO MEIO AMBIENTE E DOS RECURSOS NATURAIS  
RENOVÁVEIS  
DIRETORIA DE FAUNA E RECURSOS PESQUEIROS  
CENTRO NACIONAL DE PESQUISA PARA CONSERVAÇÃO DAS AVES SILVESTRES



# Types of migrations

- **Neartic:** arrive from the north, even Arctic
- **Austral:** arrive from the south, even Antarctic
- **Regional:** ex. Cerrado to Amazonia
- **Local:** ex. Pantanal to surrounding Cerrado
- **Altitudinal:** Atlantic Forest mountains
- **Nomadism:** ex. Atlantic Forest bamboo seedeaters

# Neartic migrants

- 420 species migrate to the Neotropics
  - mostly Passerines to Central America and Caribbean islands
  - all kinds of birds to South America
  - breed in forests and humid areas

# Austral migrants

- 50% of the migrants in North America come from South America
  - mostly flycatchers, finches and ducks
  - migrate shorter distances than Nearctic migrants
  - most breed in open habitats

# Long distance migrants

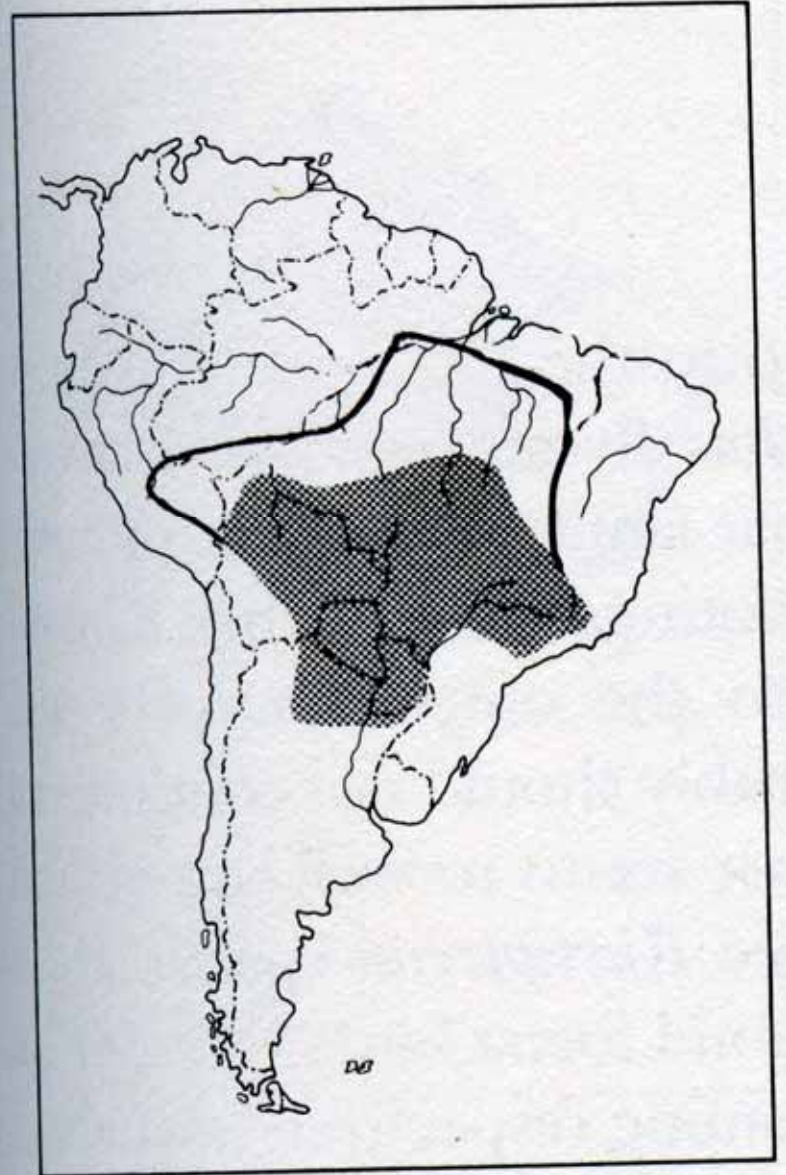
- 152 species migrate to Brazil (Sick 1997):
  - Neartic: 91 are northern visitants ( 60% aquatic )
    - 22 Scolopacidae (*Calidris*, *Tringa*, etc.)
    - 10 Laridae (*Larus*, *Sterna*, *Chlidonias*)
    - 2 ducks (Anatidae) (*Anas acuta*, *Anas discors*)
  - Austral: 61 are southern visitants ( 74% aquatic )
    - 15 Procellariidae (*Pterodroma*, *Pachyptila*, etc.)
    - 8 Diomedeidae (*Diomedea*, *Phoebetria*)
    - 5 ducks (Anatidae) (*Anas*, *Callonetta*, *Oxyura*)

# Regional migrants

- From southern to northern South America



*Casiornis rufa*



# Local migrants

- Short distance migrations
  - Ex. from within to the borders of the Pantanal





Local and Regional migrants in the Pantanal Species	Months											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Vagrants</b>												
<i>Cypsnagra hirundinacea</i>	0	0	0	0	0	0	0	0	1	0	0	0
<b>Runoff migrants</b>												
<i>Tachyphonus rufus</i>	0	0	0	0	0	1	1	1	0	0	0	0
<b>Flood migrants</b>												
<i>Attila phoenicurus</i>	0	1	1	1	0	0	0	0	0	0	0	0
<b>Flood and Runoff migrants</b>												
<i>Elaenia flavogaster</i>	0	1	1	1	0	1	1	1	0	0	0	0
<b>Dry and flood migrants</b>												
<i>Chrysolampis mosquitus</i>	1	1	1	1	0	0	0	0	1	1	1	1
<b>Dry Migrants</b>												
<i>Saltator atricollis</i>	0	0	0	0	0	0	0	1	1	1	1	1
<b>Runoff and Dry Migrants</b>												
<i>Campephilus melanoleucus</i>	0	0	0	0	1	0	1	1	1	1	1	1

# Migratory patterns of Pantanal birds

- Breed in the Pantanal (~ 80 % species):
  - 130 resident
  - 39 runoff and dry (= don't like flood)
  - 9 dry migrants (= go there to reproduce)
  - 8 dry and flood (= don't like cold)
- Breed elsewhere (~ 20 % species):
  - 7 flood and runoff
  - 5 flood (= like water)
  - 7 runoff (= winter migrants)
  - 25 vagrants

# Altitudinal migration

Hummingbirds,  
flycatchers and finches  
migrate up and down  
the mountains of  
Southeast Brazil, within  
the Atlantic Forest  
biome



*Stephanoxis lalandi*

# Nomadism

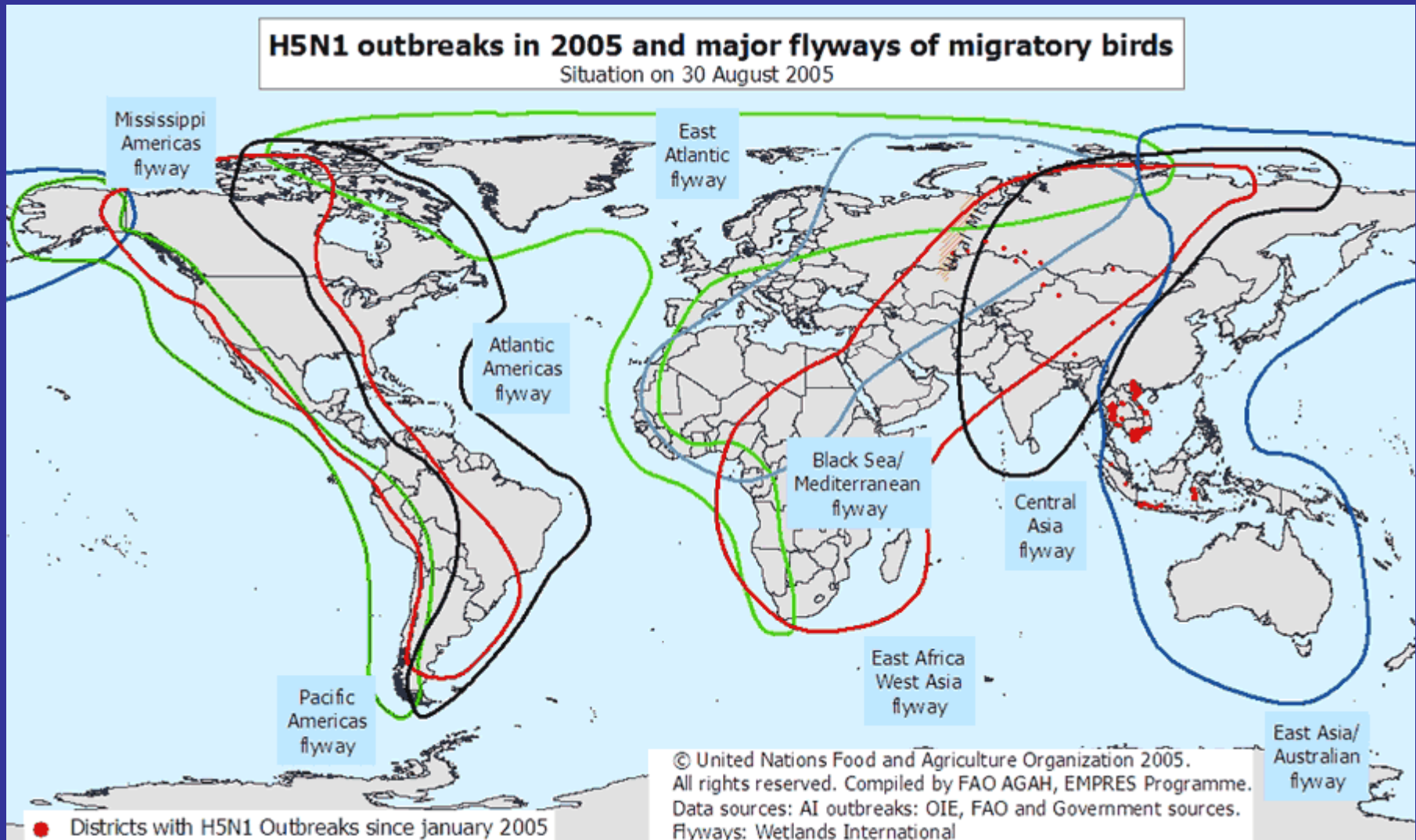
Small finches from southeast Brazil follow bamboo (*Merostachys* spp., *Chusquea* spp.) masting.

- *Sporophila frontalis*
- *Tiaris fuliginosa*
- *Haplospiza unicolor*



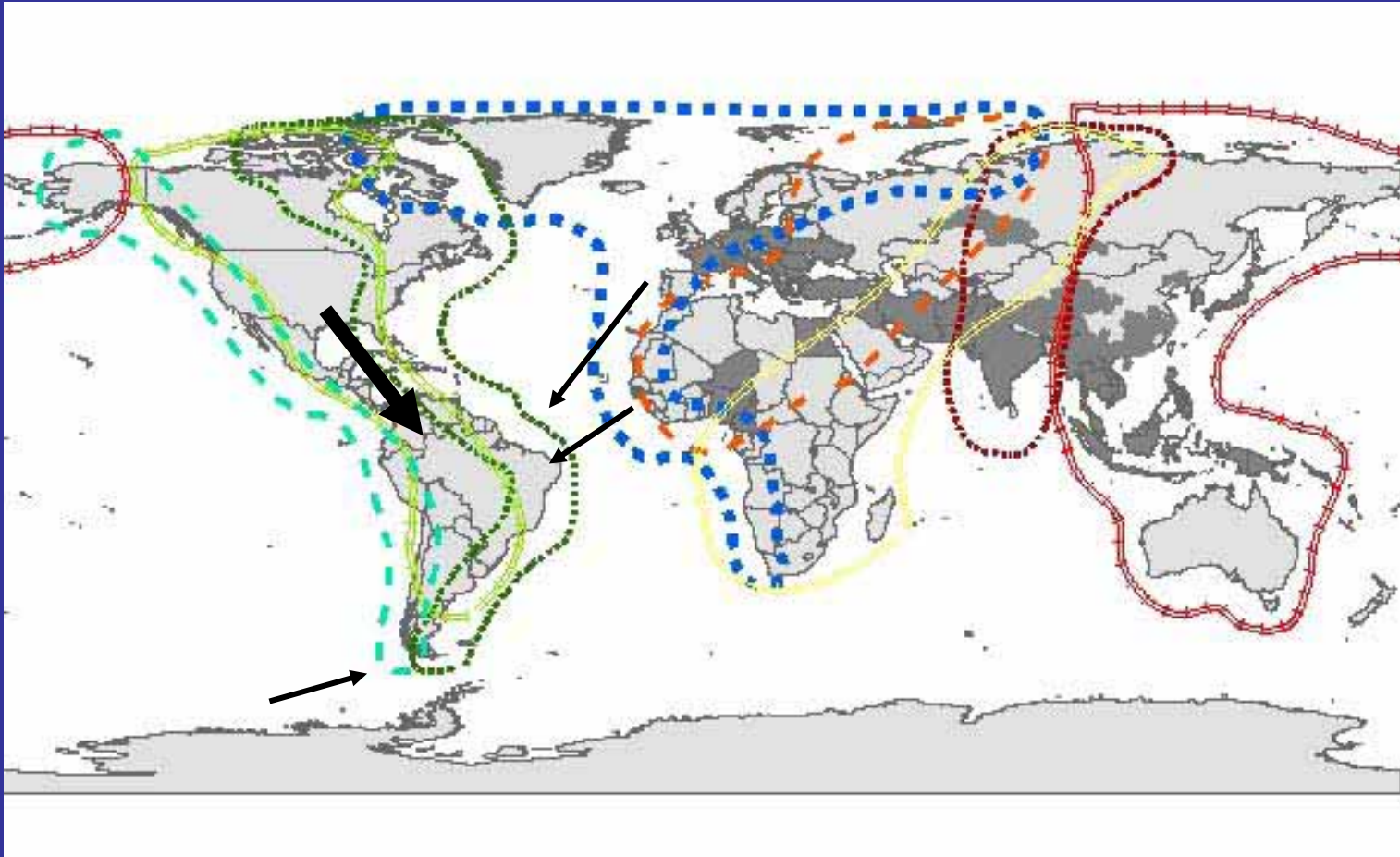
# Migration Routes

## 1) Intercontinental:



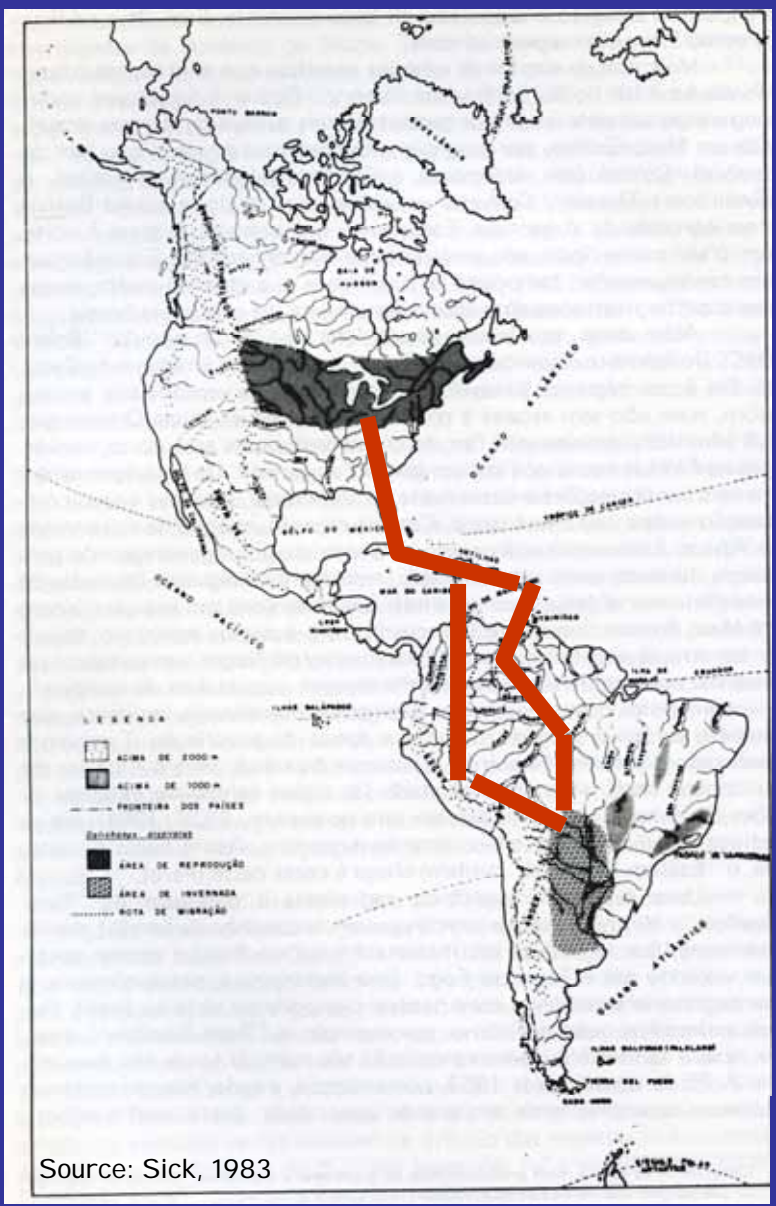
# Migration Routes

## 1) Intercontinental:

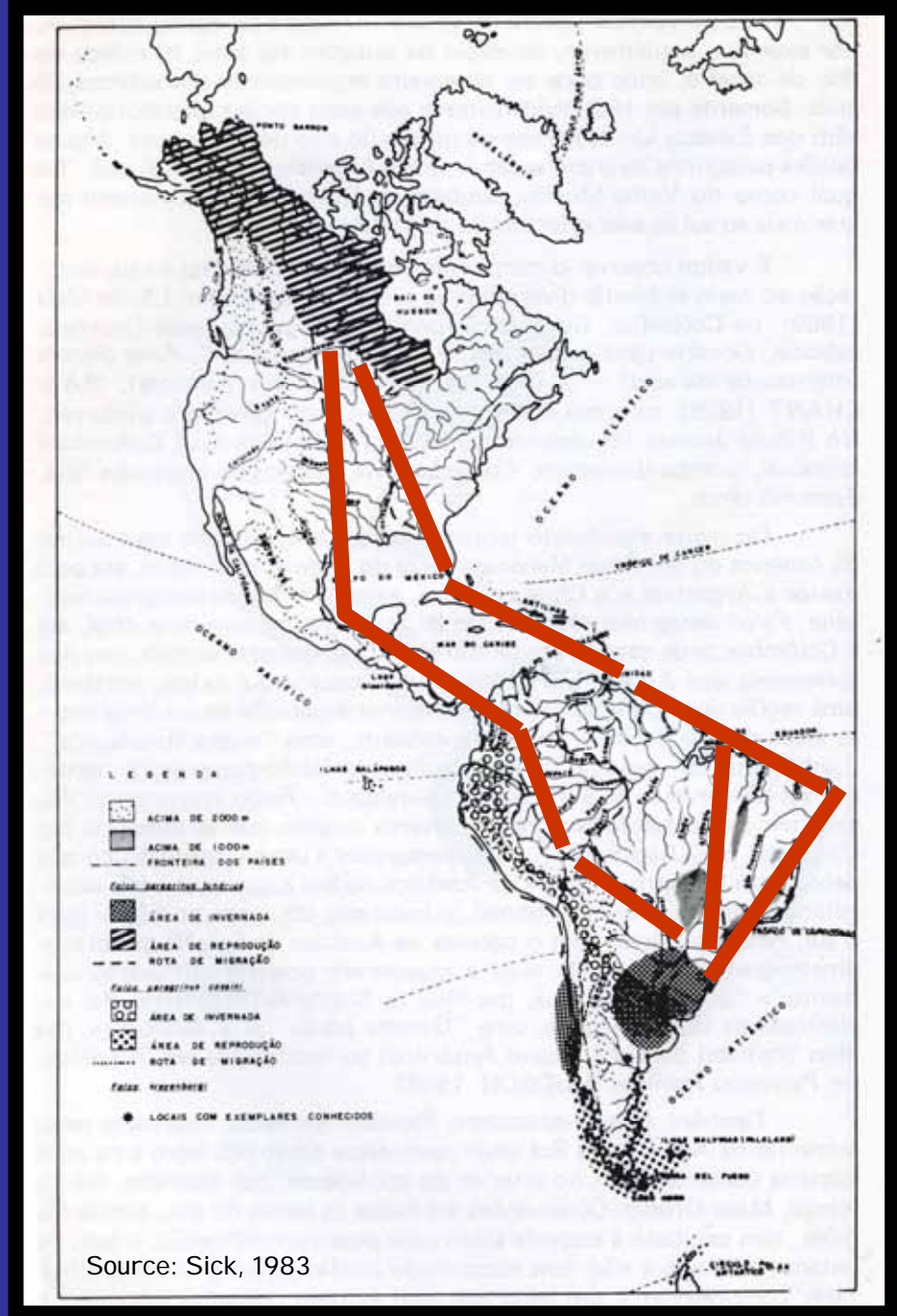


garças (*Ardeola ralloides*, *Ardea purpurea*, *Egretta garzeta*), maçarico (*Numenius p. phaeopus*), andorinha (*Hirundo rustica erytrogaster*), garça-vaqueira (*Bubulcus ibis*)

## 2) Continental:

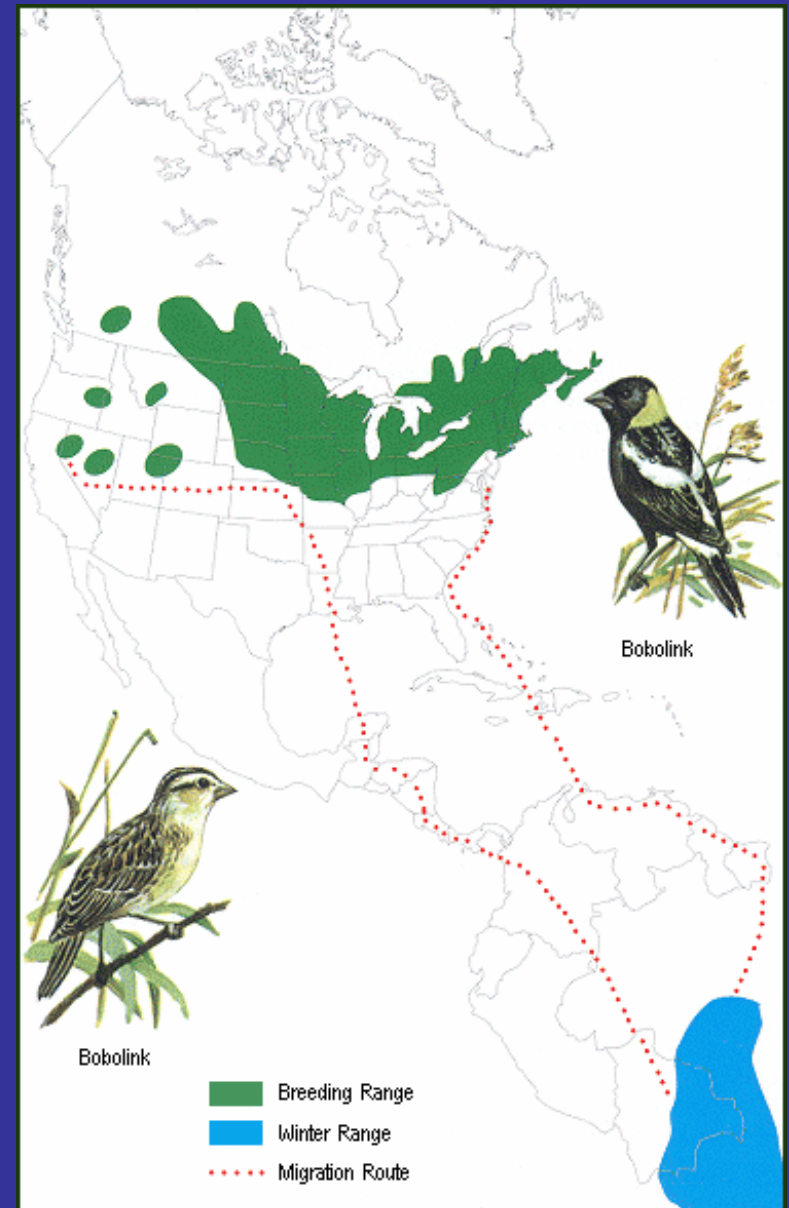
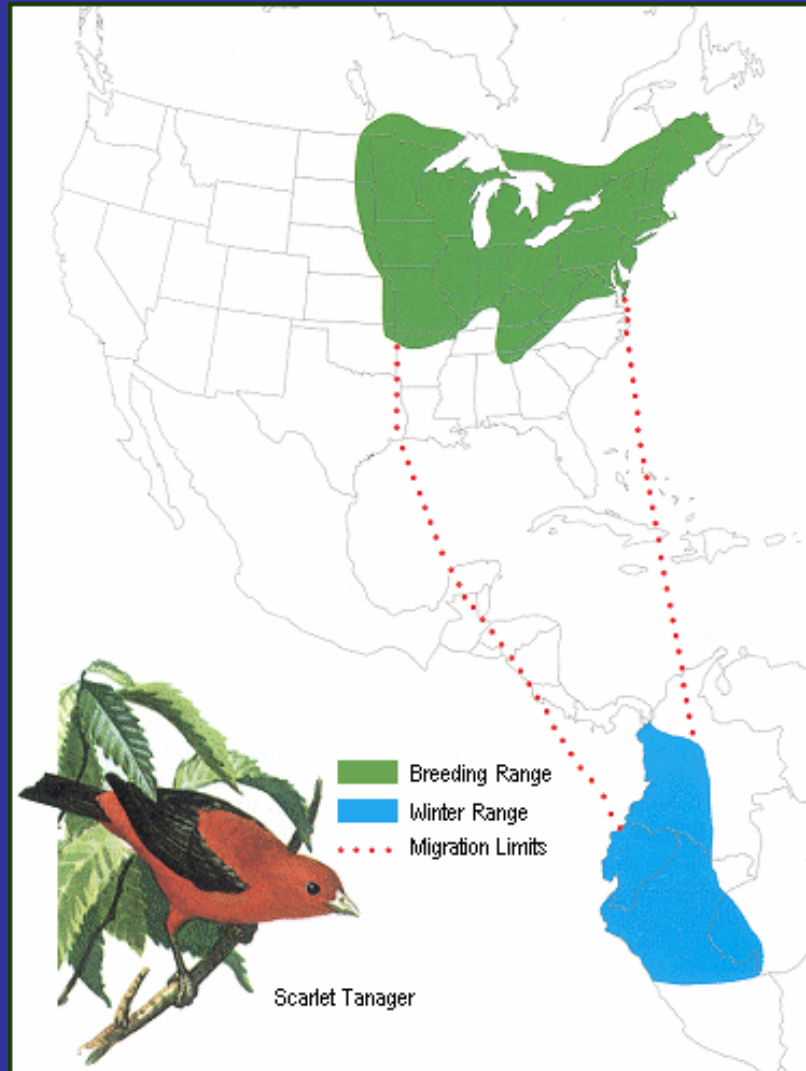


Source: Sick, 1983



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## 2) Continental:

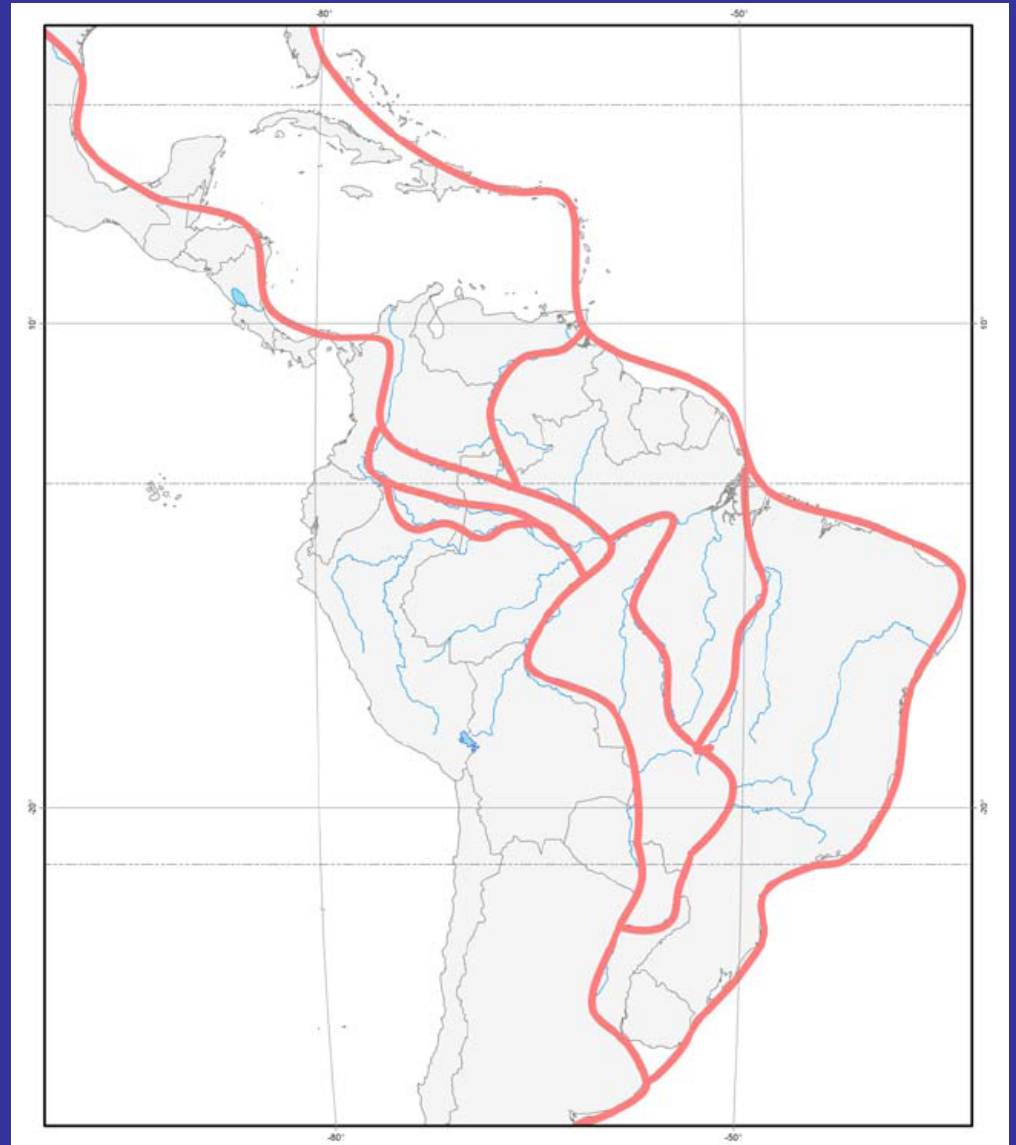




## 2) Continental:

Most important  
migratory routes  
through the Amazon

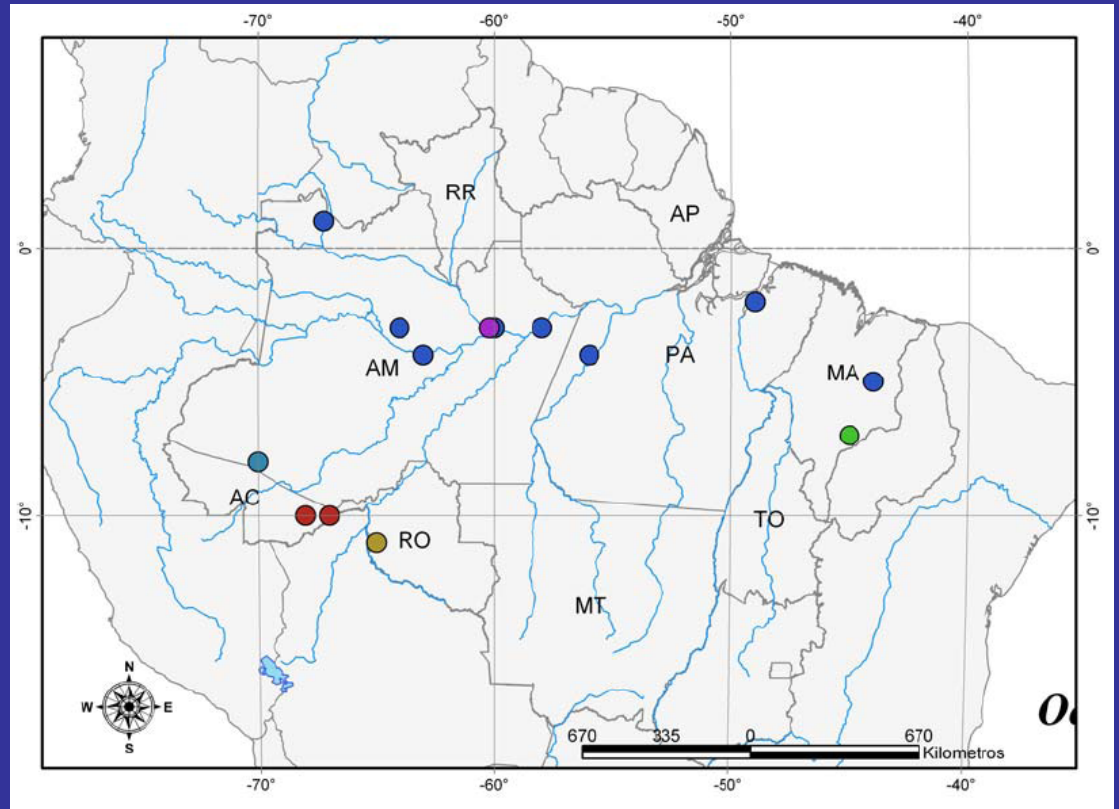
Source: Nunes et al. (2006)










## 2) Continental:

# Recoveries of terrestrial birds in the Amazon

Source: Nunes et al. (2006)



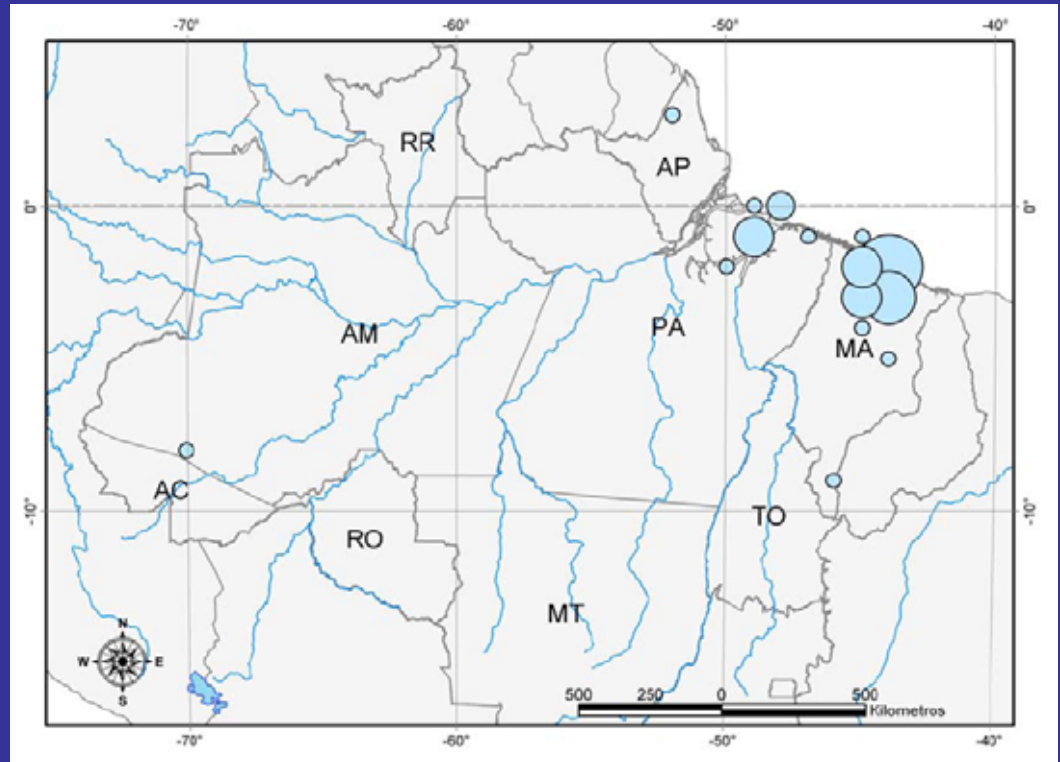
### Legenda

- |  |  |
|--|--|
|  Buteo platypterus   |  Progne subis             |
|  Buteo swainsoni     |  Hirundo rustica          |
|  Coccyzus americanus |  Petrochelidon pyrrhonota |
|  Rios               |  |

## 2) Continental:

### Recoveries of *Ana discors* in the Amazon

Source: Nunes et al. (2006)



# *Catharus fuscescens* (Veery)

- Remsen (2001):
  - most localities are from migration areas in the fall and spring;
  - winter (December-February) grounds are in southeastern and south Brazil;
  - misunderstandings of real wintering grounds and stopover sites;
  - migration information of this common species was wrong until recently.



## 2) Continental:

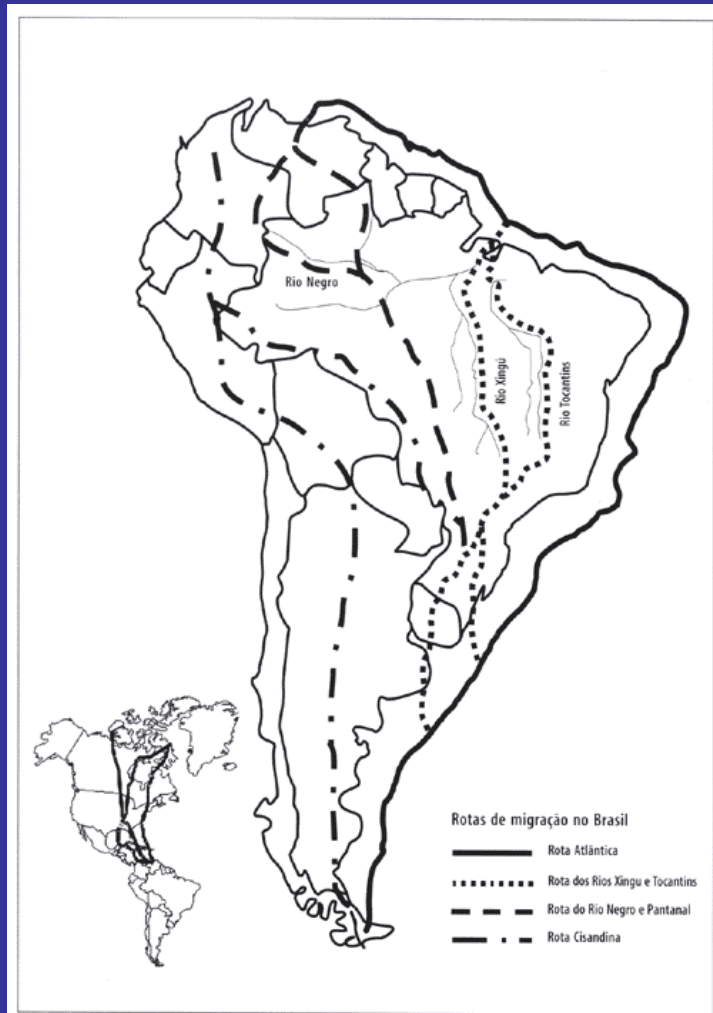
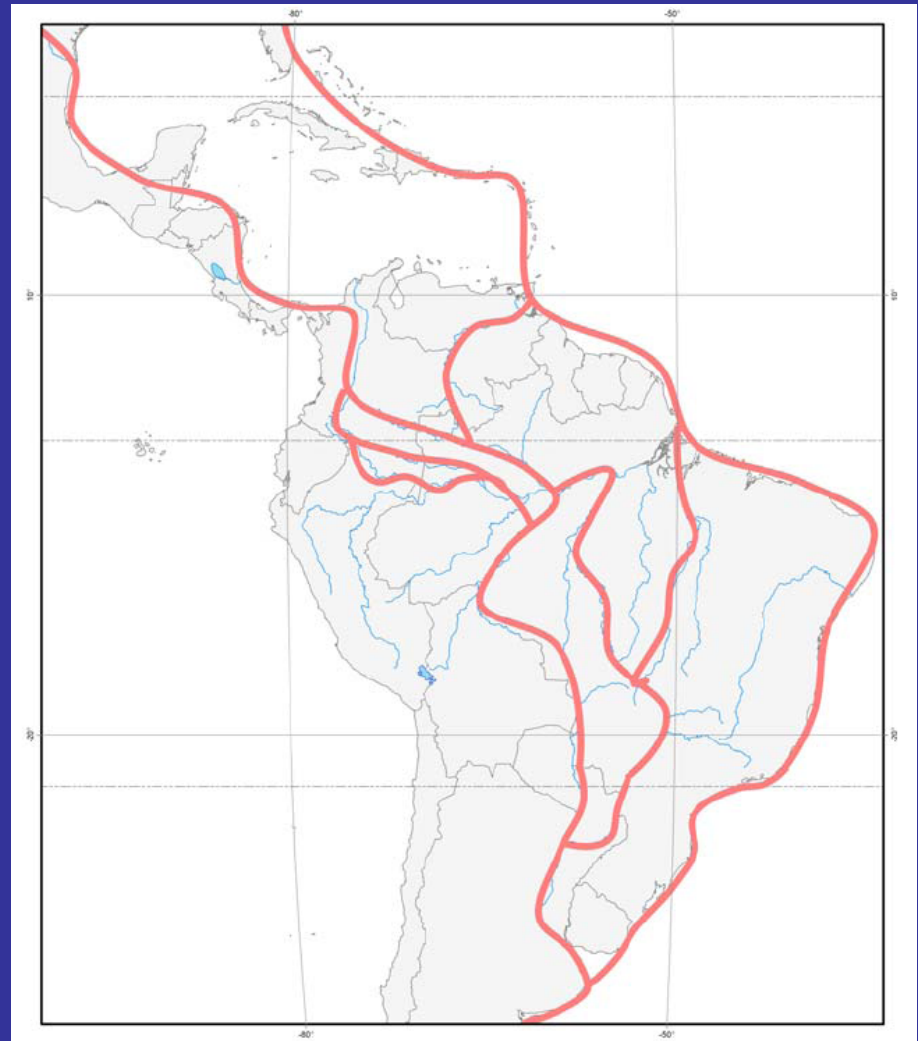


Figura 1 - Rotas de migrações de aves na América do Sul



### 3) Within South America:



*Elaenia albiceps chilensis*

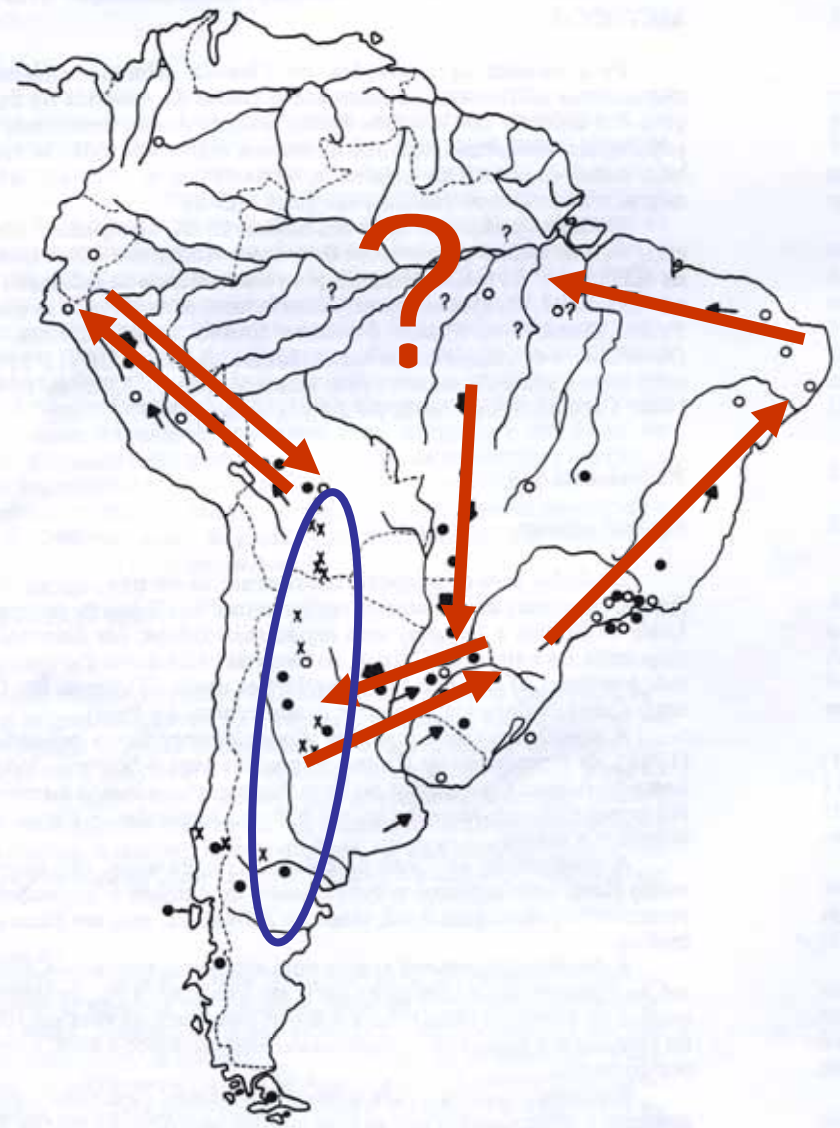


Figura 1 – Distribuição de *Elaenia albiceps chilensis*, com suas possíveis rotas de migração. Círculos abertos = observações nos meses de abril a agosto. Círculos fechados = demais meses. Cruzes = locais de nidificação (segundo Traylor, 1982).

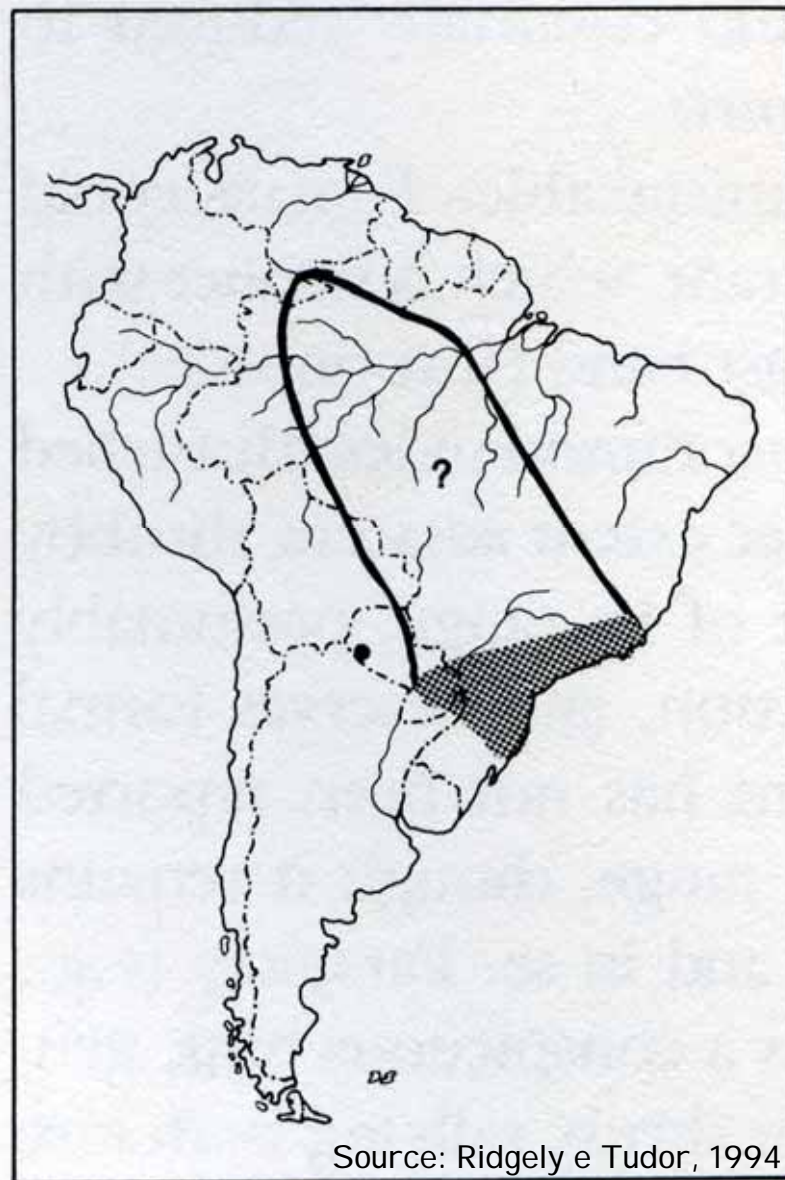
Source: Marini & Cavalcanti, 1990

### 3) Within South America:



Foto: João Pinho

### *Attila phoenicurus*



Source: Ridgely e Tudor, 1994

# Migration and Global Warming

- Austral migrant passerines (Joseph 1996)
  - divide into two groups in the winter:
    - hot and humid areas  $> 20\text{ }^{\circ}\text{C}$
    - areas with mean temperatures  $< 20\text{ }^{\circ}\text{C}$

Will birds change their migration routes and wintering grounds with global warming?



# Migration and Global Warming

Will birds change their migration routes and wintering grounds with global warming?

Birds from Northern Hemisphere have already changed:

- distribution limits;
- timing of breeding;
- etc ?

# Conclusions

- several types of migrations;
- very few studies;
- poor knowledge of migration routes.

## What we need

- more detailed studies;
- satellite tracking;
- modeling of occurrence (ex. GARP);
- CEMAVE should be allowed to analyze 25 years of banding data from all researchers.

# Migratory birds and diseases ...

