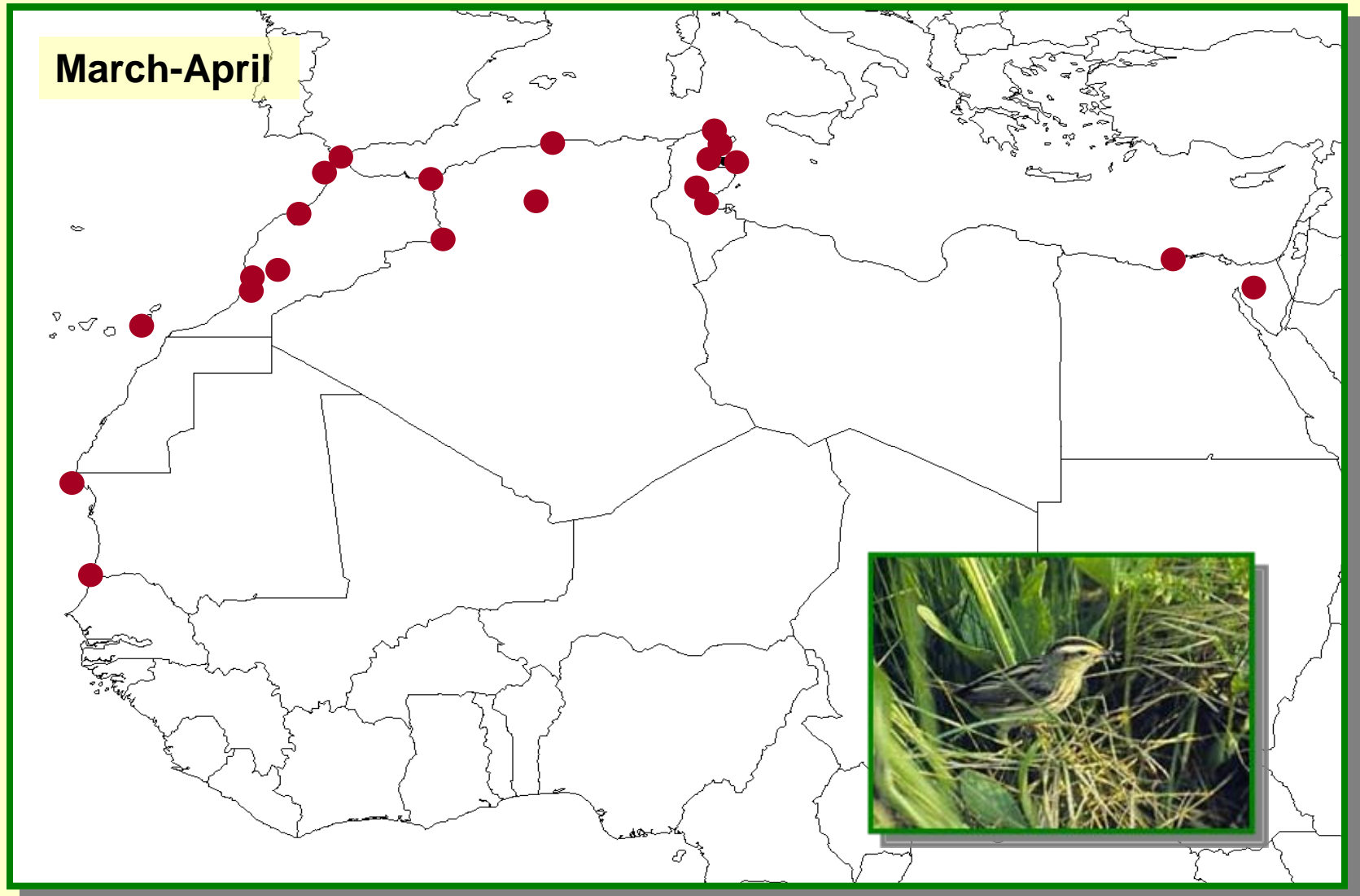


# Wintering areas of the Aquatic Warbler *Acrocephalus paludicola*: threat status and future prospects





Desk study 1: Collecting records during the non-breeding period (Schäffer et al. 2006)

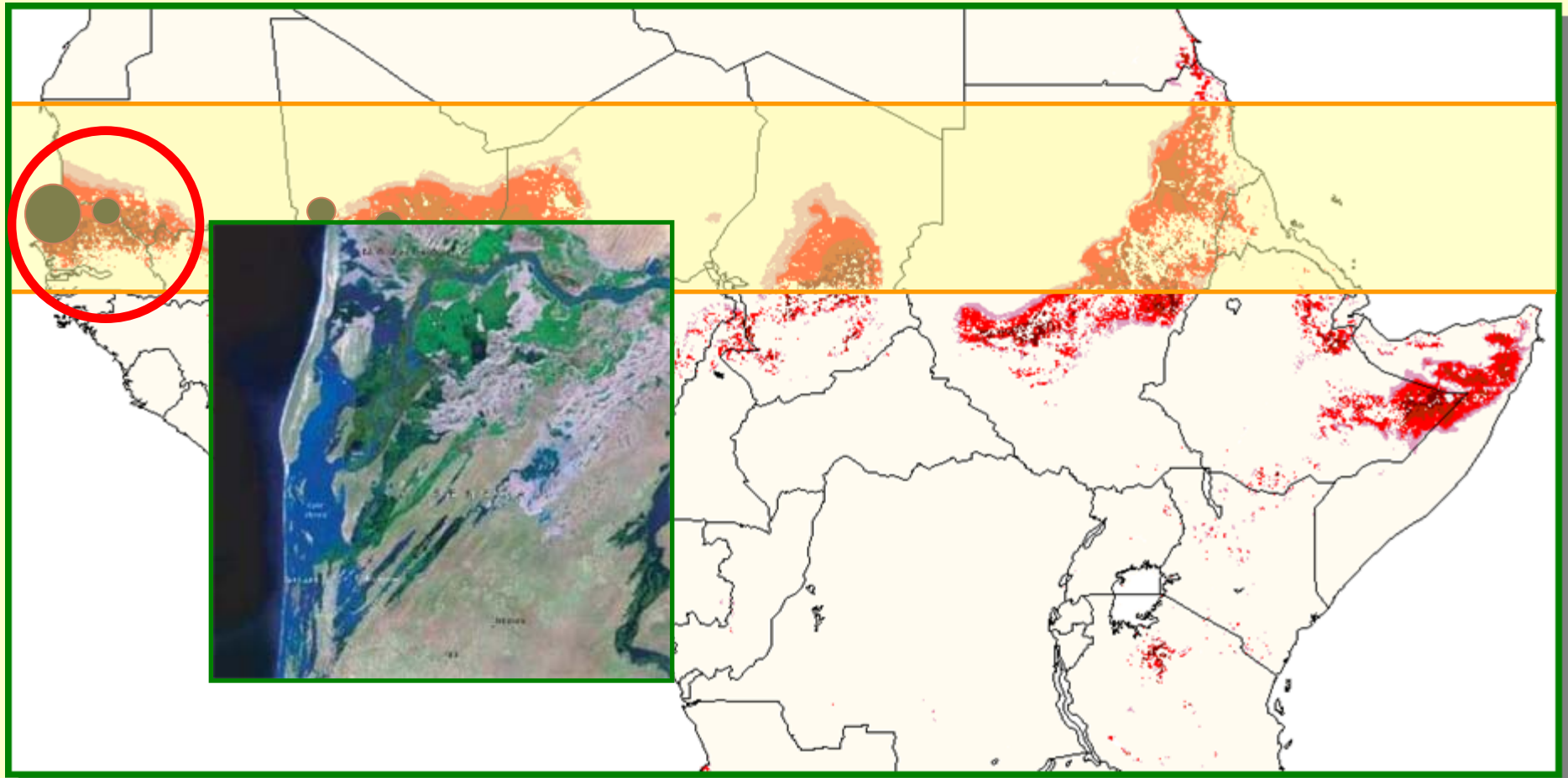


Desk study 2:  $\delta^{13}\text{C}$  isotope analysis  
(Pain et al. 2004 and unpublished)

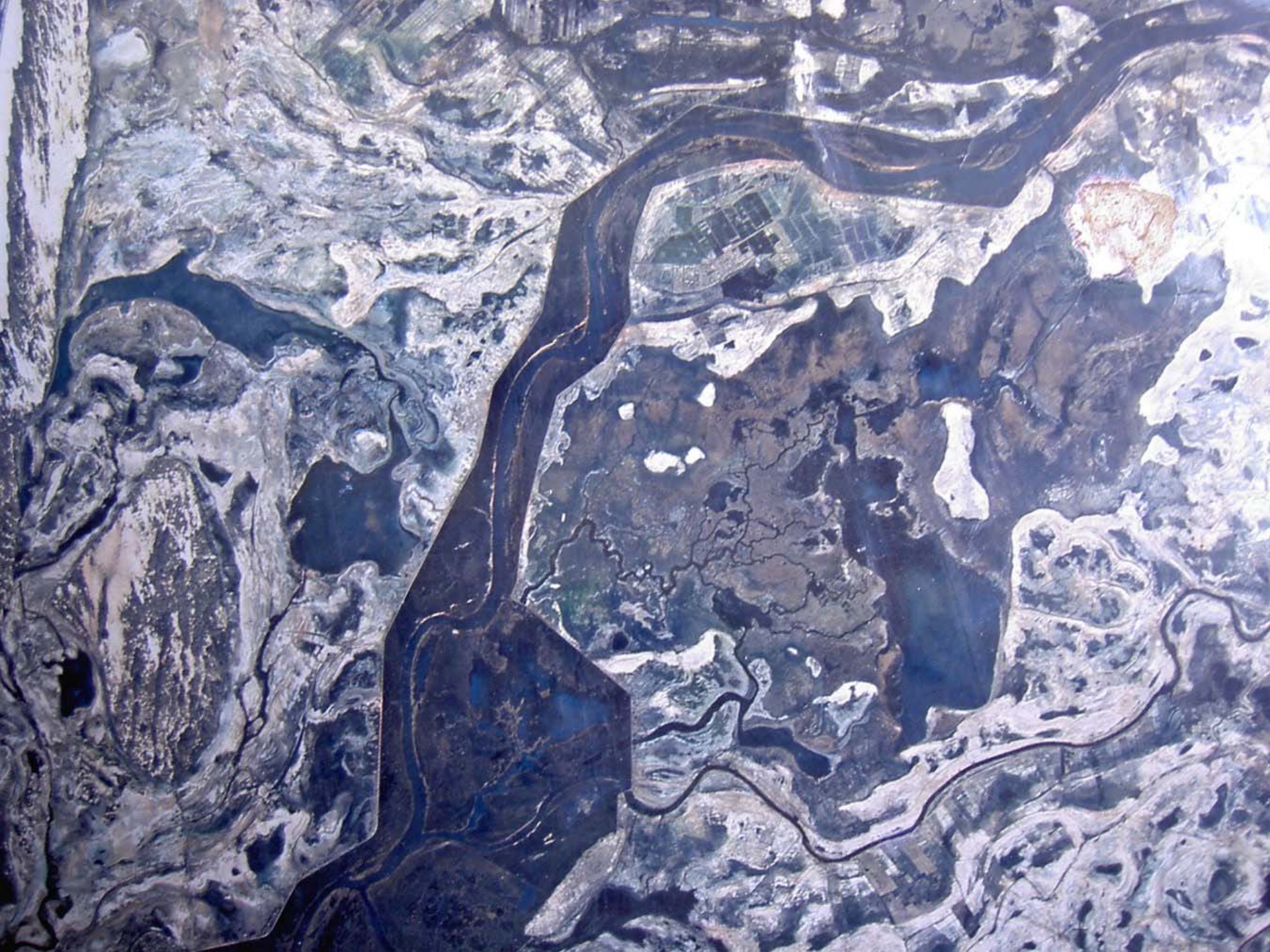


Potential non-breeding range: 13°-20°N

Desk study 3: BIOCLIM modelling of non-breeding distribution (Walther et al. 2007)

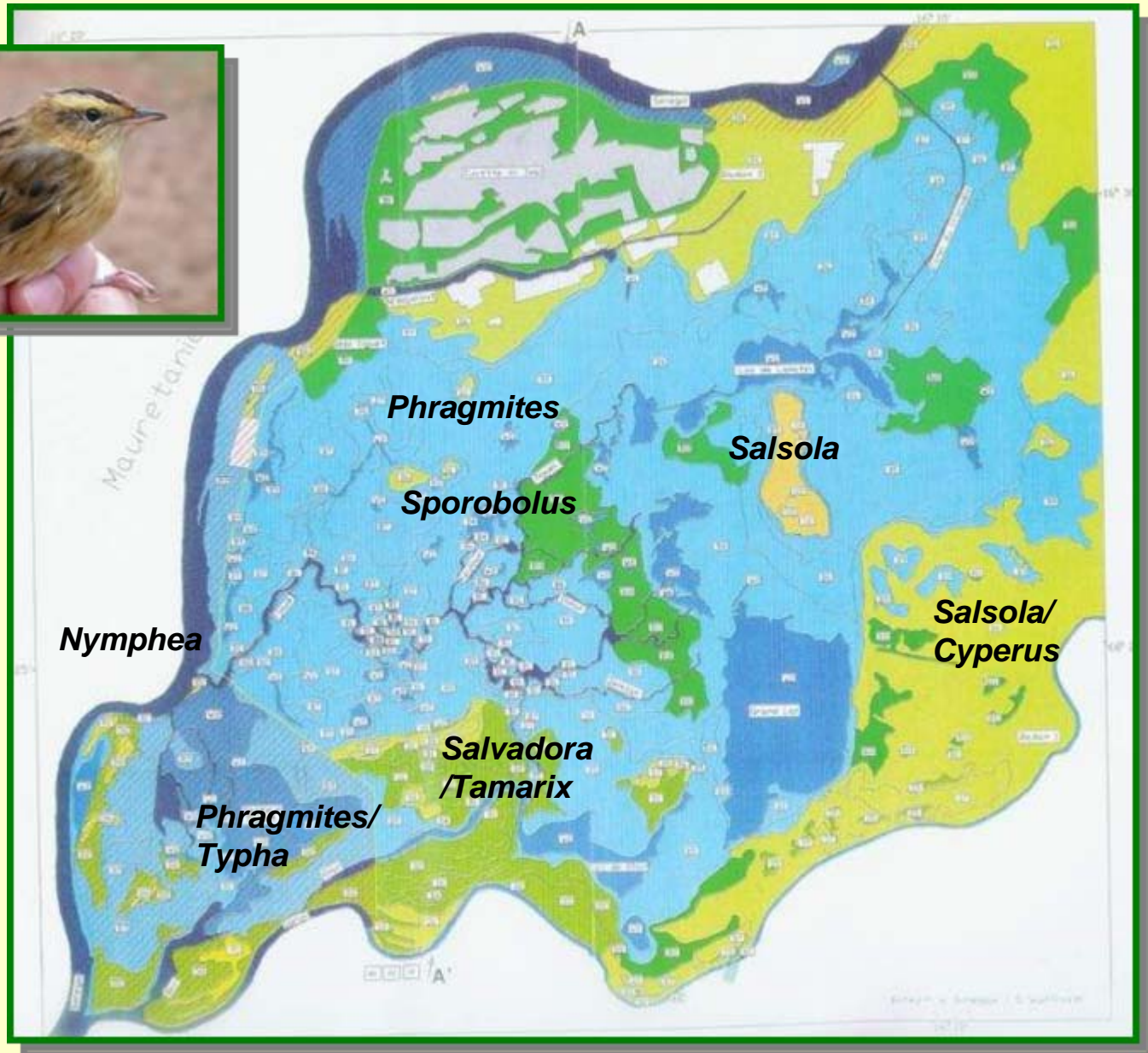








# Vegetation map of Djoudj National Park (Schwöppe 1994)





Mistnetting in *Typha*: - no success



Mistnetting in deep water: - no success





# Mistnetting at a lake shore: - no success





Mistnetting between *Tamarix*: - no success





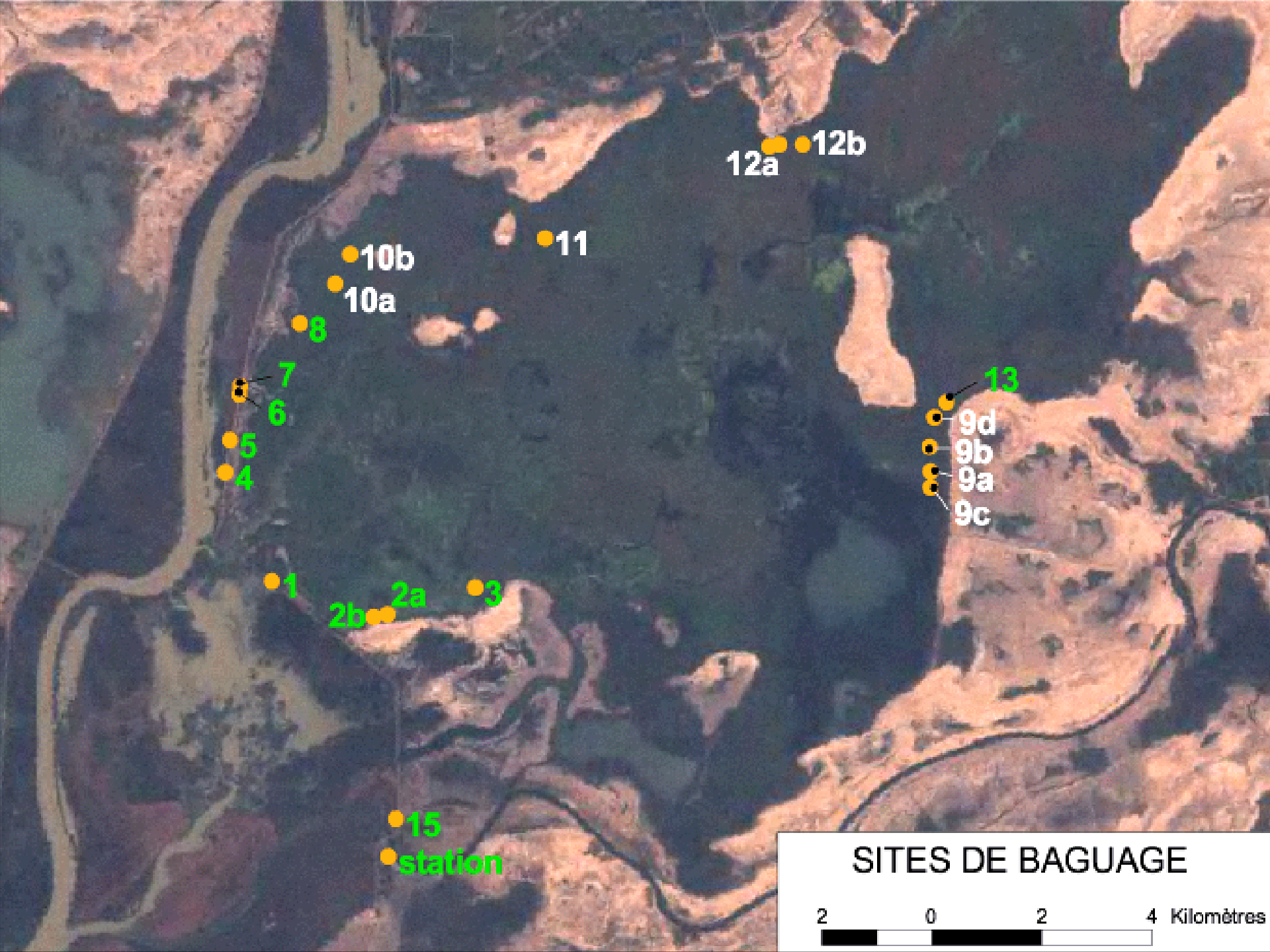
Mistnetting in *Scirpus/Oryza/Sporobulus* marshes:  
- SUCCESS!



# Rope method to catch Aquatic Warblers:







12a 12b

10b  
10a

11

7  
6  
5  
4

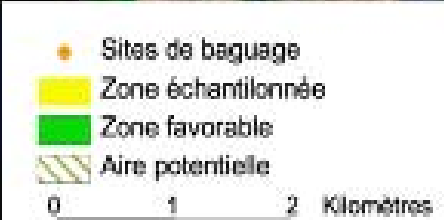
1  
2b 2a 3

13  
9d  
9b  
9a  
9c

15  
station

### SITES DE BAGUAGE







# Estimation of total number of wintering Aquatic Warblers in Djoudj:

Suitable habitat:

minimum 4,000 ha (Tegetmeyer, 2009)

maximum 10,000 ha (AWCT, 2007)



Density: 0.5-1.0 Aquatic Warblers/ha

2,000 - 10,000 Aquatic Warblers on Senegalese side of the Senegal delta

The Senegal delta holds at least 10%, eventually more than 40% of the global population (c.25,000 in spring)!

Where is the rest?

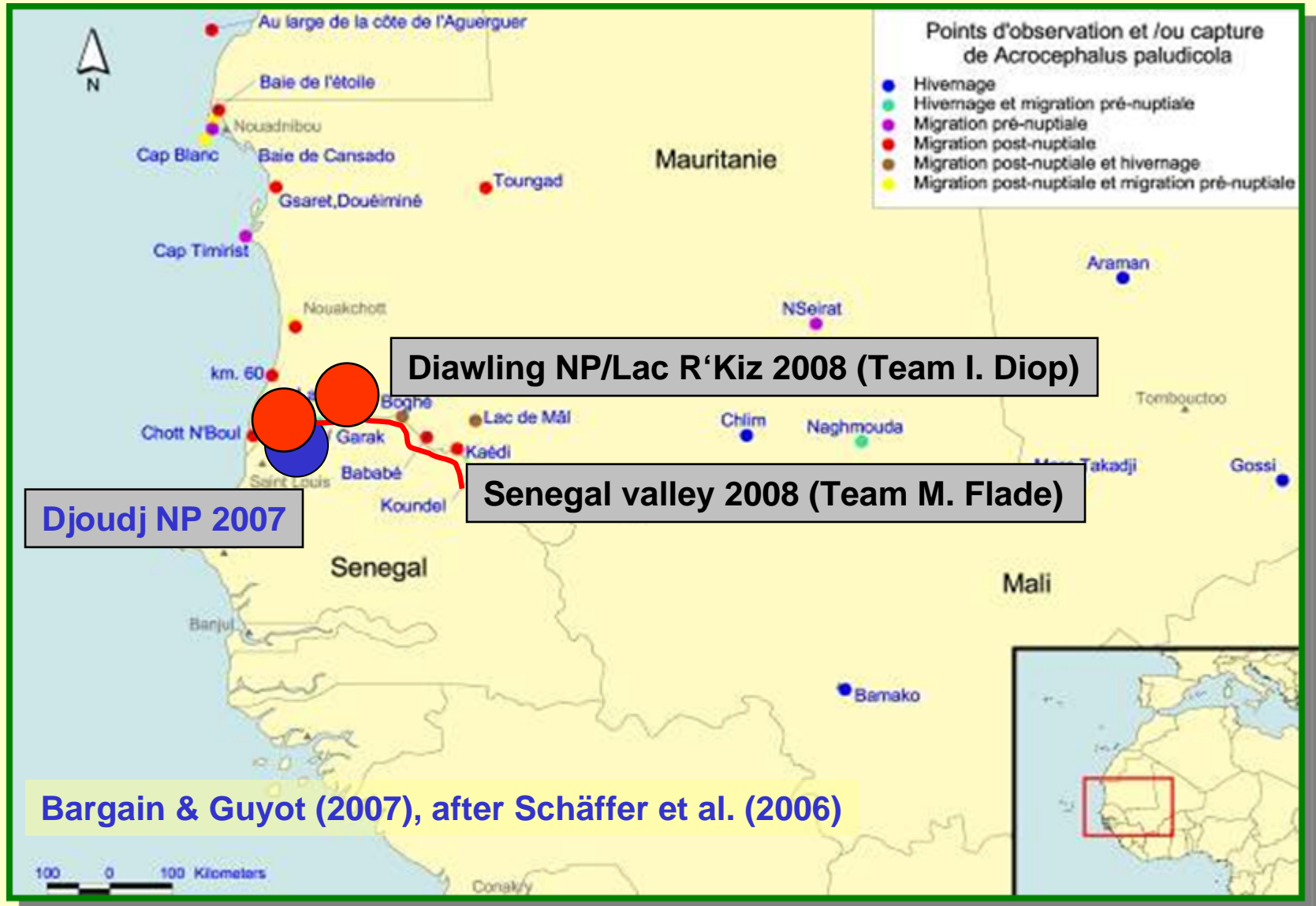
## Potential threats for Aquatic Warbler habitats in the Djoudj area:



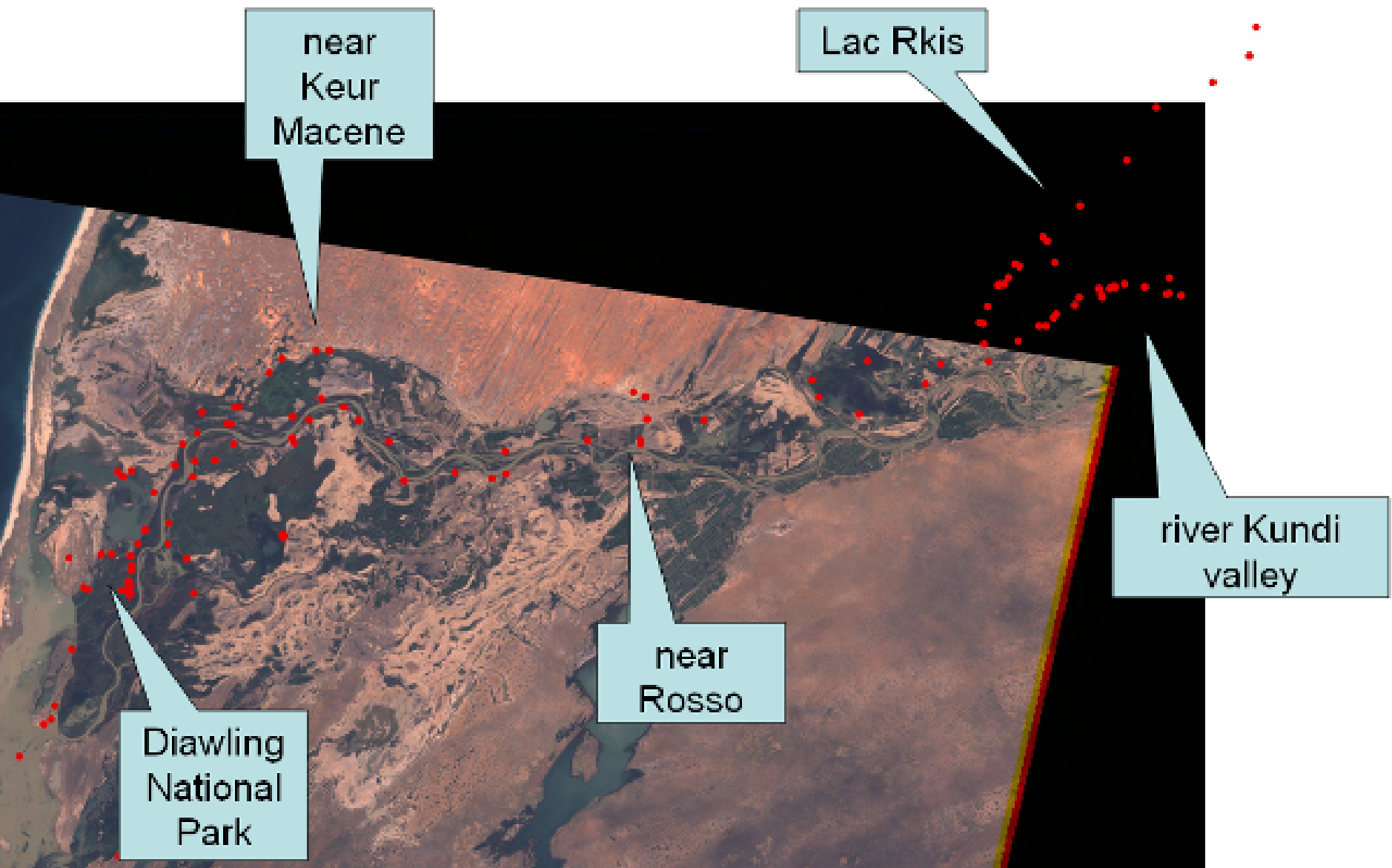
- **Changes in landscape water budget**
- **Changes in salinity (causing changes in vegetation structure and food supply)**
- **Changes in water management**
- **Changes in precipitation (climate change)**



# Known records of Aquatic Warbler in 2007 Senegal/Mauritania Expedition January 2008



# Areas checked in Mauretania



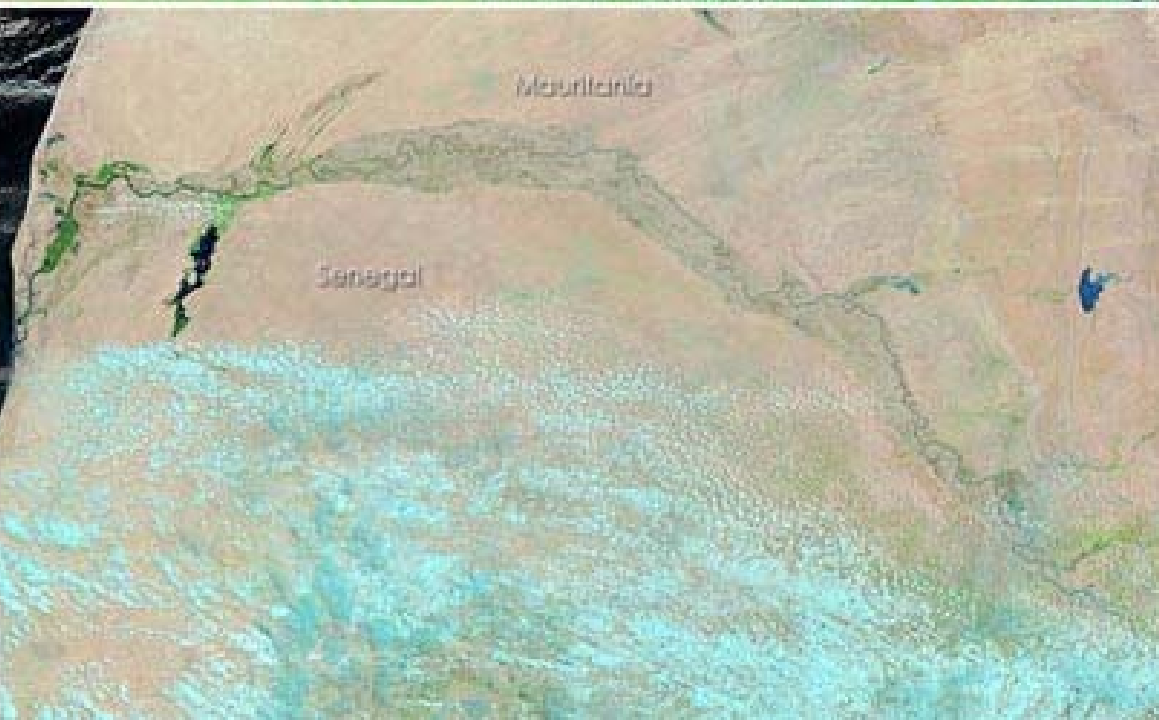




M2

M1

Area checked in  
Senegal by AWCT  
in January 2008





# Mauritania:





## Senegal Valley:



Lac Ndiael near Ross Betio









Mauretania, Lac de Mâl, February 1998 (Bruno Lamarche)





Mauritania, Mare de Maghmouda (Bruno Lamarque)



Mauritania, Mare de Maghmouda (Bruno Lamarche)



# Main threat in West Africa: habitat destruction



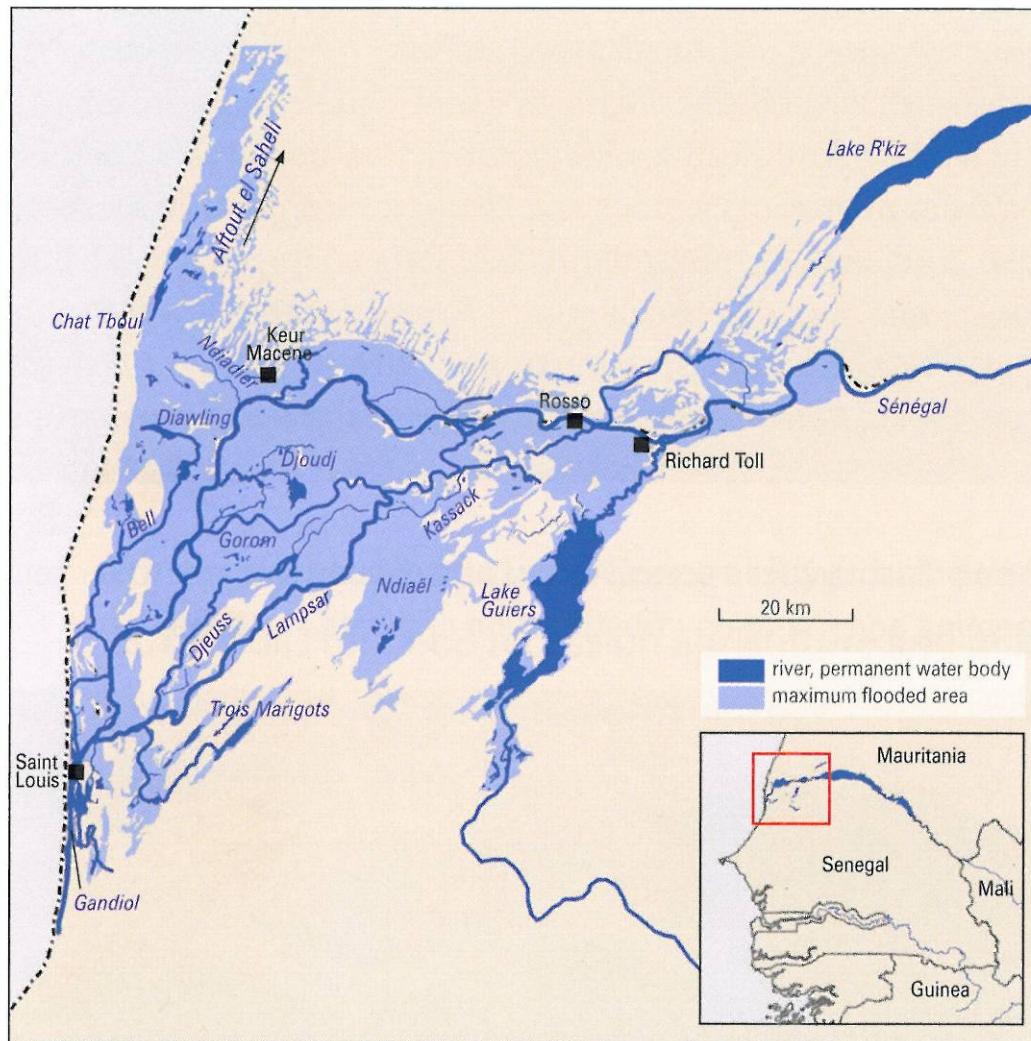
## Hydro-agriculture

- rice
- sugar cane

## Fresh water reservoirs

Droughts, unsuitable water management





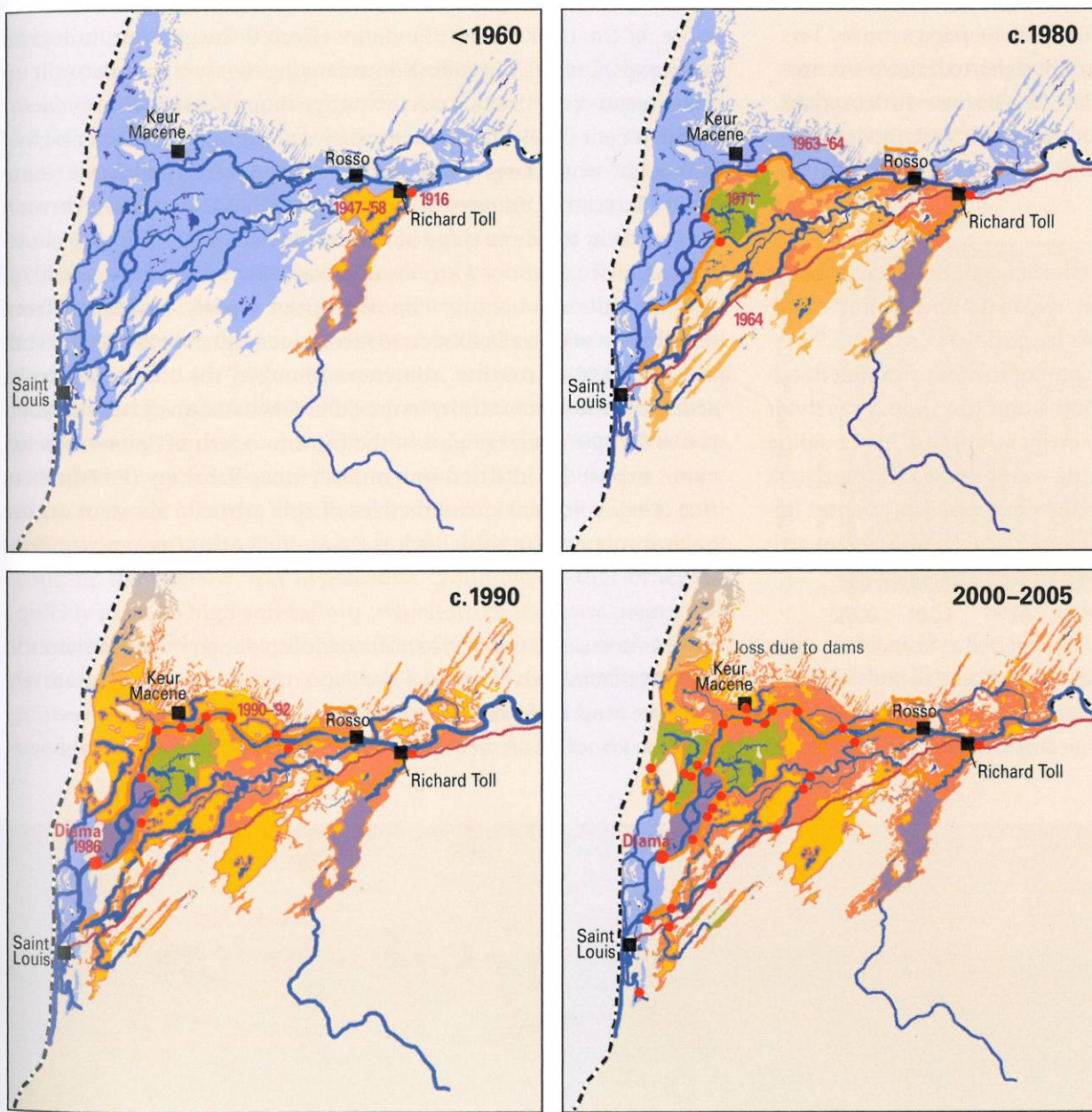
**Fig. 66** The Lower Senegal Delta, showing Lake R'kiz in the north, Lake Guiers in the south and the main watercourses. The map indicates the maximum inundation at high floods in the past. From: 1:200 000 IGN-maps (based on aerial photographs of 1954 and ground surveys in 1957).

from:

Zwarts/Bijlsma/van  
den Kamp/Wymenga  
2009:

Living on the edge.  
Wetlands and birds in  
a changing Sahel.





from:

Zwarts/Bijlsma/van den Kamp/Wymenga 2009:

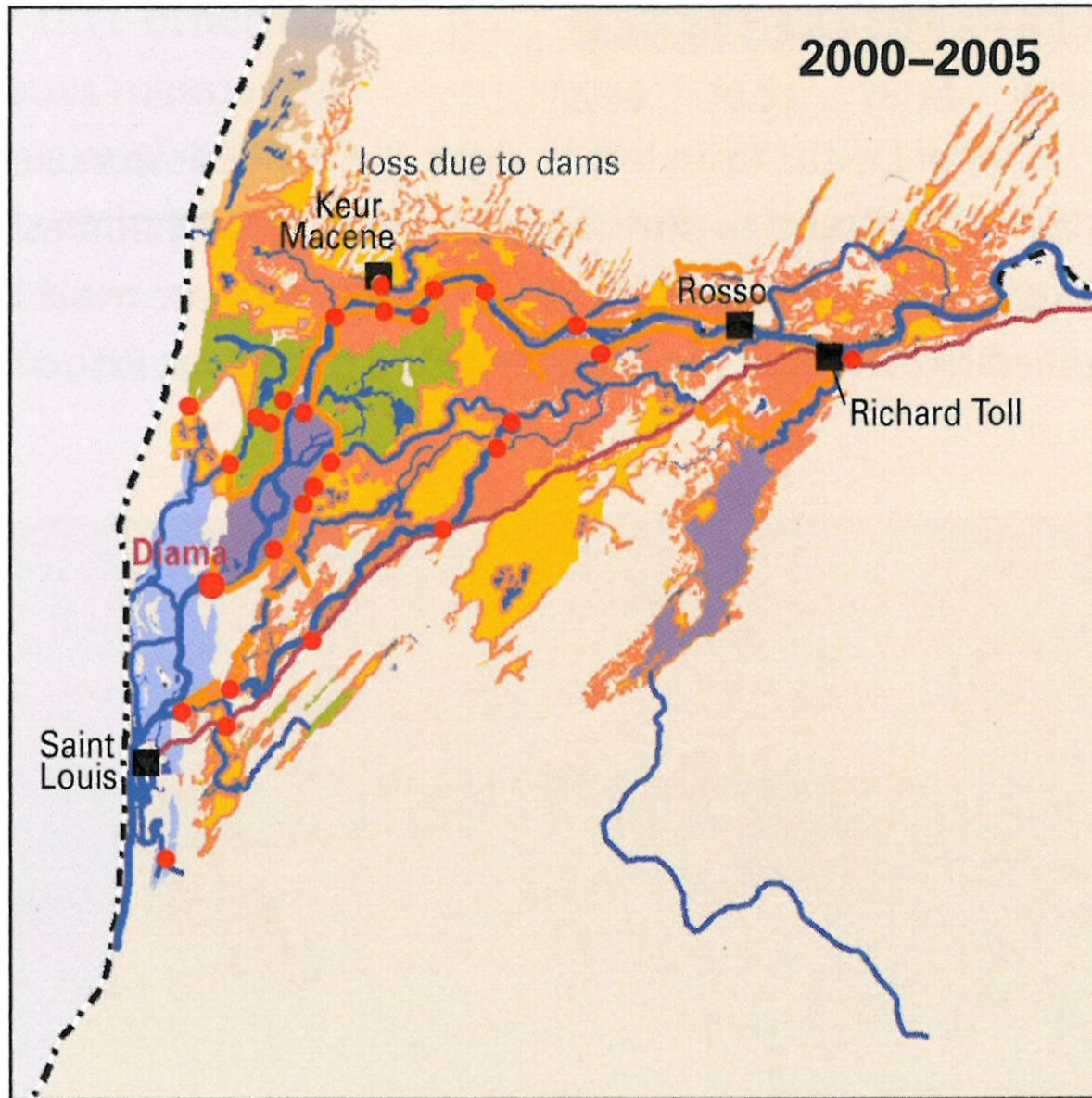
Living on the edge.  
Wetlands and birds in a changing Sahel.

**Fig. 67** The Senegal Delta showing dikes and dams and, approximately, years of completion. From: IGN-maps and sources mentioned in the text. The map also shows the area under cultivation. From: IGN-map (survey 1957), Fournier & Smith (1981) and Wulfraat (1993); data and maps provided by OMVs and SAED.

from:

Zwarts/Bijlsma/van  
den Kamp/Wymenga  
2009:

Living on the edge.  
Wetlands and birds in  
a changing Sahel.



- populated area
- dam/weir
- minor dam/weir
- dike
- route
- cultivated area
- river, permanent water body
- maximum flooded area
- artificial flooding / water inlet
- disconnected from floodplain
- reservoir / lake



ca. 2001/2002



1500-  
16  
30  
1800-  
1810-  
1  
2

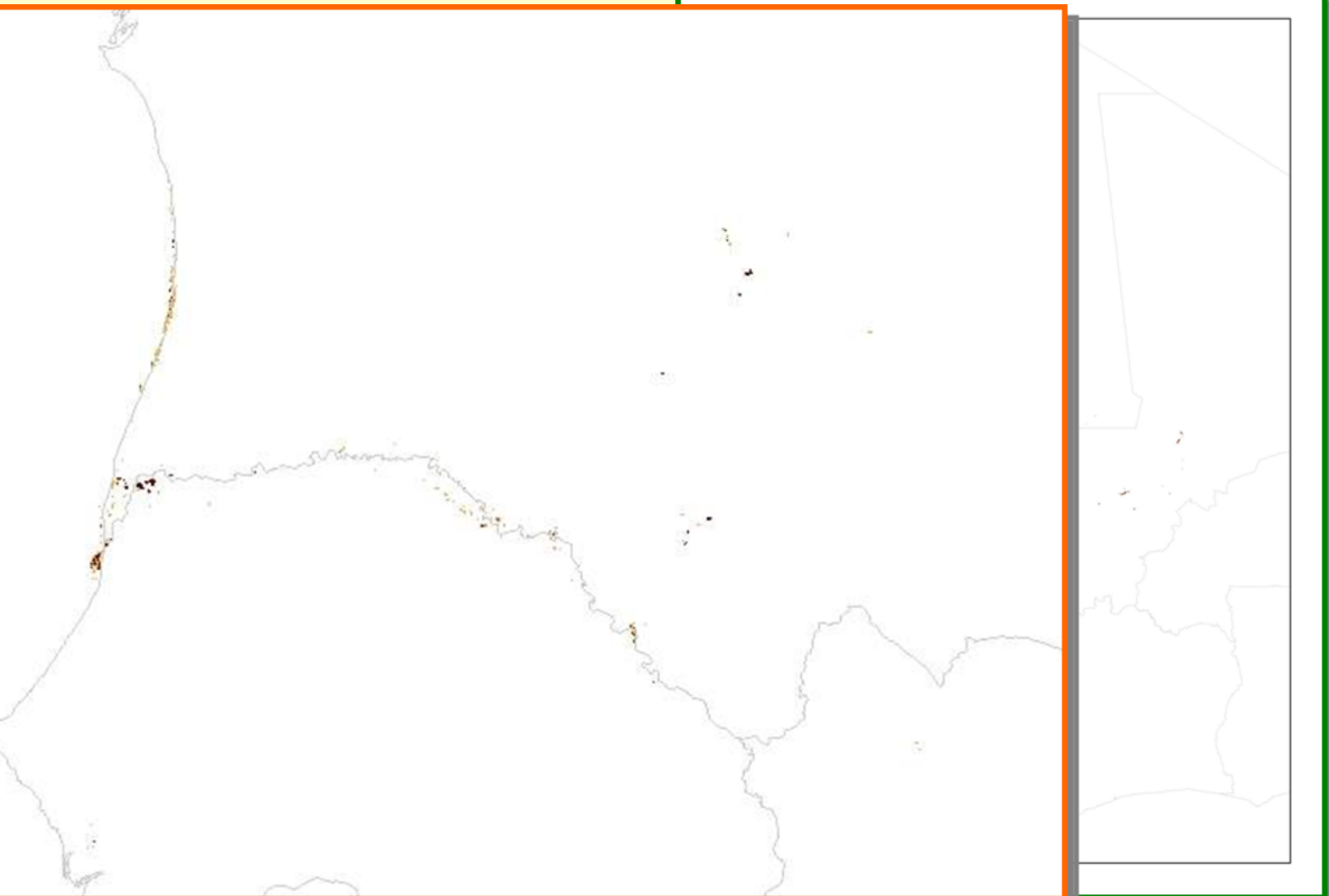






# New modelling of non-breeding distribution (G. Buchanan)

data from January 2008, satellite image from 2007



## Bottleneck Sahel?

### very rapid change:

- Large-scale transformation of the hydrology of rivers, their floodplains and estuaries => **almost done**
- transformation of naturally flooded wetlands into fresh water reservoirs (Diama Reservoir; Richard Toll/Lac de Guiers; Keur Macène; ...) => **ongoing**
- rapid increase of hydro-agriculture (whole Senegal floodplain) => **ongoing**
- Overgrazing of flooded grassland (inner Niger delta) => **description see Zwarts et al. 2009**



Thanks for support:

Royal Society for the Protection of Birds (RSPB)

Michael Otto Stiftung für Umweltschutz

Deutsche Forschungsgemeinschaft (DFG)

Deutsche Ornithologen-Gesellschaft (DO-G)

Secretariat of the Bonn Convention (CMS)

Naturschutzbund Deutschland (NABU)

Deutsche Bundestiftung Umwelt (DBU)

