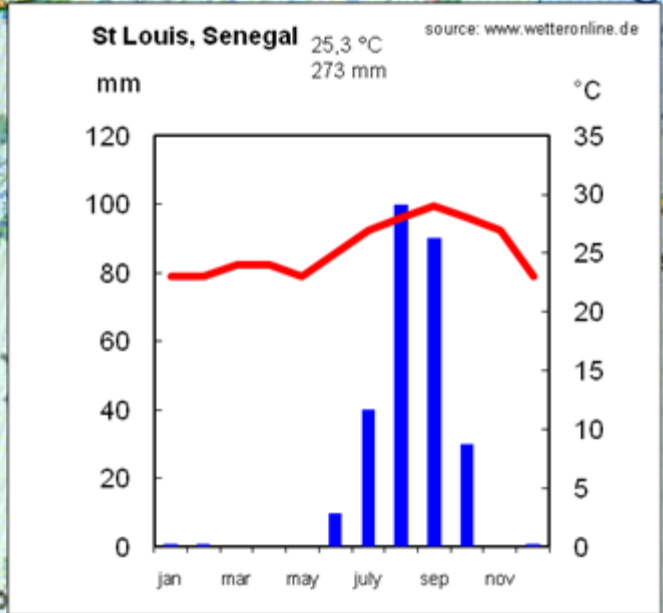
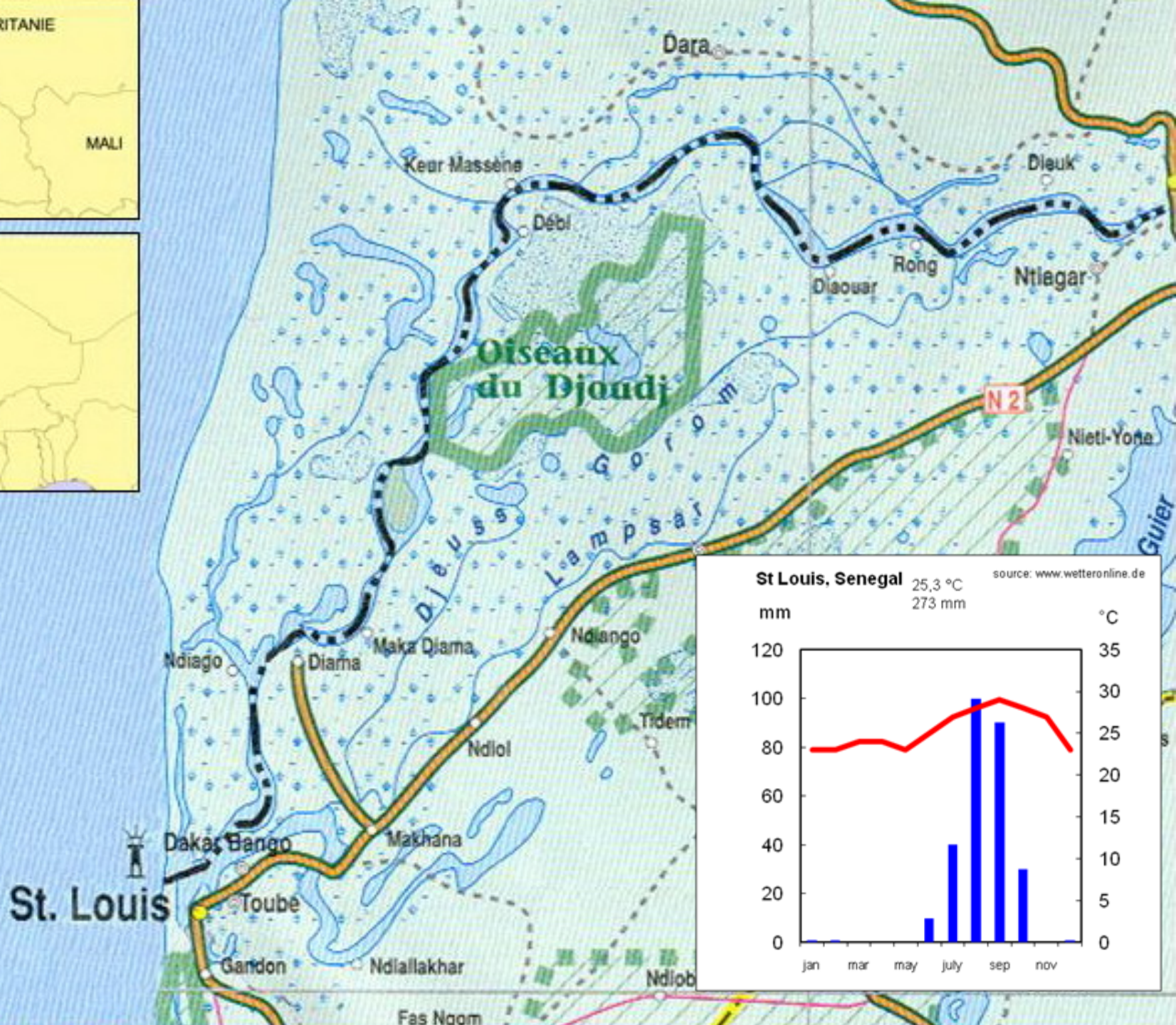


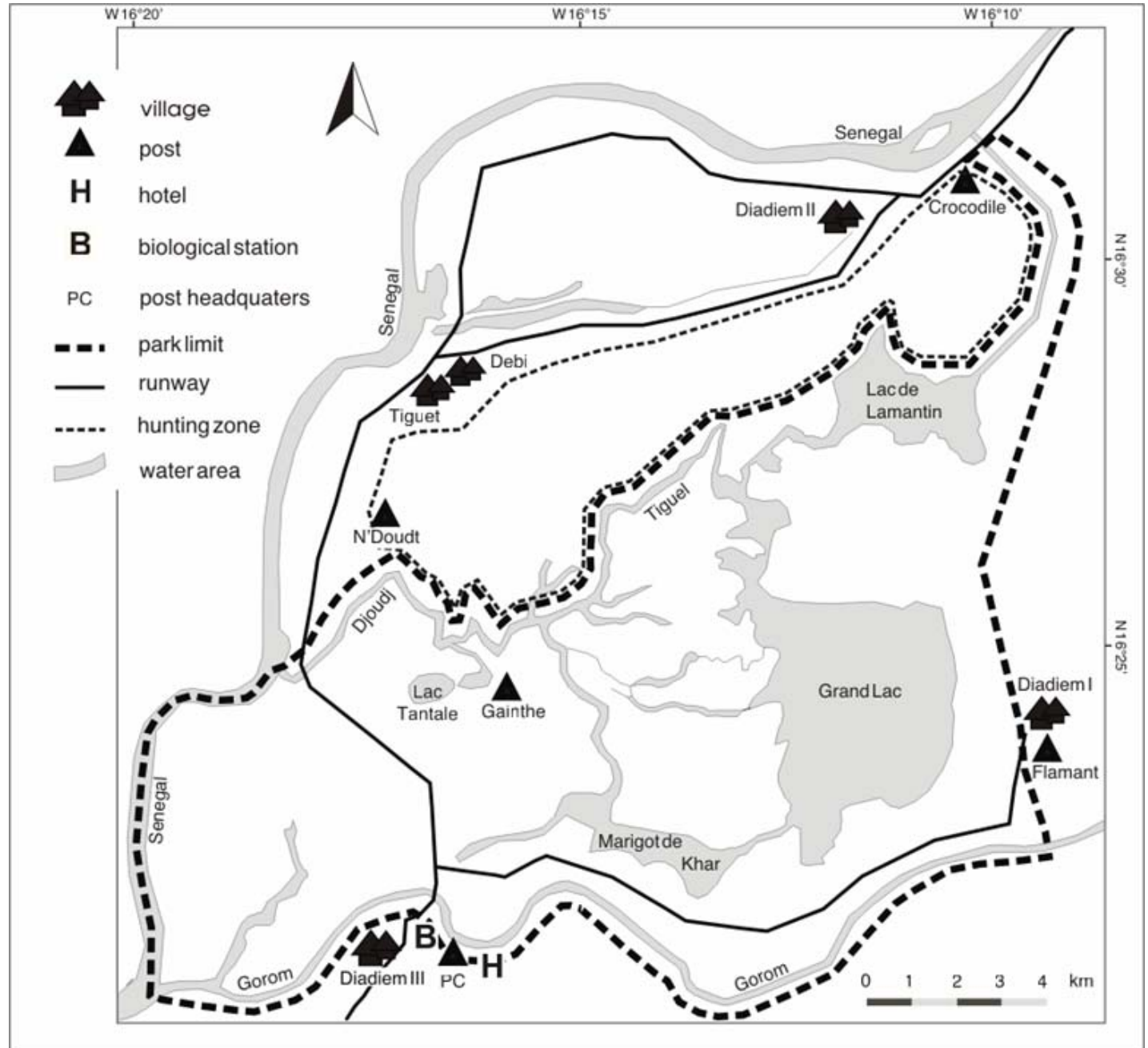
Analysis of Aquatic Warbler (AW) habitats in the Senegales wintering-ground Djoudj National Park

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Greifswald University
Germany





the Djoudj National Park





sites where AW
have been caught
in recent years
(2007-2009)



sites without
AW
in recent years
(2008-2009)



border
National Park

Landsat 7
Band 5
Jan 2009



typical AW habitat with *Oryza longistaminata* and *Sporobolus robustus* vegetation near Tiguet village



objectives

1. Habitat use

habitat size

home range size

food supply

2. Identification of biotic und abiotic **site conditions**

vegetation (species composition, structure)

water

soil

3. **Endangerment** of the AW sites

4. **Management recommendation for the AW sites in Djoudj NP**

field work periods

1. period

January-March 2008

situation

- low water level in the park (construction work)
- most sites dry
- one habitat with water

activities

- become acquainted with the park
- testing methods

2. period

November 2008 - January 2009

expectations

- recording of the situation in the park while AW arrives in the wintering ground
- better catching success due to more wet sites **-failed**
- comparison of different habitats **-failed partly**
- recording of moult **-failed**
- catching in rice fields **-failed**

activities

- catching at Grand Lac, Tiguet
- recording of biotic and abiotic conditions
- radio tracking (Tiguet)



AW present in 2007, 2008

1. *Scirpus littoralis*



AW present in 2007, 2008, 2009

3. *Eleocharis mutata*



AW present in 2007, 2008, 2009

2. *Oryza longistaminata*

1. Habitat

tree habitat types with AW presence in Djoudj NP dominated by

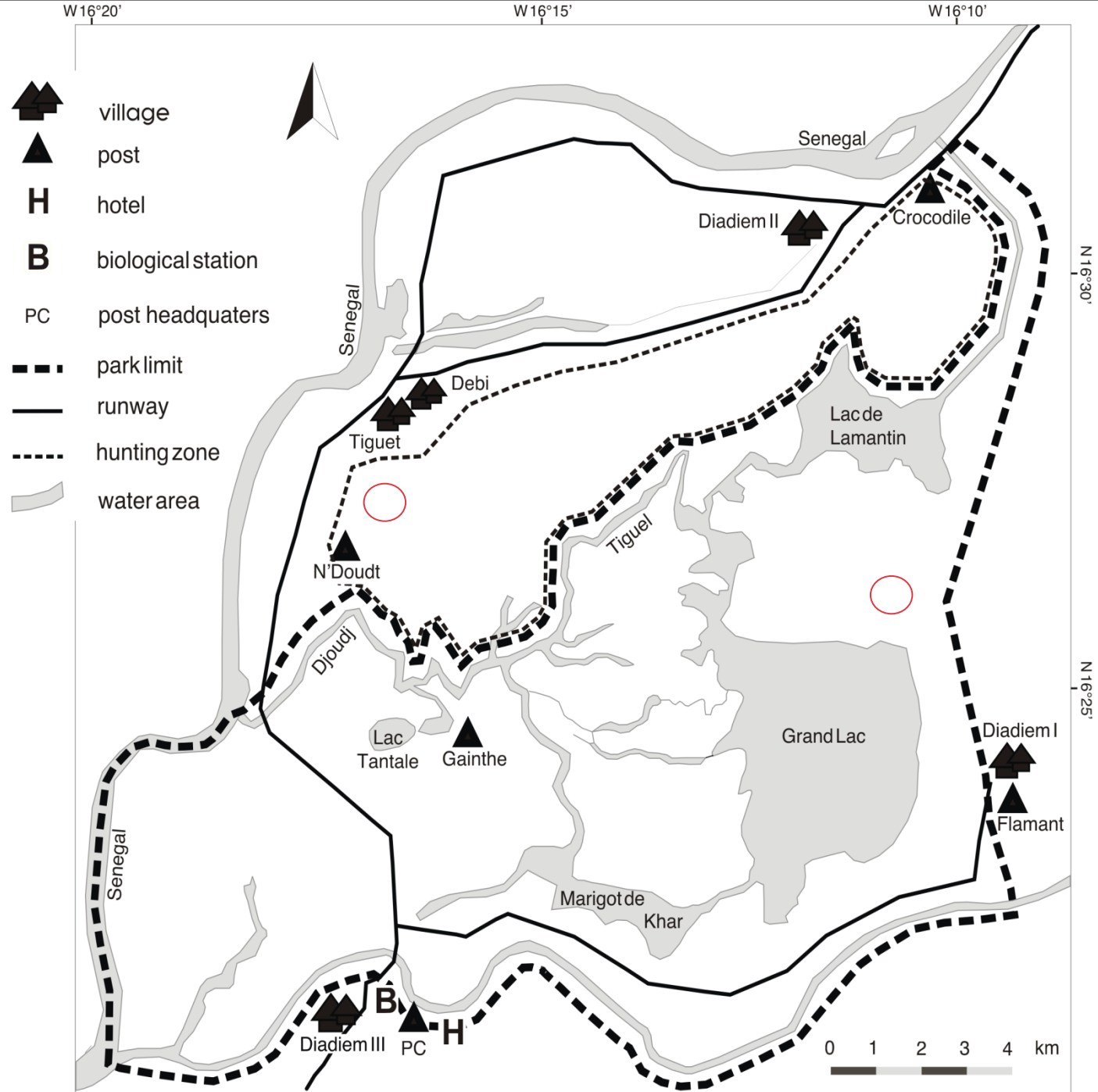
1. *Scirpus littoralis*
2. *Eleocharis mutata*
3. *Oryza longistaminata*

AW presence in 2007, 2008, 2009
proofed by AWCT members

investigated
habitat types
in the 2. field
period

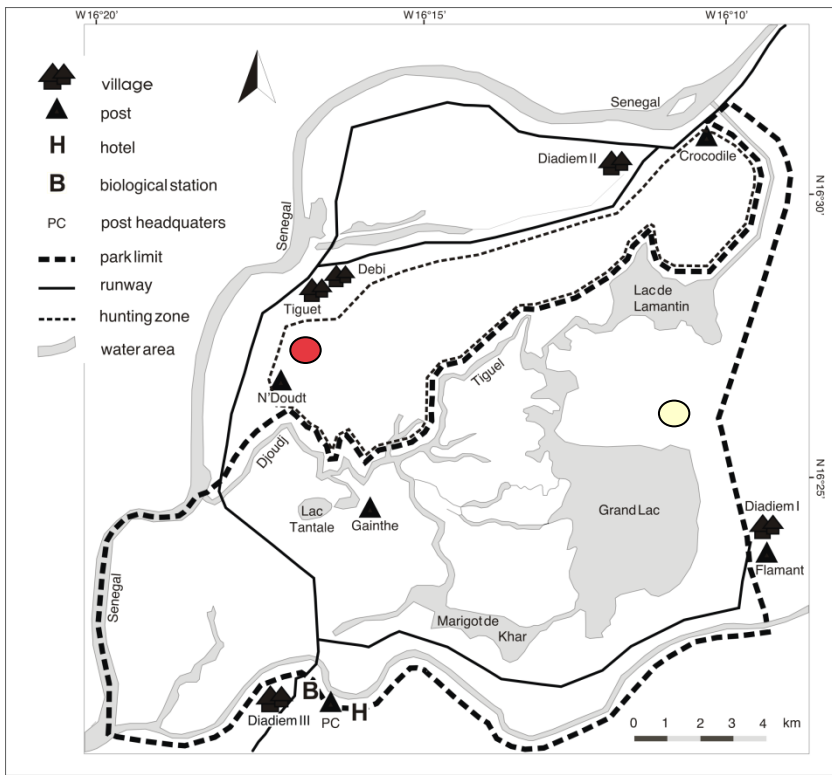
1. **Tiguet** (*Oryza
longistaminata*)

2. **Grand Lac**
(*Scirpus
littoralis*)



catching site Tiguet





catching site Tiguet:

25 Aquatic Warblers ringed

10 recaptures

12 tagged 10 observed

4 mist net positions

size of observed site approx.400 ha

duration 1,5 months



results mist-netting

2. field period

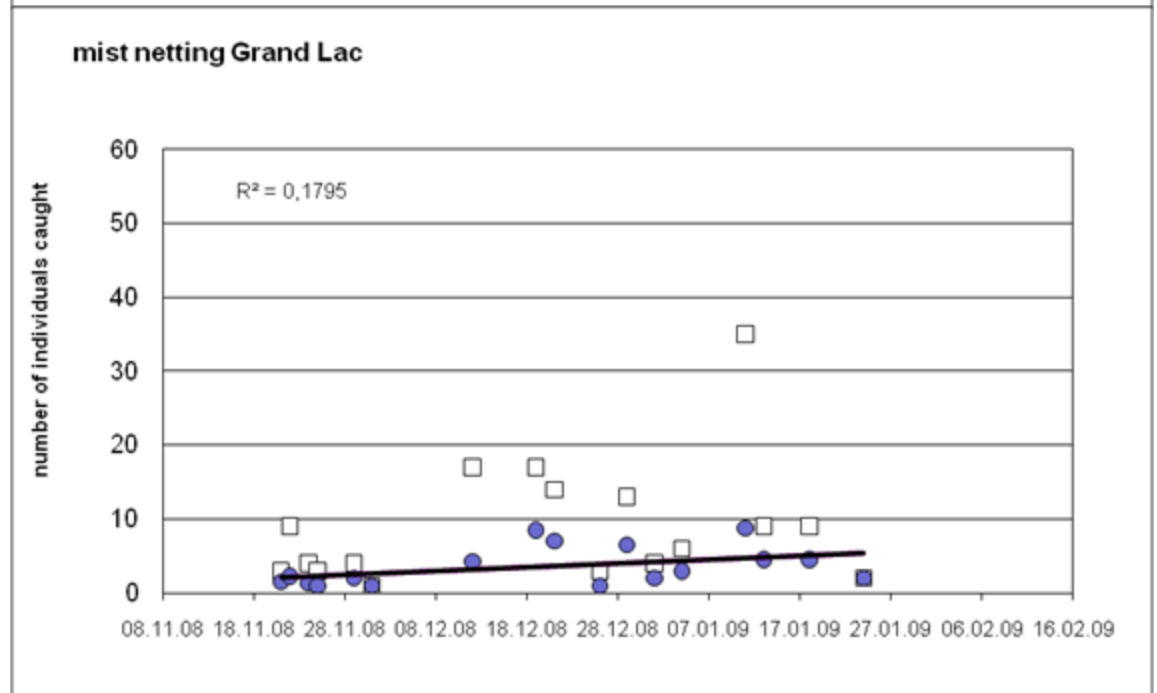
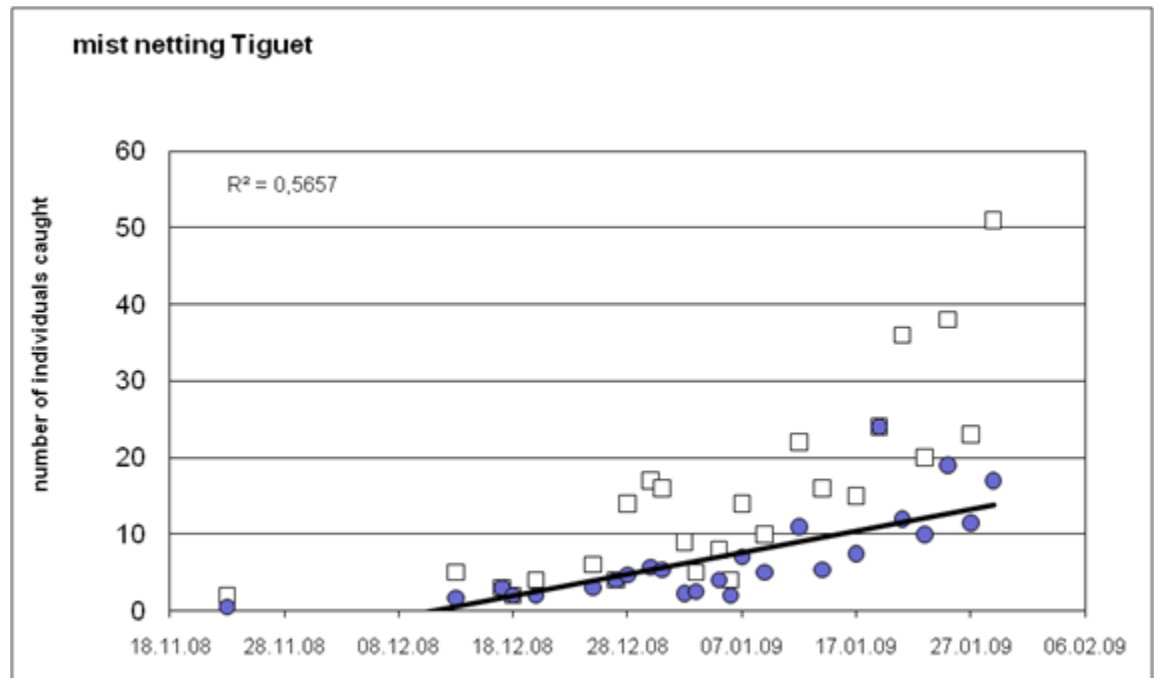
individual numbers increased during the dry season

success of mist-netting depends on good weather conditions (wind)

Grand Lac site is exposed to main wind direction (no correlation)

□ total individual number

● individual number per catching unit (with regression line)



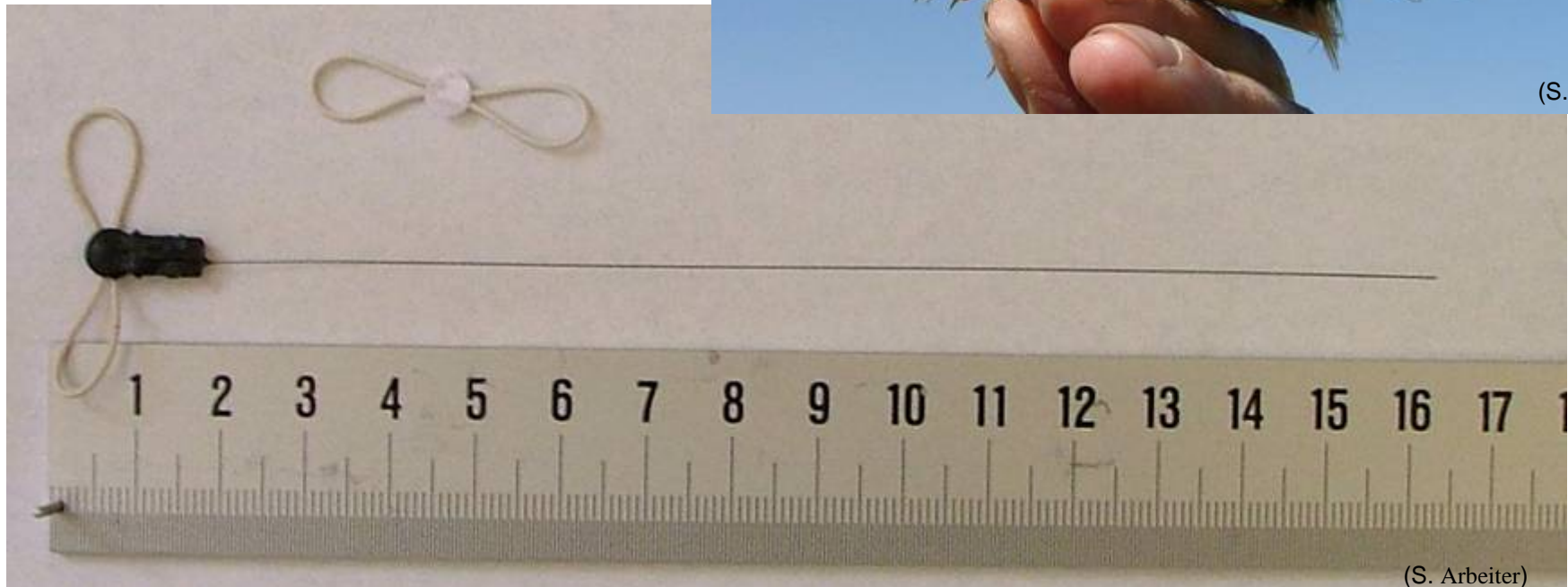
Radio tracking

graduand
(S. Arbeiter, FH Eberswalde)

home range study
vegetation structure
grazing



(S. Arbeiter)



(S. Arbeiter)

home range 2-6 ha

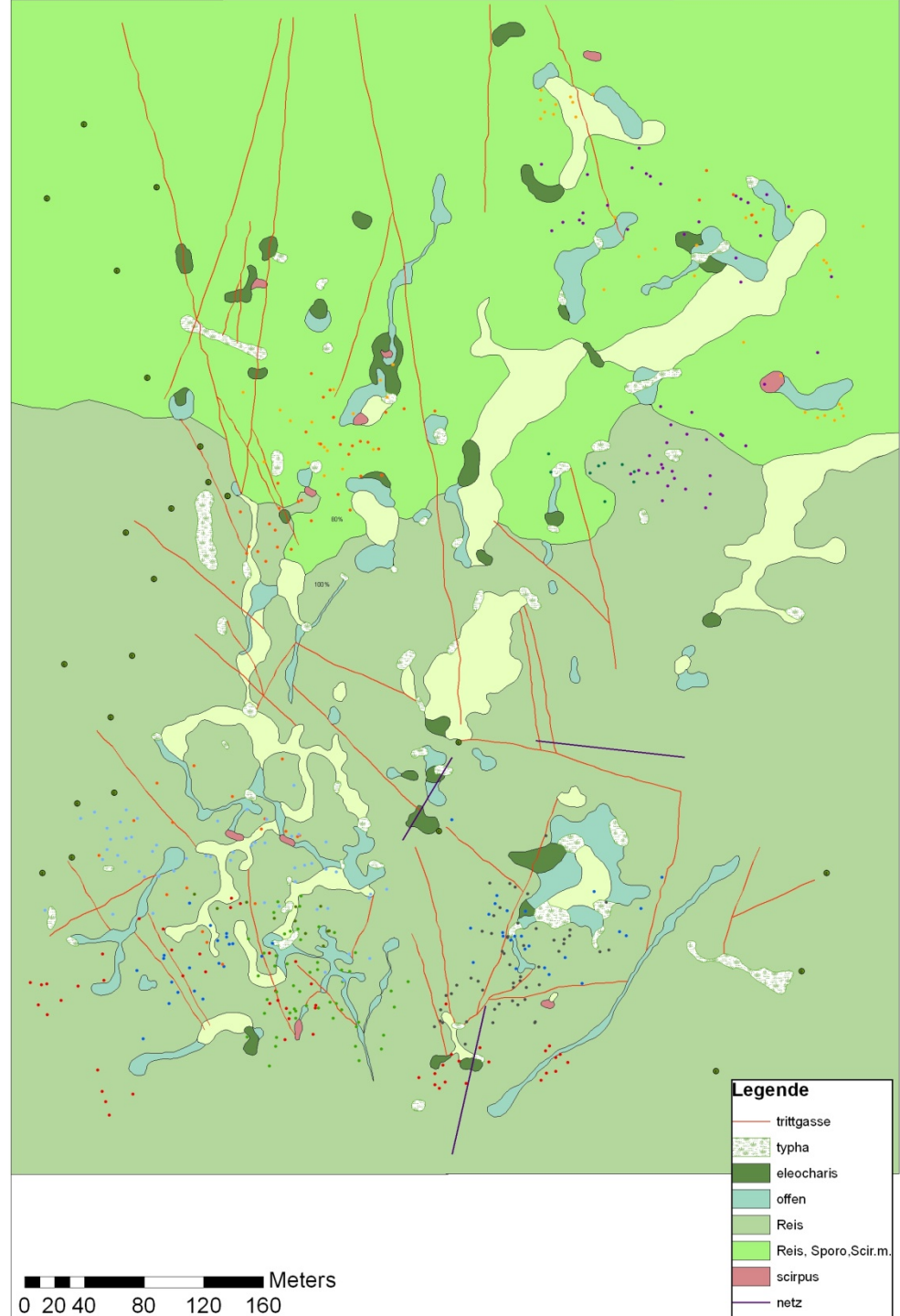
home ranges become smaller while drying out of the area

overlapping average 54% up to 90 %

preference of vegetation density 80-100%

preference of vegetation height 60-90 cm

preference of peripheral structures



food supply

graduand
(M.Bulte, University Nijmegen)

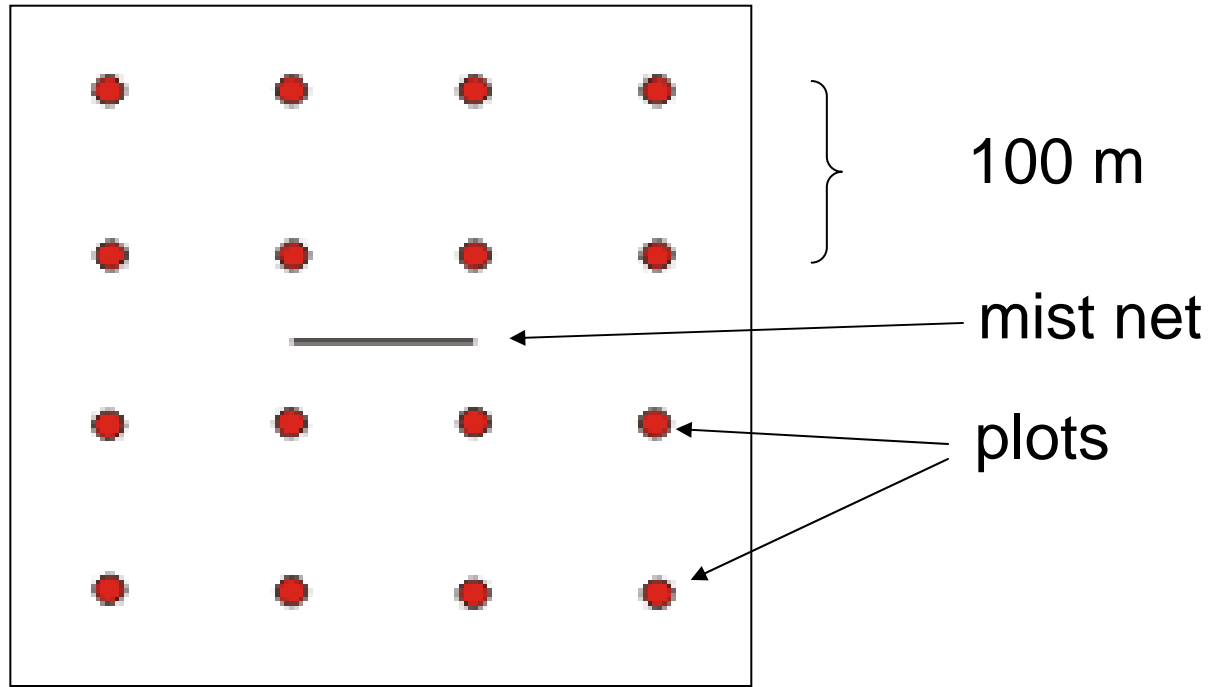
dip net samples

comparison of habitat types:

Scirpus littoralis,
Oryza barthii,
Eleocharis mutata,
(*Typha australis*)



2. Identification of biotic and abiotic site conditions

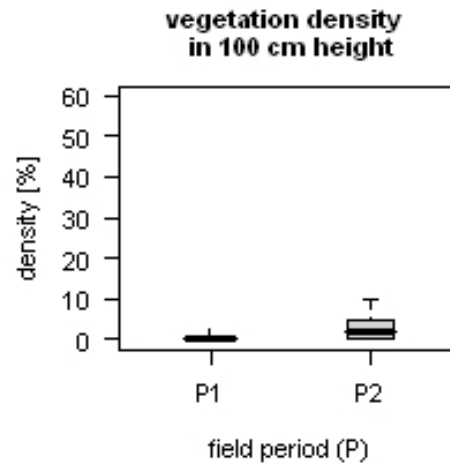
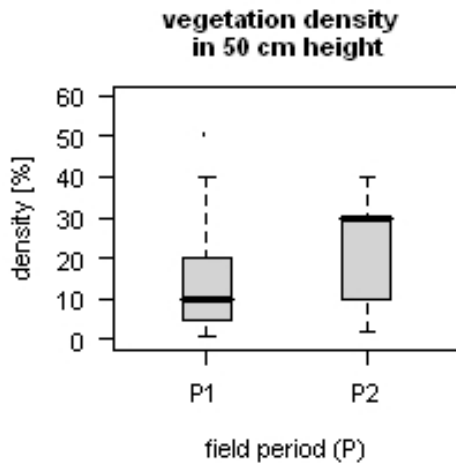
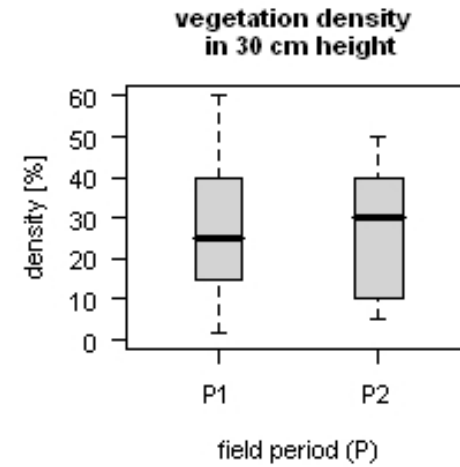
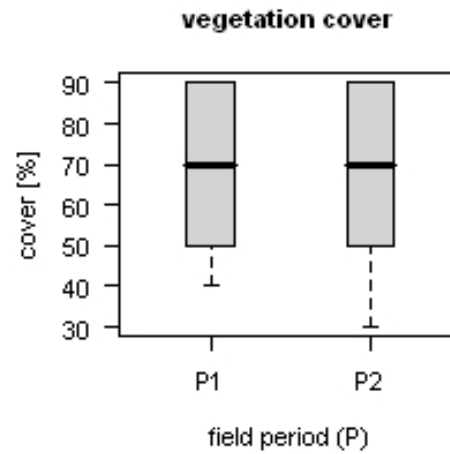
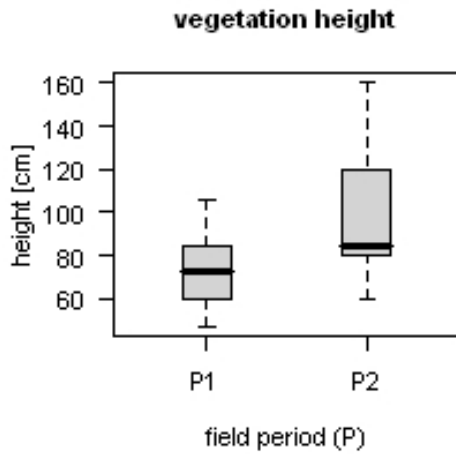


vegetation record grid

5 repetitions of records during 2,5 months of field work

plot label, Grand Lac habitat with *Scirpus littoralis*





	p1	p2	P	significance	test
n	14	14			
mean veg height	74,43	99,29	0,02349	*	Welch-test
standard deviation	17,31	32,17			
mean veg cover	66,43	70,00	0,6256		t-test
standard deviation	18,75	18,13			
mean density 30 cm	27,64	27,31	0,9573		t-test
standard deviation	16,11	14,76			
mean density 50 cm	15,21	23,00	0,132		t-test
standard deviation	14,55	10,68			
mean density 100 cm	0,29	2,50	0,0035	**	U-test
standard deviation	0,59	2,75			

Vegetation structure at Grand Lac in 2008 2009

3. Endangerment of Aquatic Warbler sites

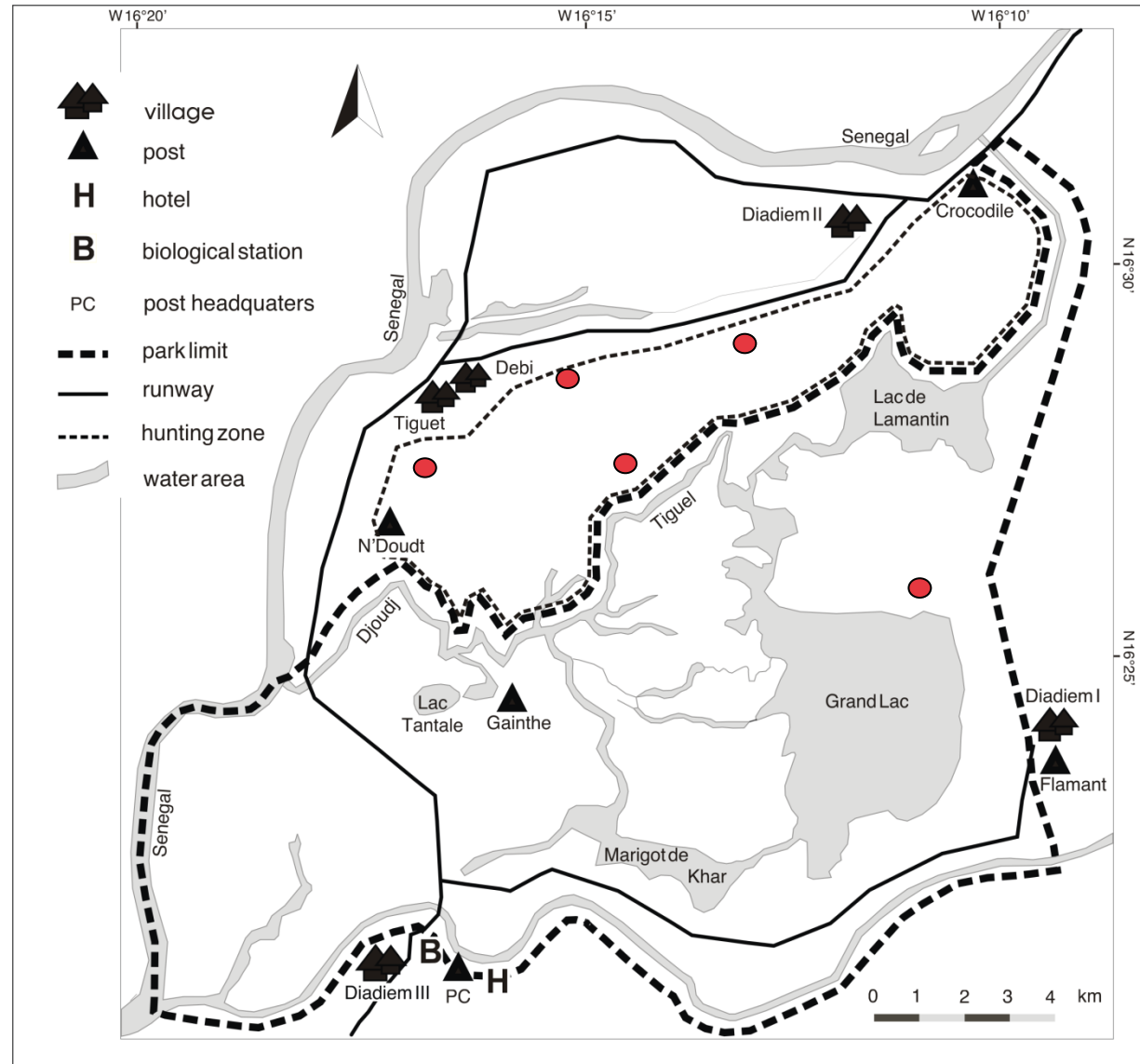
four of five AW-sites:
outside the National Park in
the hunting zone (buffer
zone)!

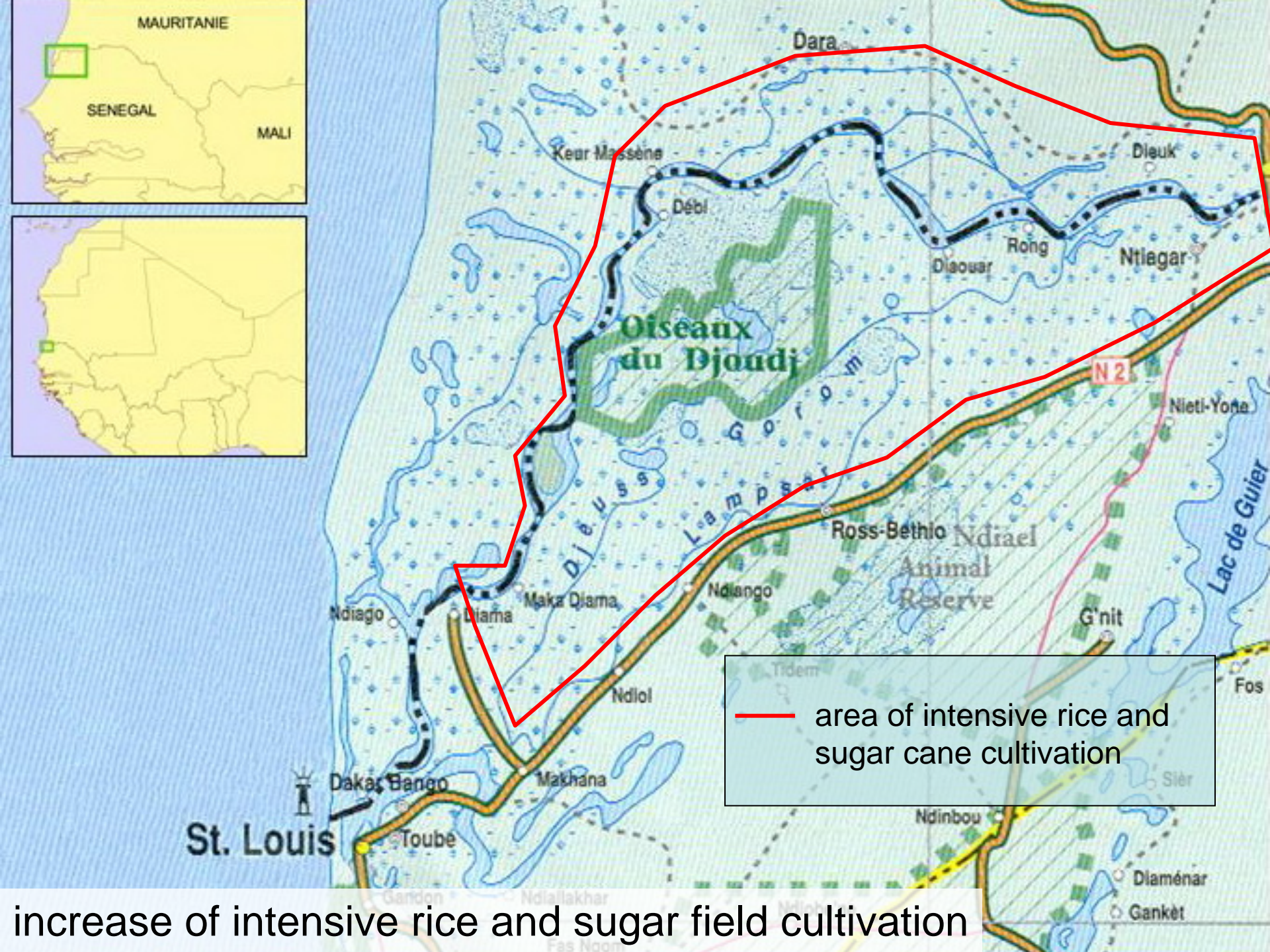
the hunting zone is managed
by the National Park

rent by a Lebanese from the
National Park administration
in Dakar for hunting tourism

situation at the moment
stable

possible threat: increase of
rice cultivation





— area of intensive rice and sugar cane cultivation

increase of intensive rice and sugar field cultivation

rice fields next to the National Park border



future prospects

questions to answer:

- Which sites are AW suitable?
- Which size have suitable AW-habitats in the Djoudj NP
- Does the AW use all suitable sites?
- Is it possible to enlarge suitable AW-sites by management?

methods

- **satellite image analysis - habitat size estimation, vegetation map**
- 3. field season until march
- intensification of vegetation structure analysis
- intensification of radio tracking
- proofing presence of AW with mobile mist nets (no more standardised mist netting)



thanks to

DBU

MAVA

RSPB

Stephen Rumsey

AWCT

Djoudj National Park

Institut für Botanik und Landschaftsökologie

Vogelwarte Hiddensee

Susanne Arbeiter

Marc Bulte

Nina Seifert

Bruno Bargain

Volker Salewski

Franziska Tanneberger

Karl Schulze-Hagen

Jan Peters

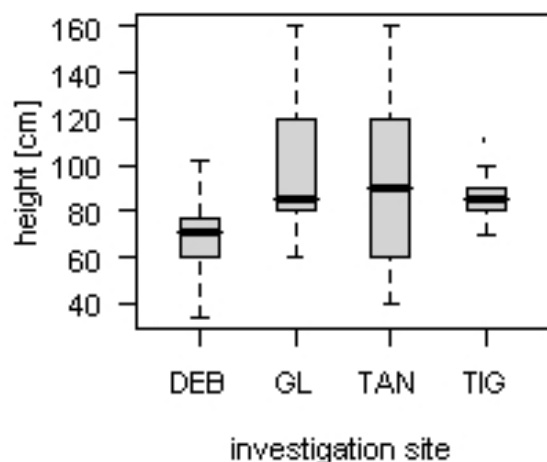
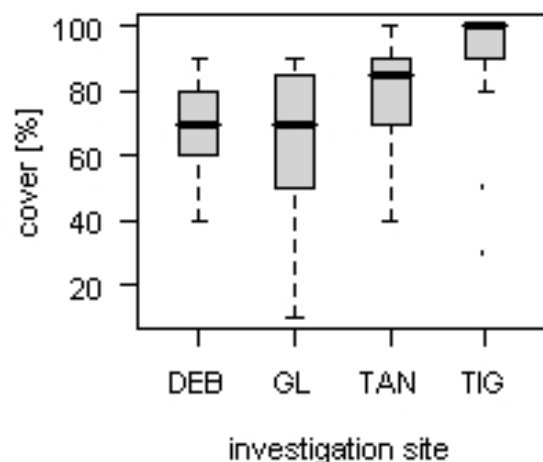
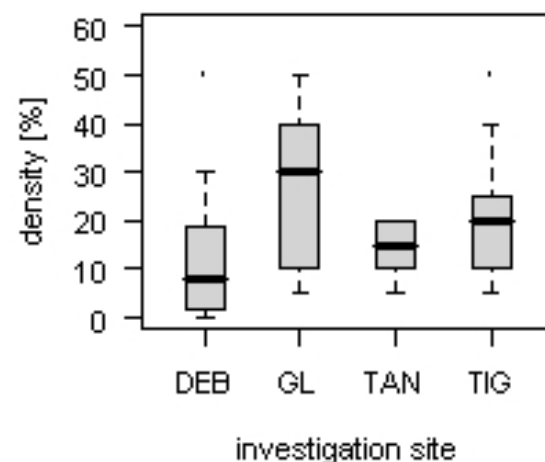
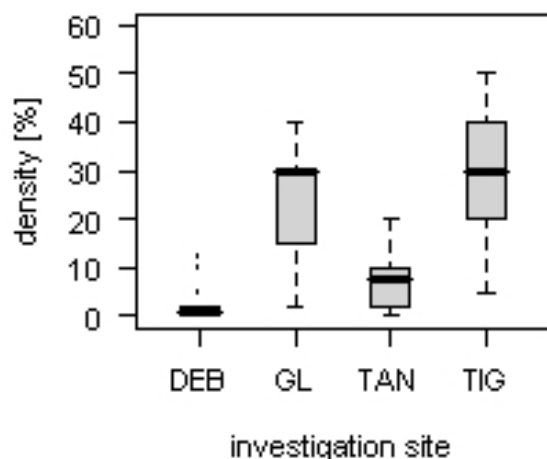
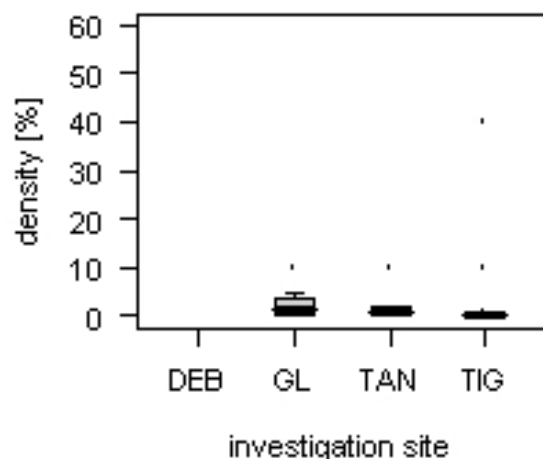
Hans Joosten

Martin Flade

Lars Lachmann

and others



vegetation height**vegetation cover****vegetation density in 30 cm height****vegetation density in 50 cm height****vegetation density in 100 cm height****C/N value**