

Identifying migration routes and non-breeding areas of the globally threatened Aquatic Warbler using geolocators

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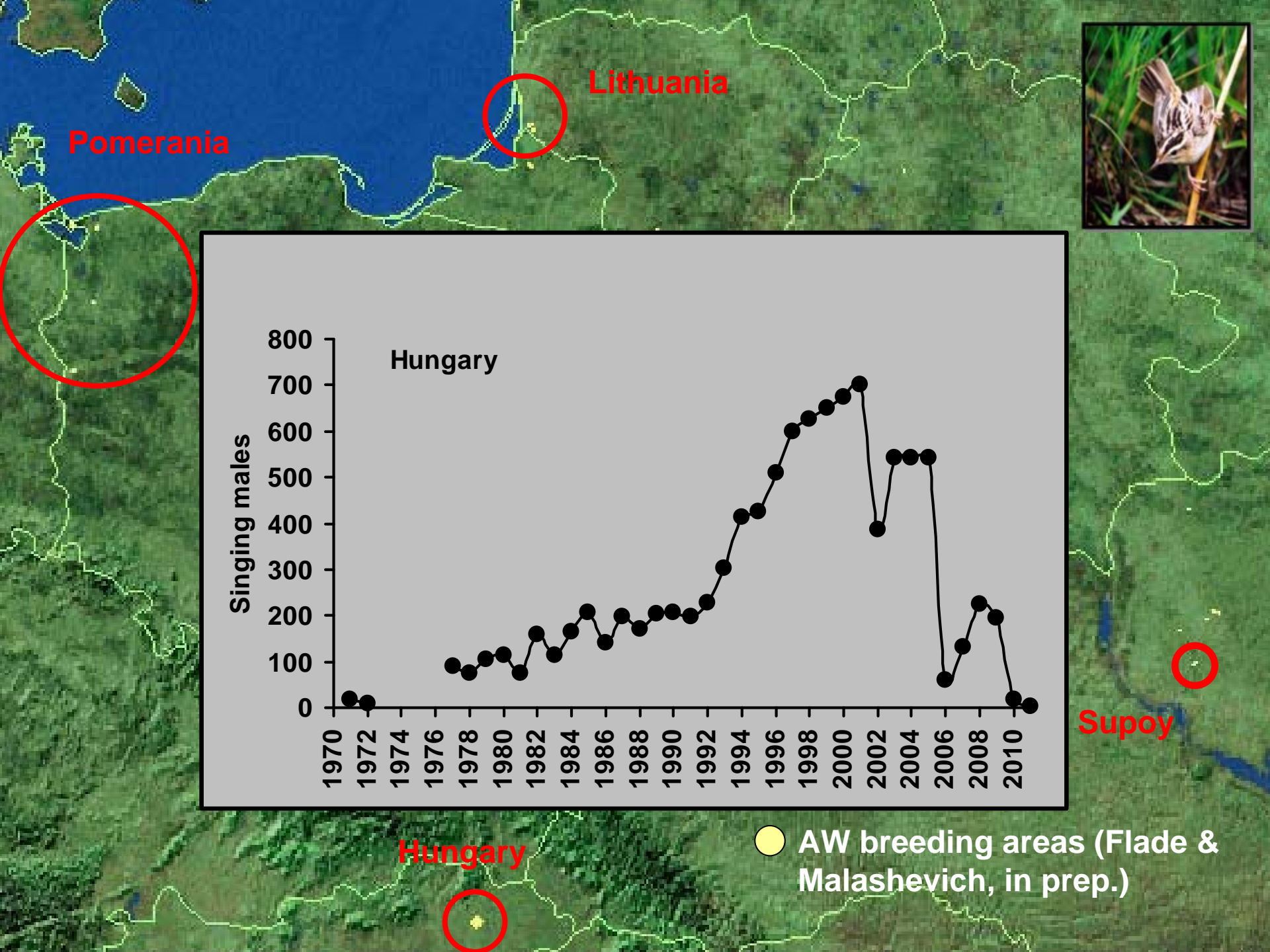
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⁴Swiss Ornithological Institute, Sempach, Switzerland

⁵Landesumweltamt Brandenburg, Eberswalde, Germany





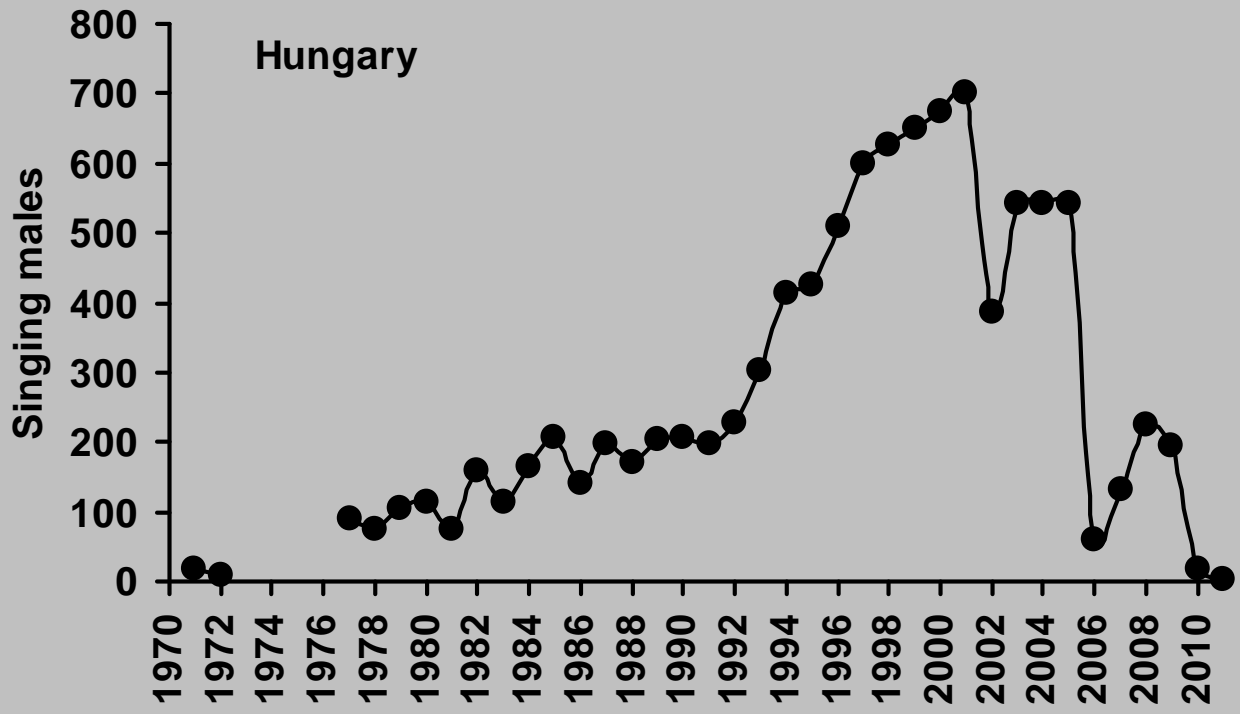
Pomerania

Lithuania

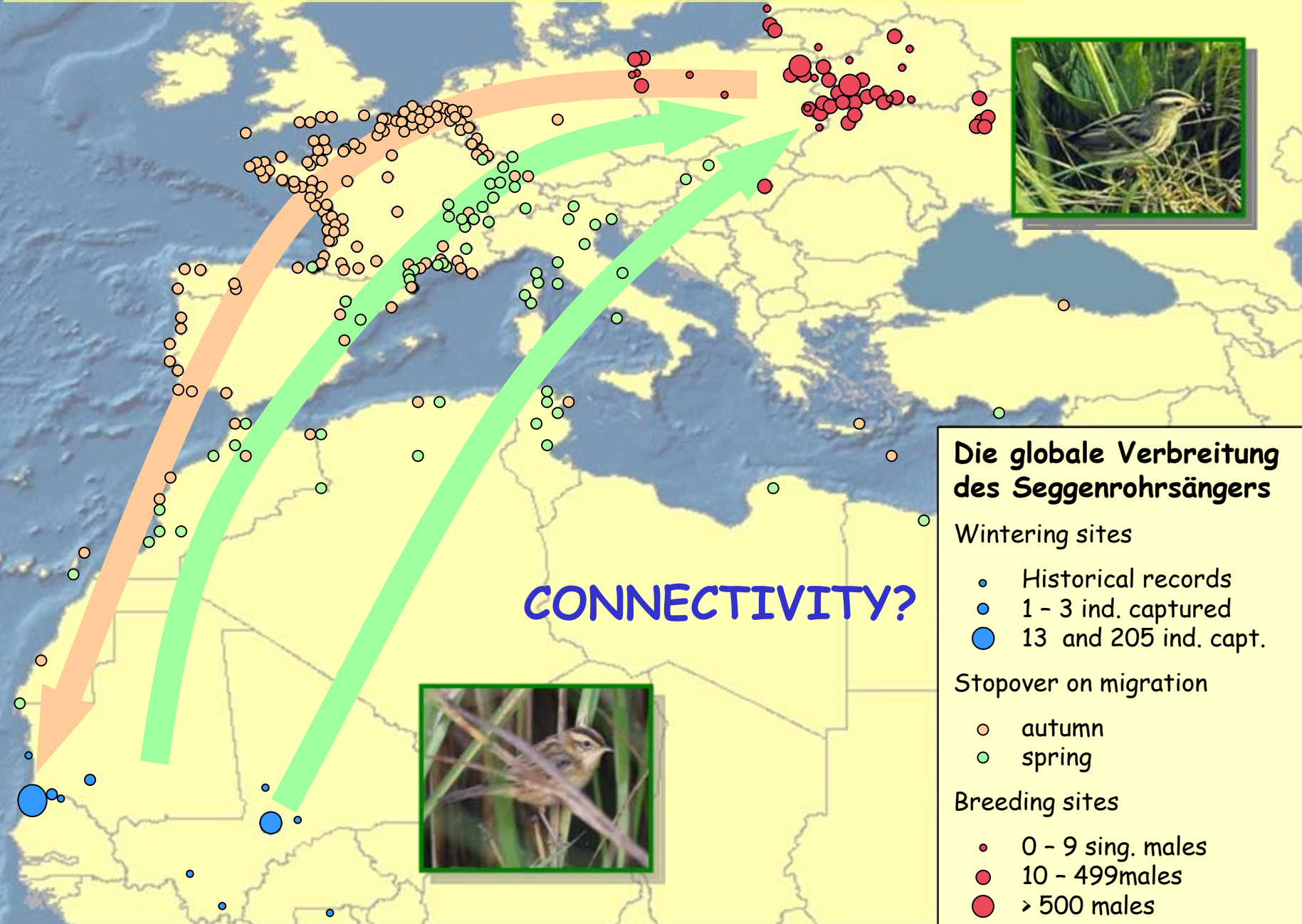
Hungary

Supoy

● AW breeding areas (Flade & Malashevich, in prep.)



Global distribution of Aquatic Warbler



Parc National des Oiseaux du Djoudj

map: Cosima Tegetmeyer 2011
 source: Direction des Parc Nationaux

0 1.000 2.000
 Mètres



Légende

- sen_ville
- villages
- Poste de garde
- Campement
- Hôtel
- Embarcadère
- Nichoir hérons
- Nichoir pélicans
- Reposoir crocodiles
- Mirador
- Vanne
- Station de pompage
- Echelle limnimétrique
- Piste
- Digue
- Canal
- Limite du Parc
- Zone tampon de 1 km

Tiguët



Sources :
 Carte topographique JICA 1:50000
 Centre de Suivi Ecologique
 Relevés de terrain Avril 2002

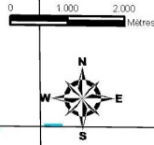
confirmation of Aquatic Warblers 2007-2011

- confirmation of Aquatic Warblers 2007-2011
- National Park limit
- buffer zone
- inundation zone

Réalisation
 Tél. (221)
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Parc National des Oiseaux du Djoudj

map: Cosima Tegetmeyer 2011
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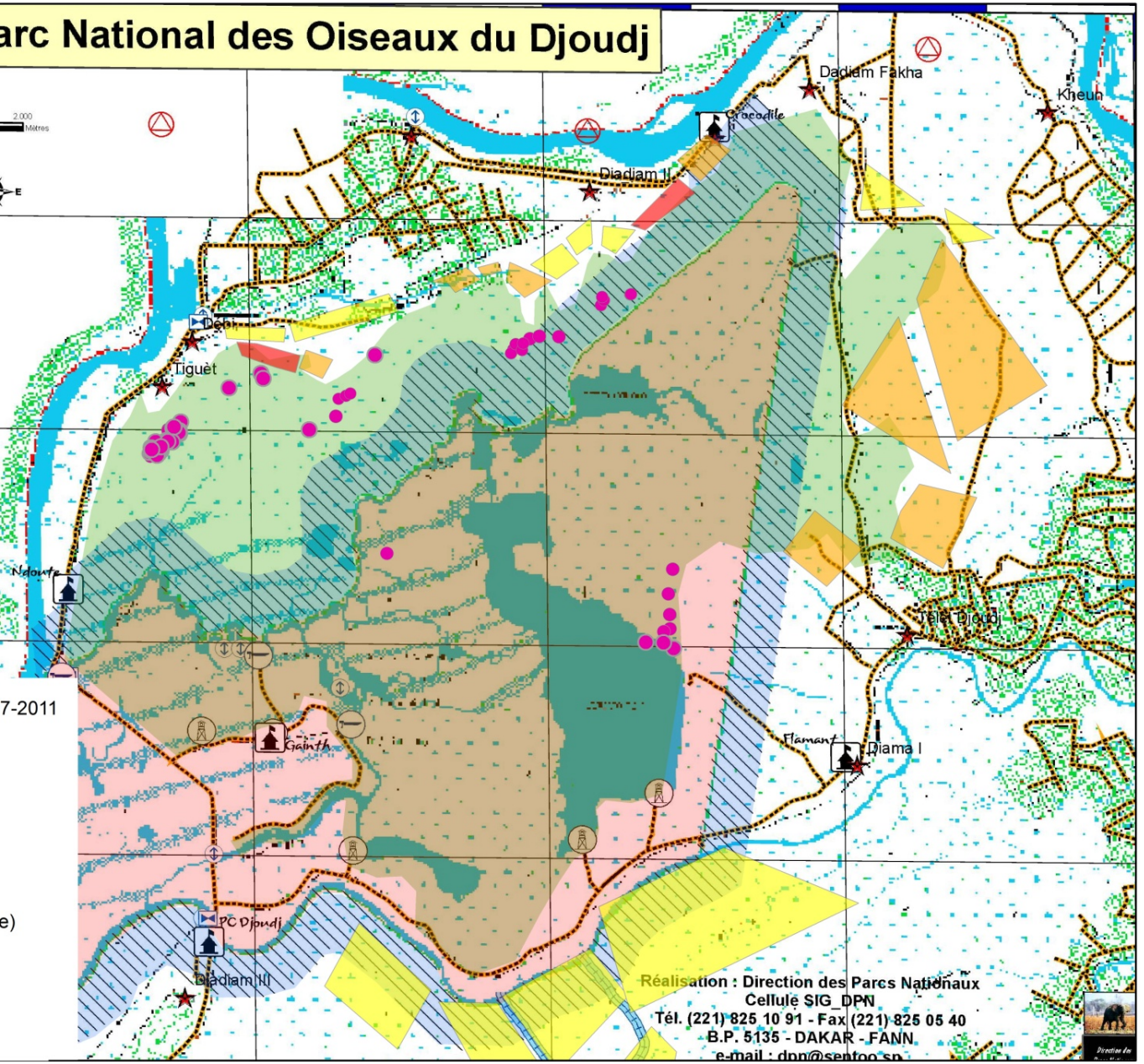


Légende

-  sen_ville
-  villages
-  Poste de garde
-  Campement
-  Hôtel
-  Embarcadère
-  Nichoir hérons
-  Nichoir pélicans
-  Reposoir crocodiles
-  Mirador
-  Vanne
-  Station de pompage

confirmation of Aquatic Warblers 2007-2011

-  confirmation of Aquatic Warblers 2007-2011
-  National Park limit
-  buffer zone
-  inundation zone
- new rice fields 2008-2011 (incomplete)
-  outside wetland
-  perhaps former wetland
-  surly former wetland



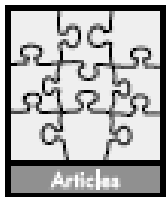
Réalisation : Direction des Parcs Nationaux
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 e-mail : dnp@senegal.gov.sn



Flade, M., Diop, I., Haase, M., Le Nevé, A., Oppel, S., Tegetmeyer, C., Vogel, A. & Salewski, V. 2011:

Distribution, ecology & threat status of the Aquatic Warblers *Acrocephalus paludicola* wintering in West Africa.

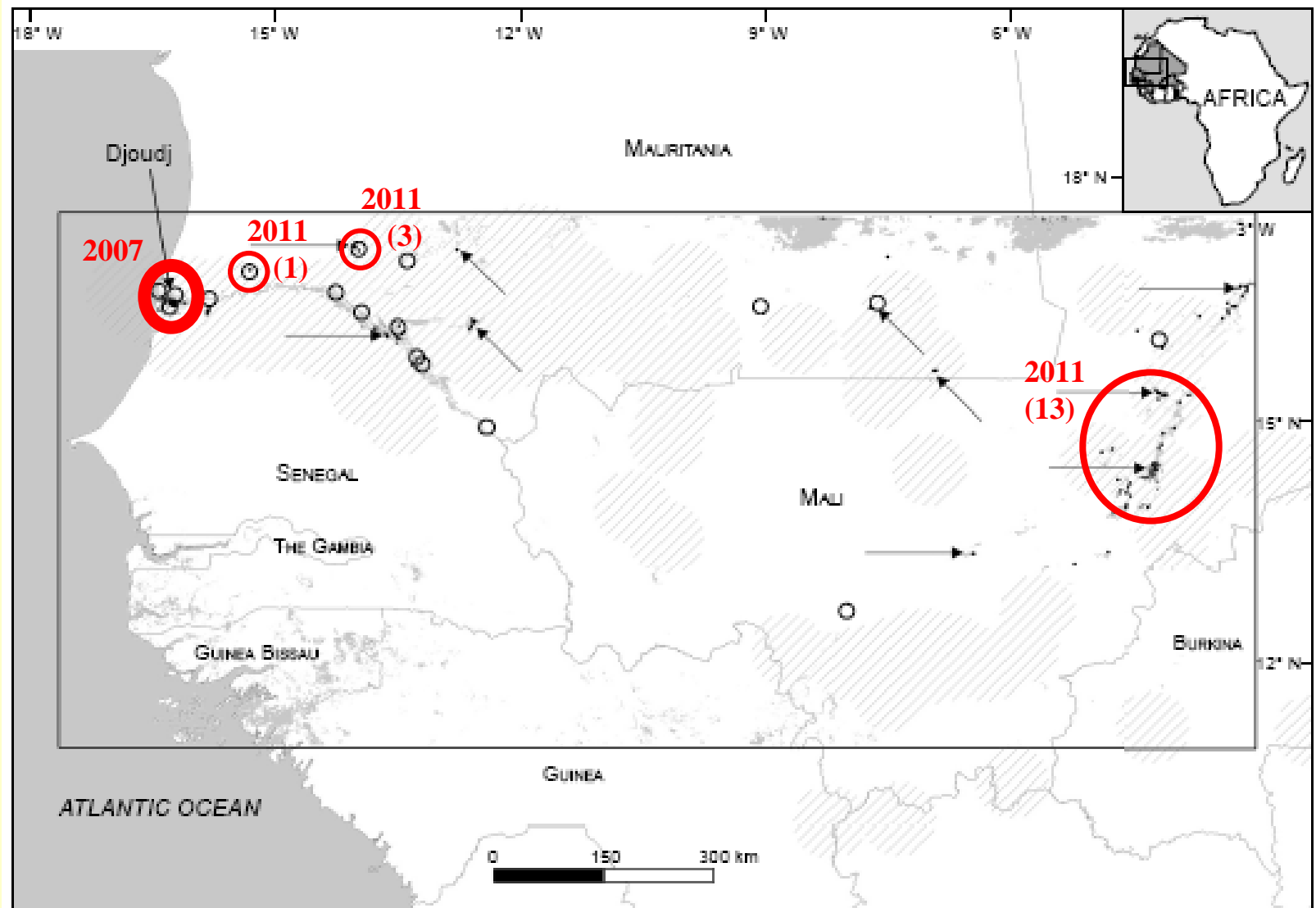
J. Ornithol. 152 (Suppl. 1): 129-140



J. Avian Biol. 42 (2011): 342-354

High variation reduces the value of feather stable isotope ratios in identifying new wintering areas for aquatic warblers *Acrocephalus paludicola* in West Africa

Steffen Oppel, Deborah J. Pain, Jeremy A. Lindsell, Lars Lachmann, Ibrahima Diop, Cosima Tegetmeyer, Paul F. Donald, Guy Anderson, Christopher G. R. Bowden, Franziska Tanneberger and Martin Flade



Aus: Buchanan et al. 2011, Ostrich 82: 81-85

New findings, captures 2011: Julien Foucher et al., Group ACROLA

Global distribution of Aquatic Warbler

Ring recoveries at breeding sites in 2011 of AW ringed in the wintering sites (Poluda et al., submitted)



CONNECTIVITY?

Die globale Verbreitung des Seggenrohrsängers

Wintering sites

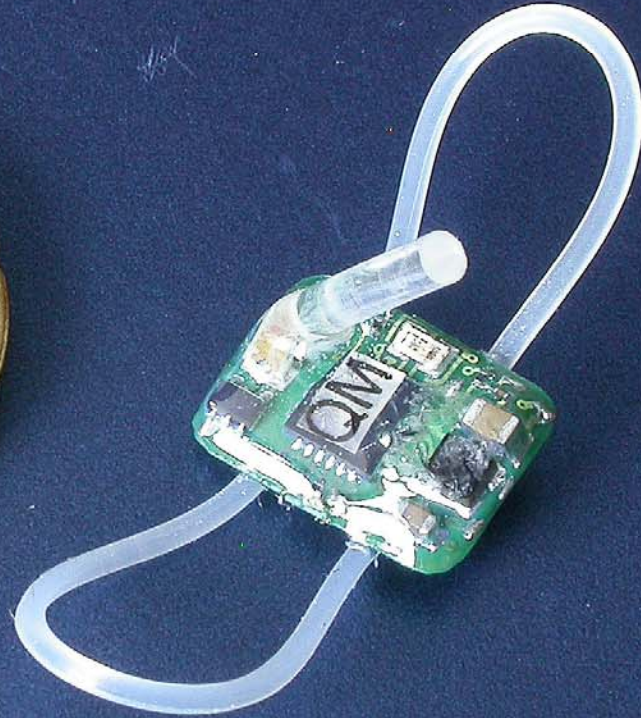
- Historical records
- 1 - 3 ind. captured
- 13 and 205 ind. capt.

Stopover on migration

- autumn
- spring

Breeding sites

- 0 - 9 sing. males
- 10 - 499 males
- > 500 males



0.6g geolocator:

- newly developed
- used for the first time

Der Seggenrohrsänger ist der bisher kleinste und leichteste Vogel (ca. 12 g), bei dem Geodatenlogger eingesetzt wurden

Nur 5 Tage nach Fertigstellung der ersten Prototypen hatten die ersten Seggis ihren Logger.



4 kg



Supoy, Ukraine, 2010: pilot project

Conditions:

- peripheral population
- stable population of 180-220 singing males
- isolated relatively small breeding area



The background image shows two men in a field of tall grass. The man on the left is older with white hair, wearing a light-colored jacket. The man on the right is younger with a beard, wearing a blue plaid shirt, and is looking down at something in his hands. A large green plant with a long, cylindrical seed head is in the upper right. A small inset image in the lower right shows a close-up of a bird's eye.

Methods:

- mist-netting

- only adult males considered

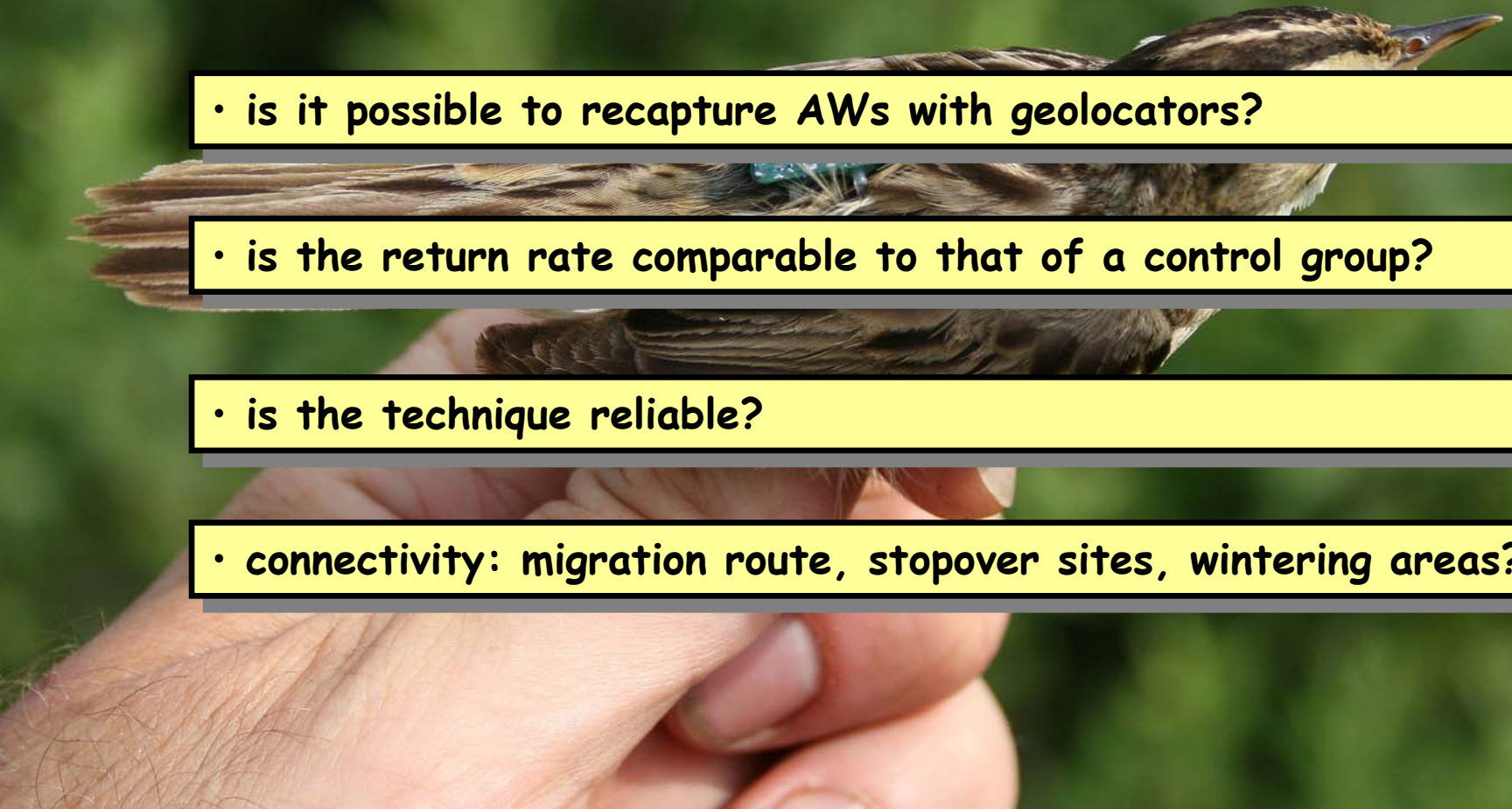
- field work at the end of the breeding season

- control-group without geolocators

2010: 30 Aquatic Warblers equipped with geolocators

Questions:

- is it possible to recapture AWs with geolocators?
- is the return rate comparable to that of a control group?
- is the technique reliable?
- connectivity: migration route, stopover sites, wintering areas?

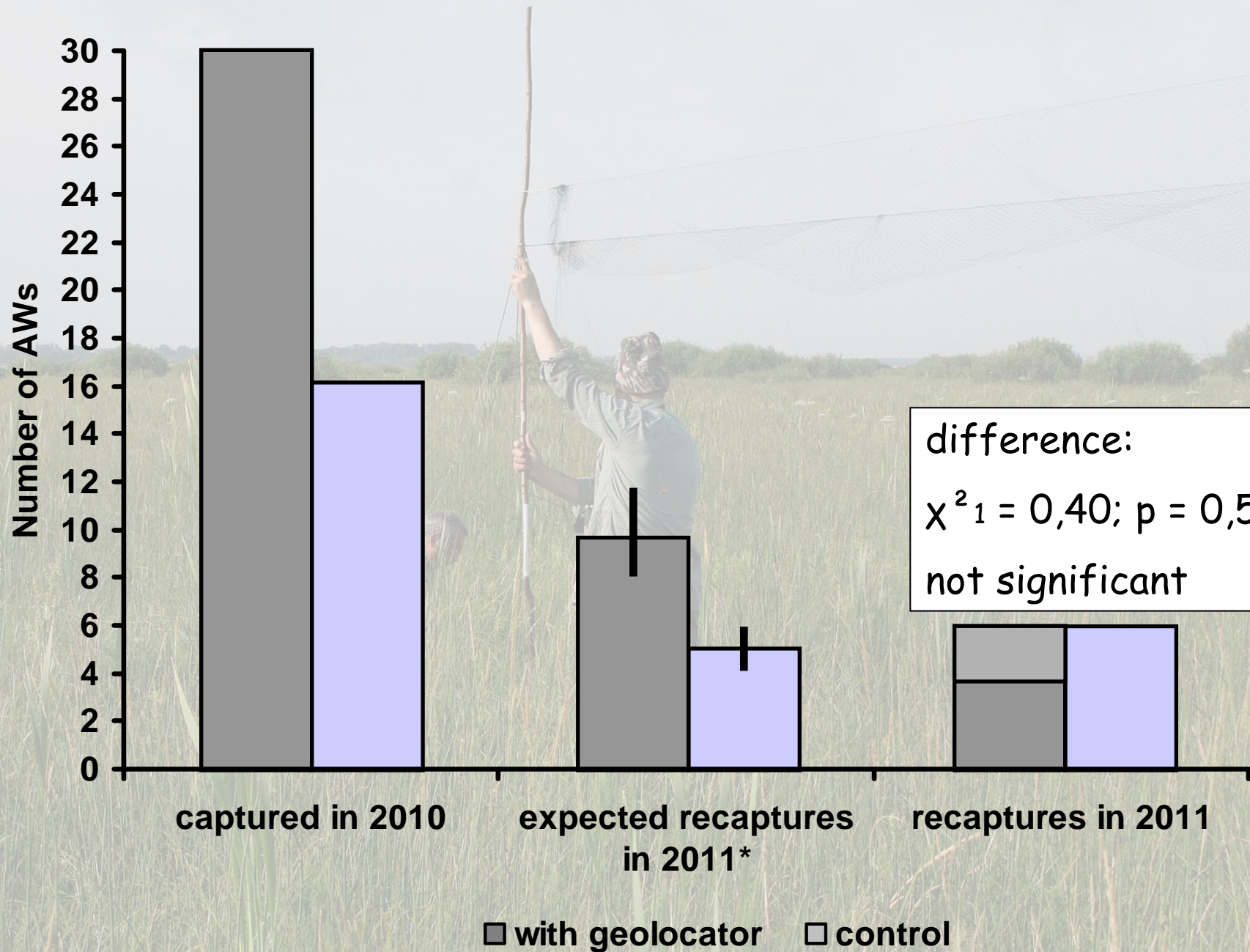


Supoy, Ukraine, 2011



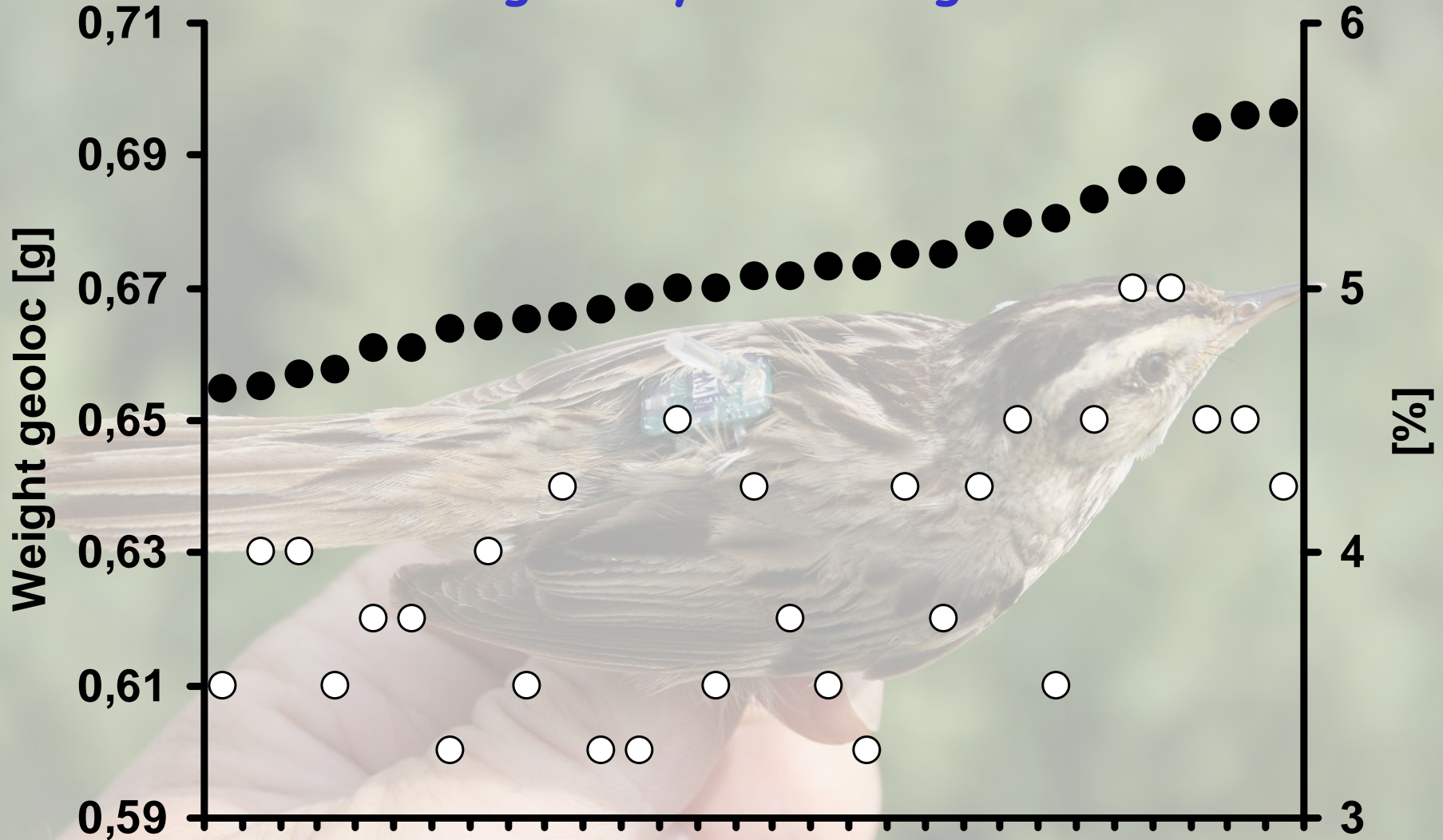






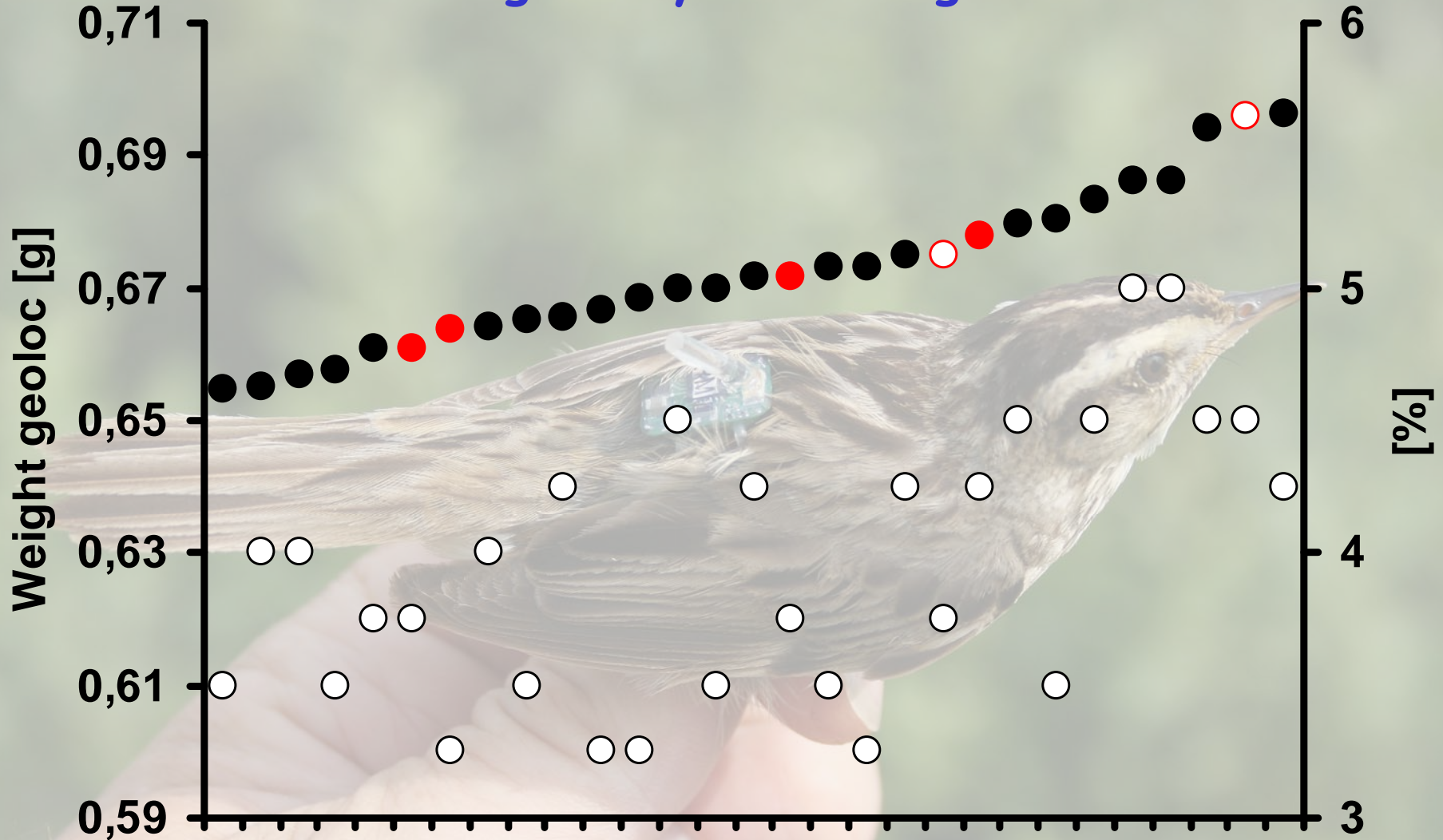
* Return rate of male AWs: 23% - 41% (Wawrzyniak & Sohns 1977)

Percentage body mass of geolocators



○ weight geoloc. ● % of body mass

Percentage body mass of geolocators



○ weight geoloc. ● % of body mass

Effects on birds:

- Feather abrasions on back and legs

- No obvious difference in behaviour (singing)



Migration routes:

1) 30 AW with geolocators

2) 6 recaptured

3) 4 geolocators retrieved

1 10 Jul

18 Jul

2 10 Jul

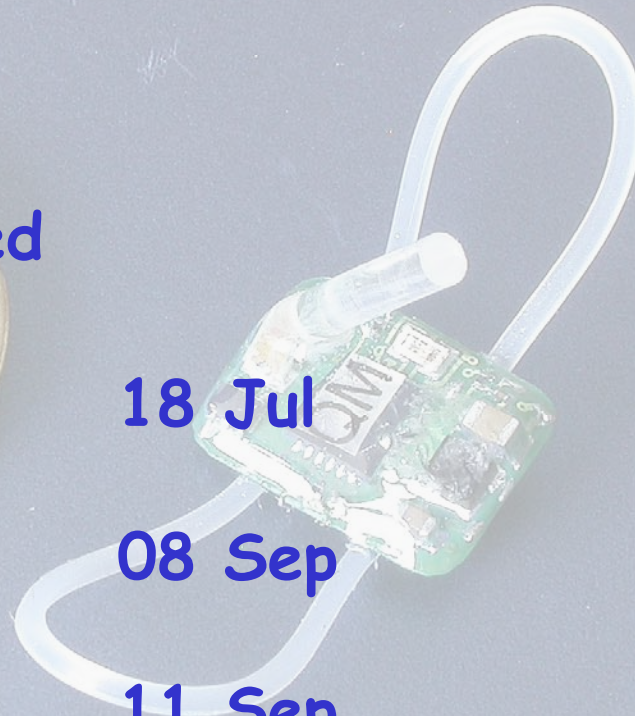
08 Sep

3 10 Jul

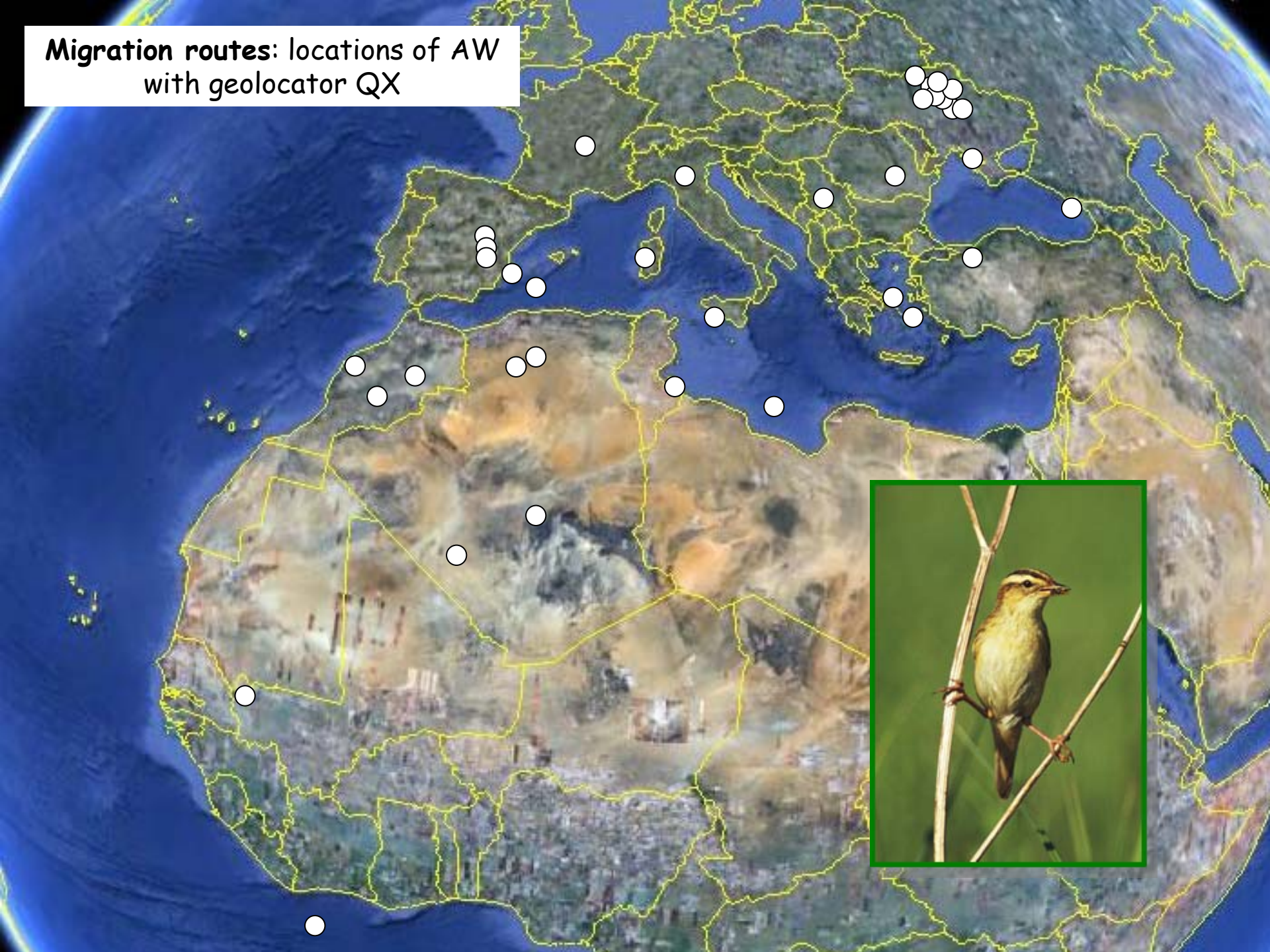
11 Sep

4 10 Jul

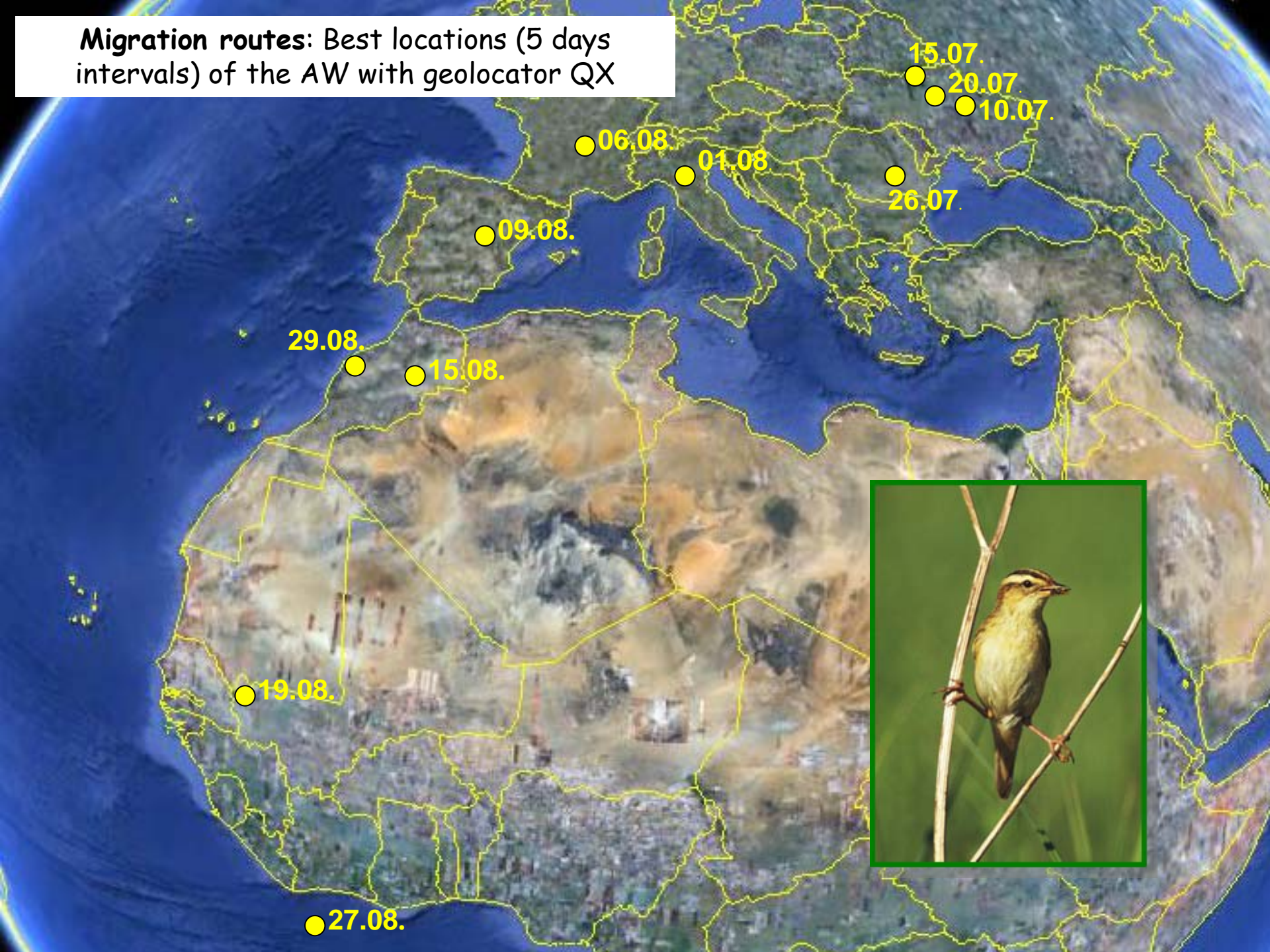
18 Sep



**Migration routes: locations of AW
with geolocator QX**



Migration routes: Best locations (5 days intervals) of the AW with geolocator QX





Migration routes: Best locations (5 days intervals) of the AW with geolocator RB

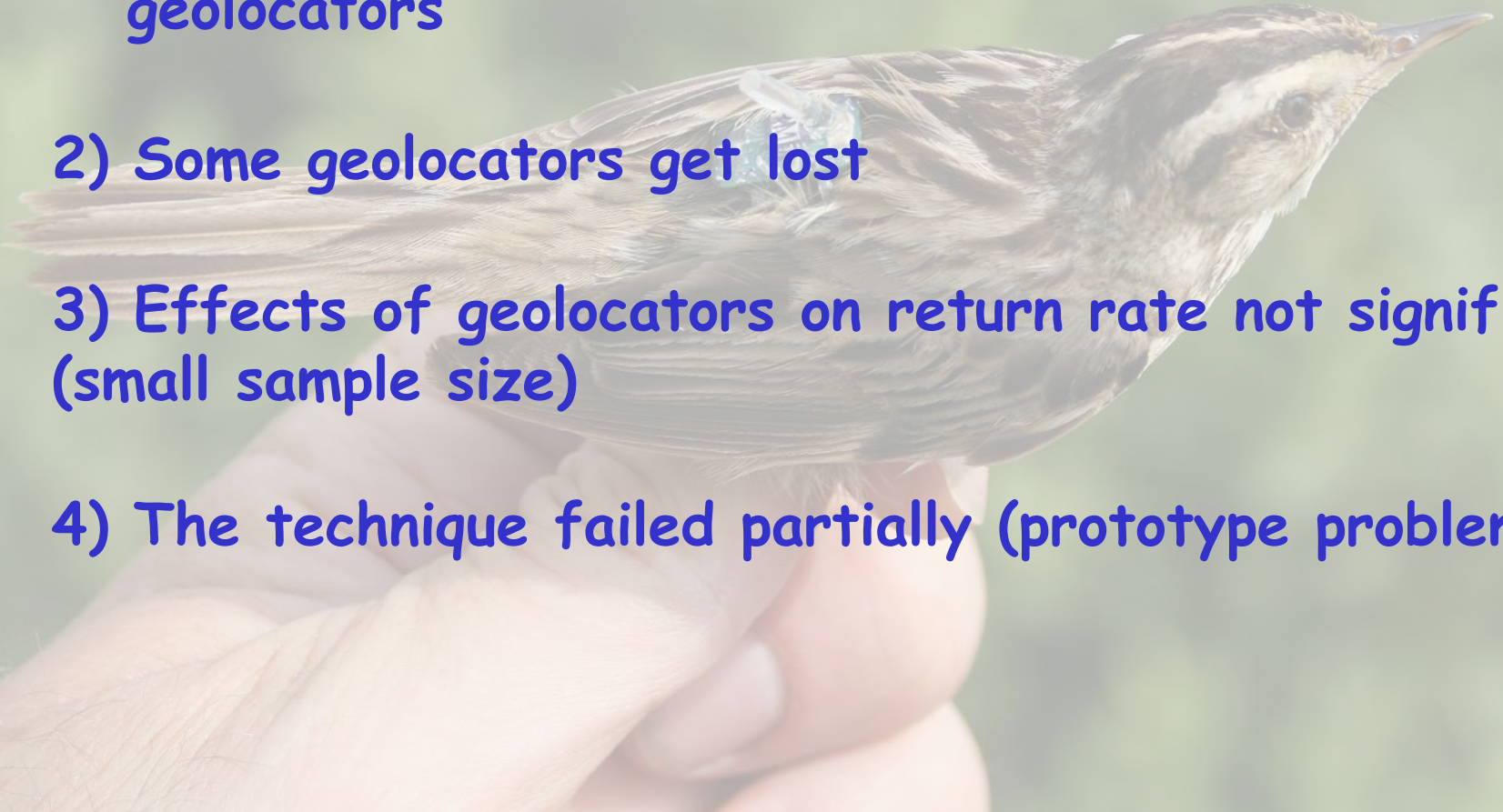




Migration routes: Best locations (5 days intervals) of the AW with geolocator RR



Conclusions:

- 1) It is possible to equip and to recapture AWs with geolocators
 - 2) Some geolocators get lost
 - 3) Effects of geolocators on return rate not significant (small sample size)
 - 4) The technique failed partially (prototype problem)
- 
- A small brown bird with a white stripe on its forehead is perched on a person's hand. A small blue geolocator is attached to its back. The background is a blurred green field.

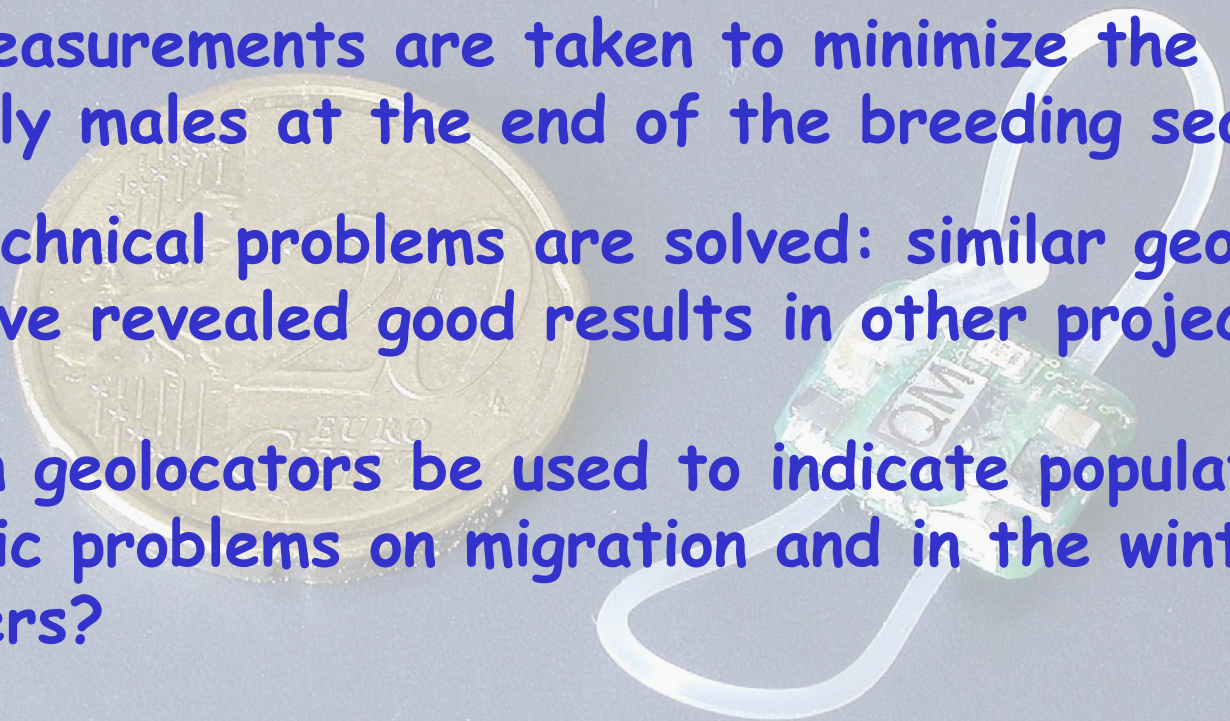
Perspectives:

1) Further use of geolocators is tenable when:

- measurements are taken to minimize the risk (only males at the end of the breeding season)
- technical problems are solved: similar geolocators have revealed good results in other projects

2) Can geolocators be used to indicate population specific problems on migration and in the winter quarters?

3) Peripheral populations will be the prime target for the near future



Thank you
for the help in the field,



Anja
Berndt



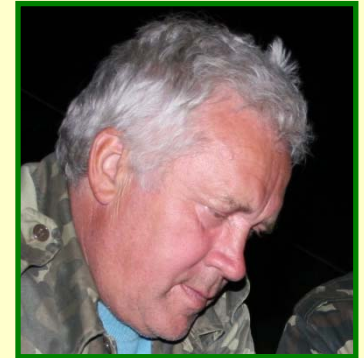
Benedikt
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Grzegorz
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