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

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

Singing males

Hungary
Global distribution of Aquatic Warbler

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
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
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.

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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
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)

Die globale Verbreitung des Seggenrohrsängers

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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
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)

\[
\chi^2_1 = 0.40; \ p = 0.53
\]
not significant

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

Weight geoloc [g]

○ weight geloc. ● % of body mass
Percentage body mass of geolocators

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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)
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
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