Migration stopover strategy of the Aquatic Warbler *Acrocephalus paludicola* at Gironde estuary and consequences for estuarine wetland habitats management

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INTRODUCTION

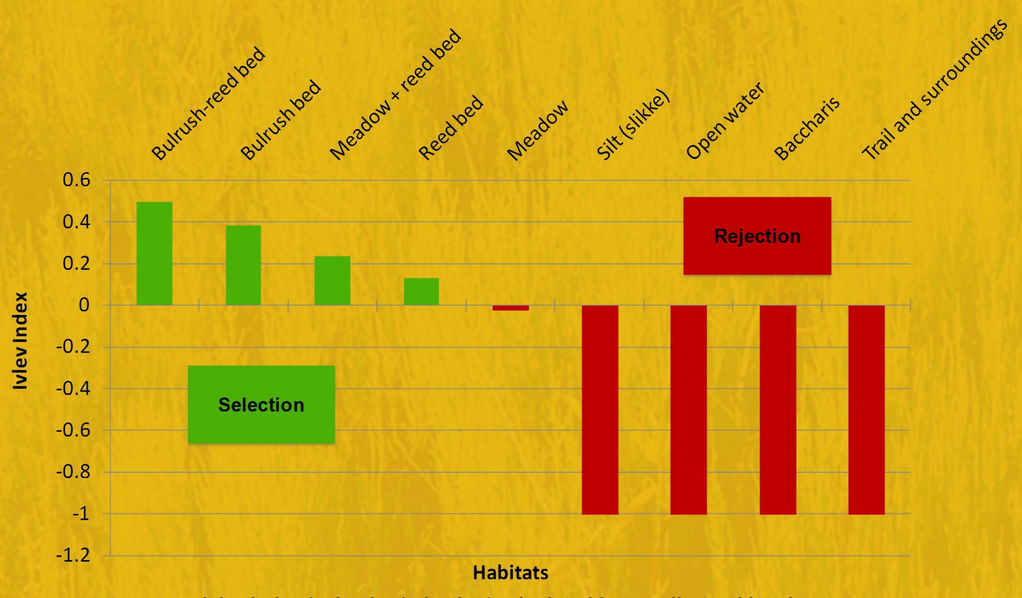
The Aquatic Warbler *Acrocephalus paludicola* is an endangered trans-Saharan migratory songbird transiting significantly along the **French Atlantic coastline** during post-breeding migration. Along this coastline, the right bank of **Gironde estuary** has been identified as an **important migration stopover site**. Since exploitable resources on migration stopover sites are critical factors for the conservation of migratory species, we studied the **spatial occupancy strategies** of birds stationing on the **estuary wetlands**.

MATERIAL AND METHODS

Stopover duration & habitats used

321 individuals captured in August 2011 and 2012. **Stopover duration** estimated by the **addition of the stopover duration before capture (Pradel model) and after capture (Cormack-Jolly-Seber model)**.

17 individuals successfully radio-tracked in August 2010 and 2011. One location every 15 minutes.

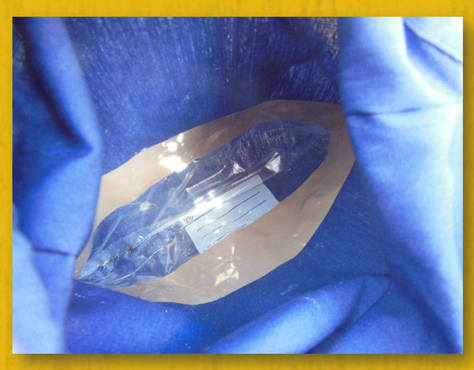


Ivlev Index (selection/rejection) calculated from radio-tracking data.

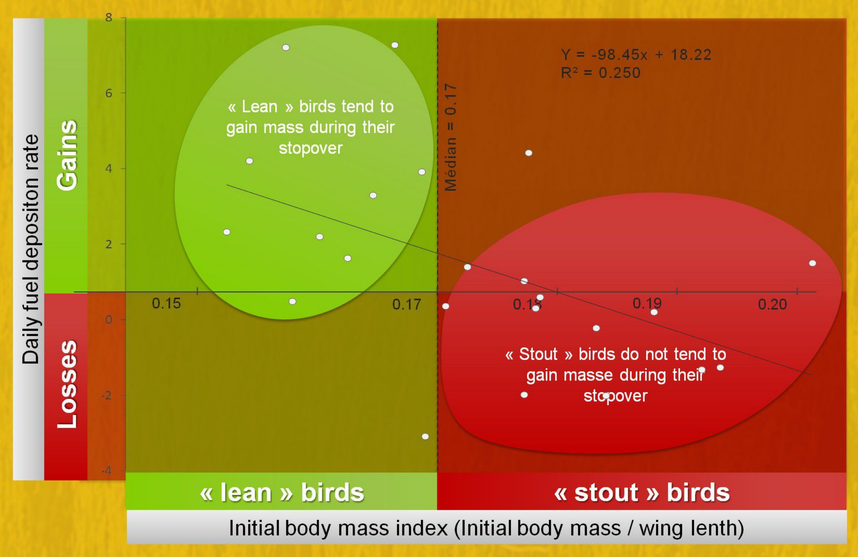
The average stopover duration is 6.2 ± 0.6 days. Birds preferentially use habitats with **heterogeneous and low vegetation subject to tidal influence, flooded or partially flooded** such as bulrush beds or bulrush-reed beds.

Foraging & diet

23 yearling birds recaptured at least one time and at least 48 ± 5 hours after initial capture to estimate body mass index at initial capture (mass / wing length) and the **daily fuel deposition rate**.



Identification of chitinous fragments in 103 droppings collected in August 2011 and 2012 to **characterize local diet**.



Relationship between the daily fuel deposition rate expressed in percentage of the initial body mass and the body mass index measured at first capture.

During their stopover, **lean birds forage significantly more than stout birds** (resp. 2.7 % vs. 0.2 % of their initial mass each day). **Orthoptera, Araneae and Hymenoptera** contribute to the main consumed biomass (resp. 64.7 %, 13.4 % and 8.9 %).

CONCLUSION

- The stopover duration and the importance of the fuel deposition rate of lean birds reflect the **high potential of estuarine wetlands such as Gironde estuary for the refueling of birds**.
- Given the alteration risks to habitats (erosion, vegetation homogenization, rise in water levels), **the process of given back some reclaimed lands (depolderization) could, locally, prove very helpful in maintaining stopover habitats**. To encourage the development of low wet and heterogeneous vegetation, measures like creation of shallow water basins maintained by **extensive grazing or late mowing** could be considered.
- Since most of the arthropods identified in the diet are predators, we **question the influence of mosquito controls on food webs**.

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