

# **The 5<sup>th</sup> International Bio-logging Science Symposium**

22-27 September 2014  
Strasbourg, France

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PA-43

### **Biologging across space and time: studying a terrestrial species at its distribution range scale**

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GPS tracking is probably becoming the most common biologging approach to study species in Terrestrial Ecology. Reasons of success include a) the high relevance given to spatial position to relate terrestrial animals to the environment; b) the possibility to exploit the parallel fast development of remote sensing techniques in providing high coverage maps; and c) the need to track the effect of human-induced changes at a multi-scale level, e.g. from local microclimates to large continental effects, for conservation and management purposes. Animals show proximate responses to changes in seasonality and habitat loss through movement and use of space. Emergence of movement behaviour can be scaled up from individual space use tactics, to populations and meta-populations. With a purely bottom-up approach, the EURODEER group has shared a multi-population dataset of a small deer characterised by high ecological plasticity (the European roe deer, *Capreolus capreolus*), and has contributed to a multi-use platform for biologged data ([www.eurodeer.org](http://www.eurodeer.org)). We have investigated the complexity of the ecology of this adaptable species in dependence of environmental and climate-dependent factors, in a robust manner (i.e., testing the effects across a latitudinal and habitat continuum). We present a range of study cases, and some peculiarities of this initiative.

PA-44

### **Encouraging discoveries, rapid progress and a problem wrapped in deeper darkness: the trials and tribulations of following eels to the Sargasso Sea**

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The population of the European eel (*Anguilla anguilla*) is in decline and a continent wide eel management plan has been implemented to recover the stock in the coming decades. Research is still needed to provide greater understanding of the factors that influence eel population dynamics. The eeliad project was a four year study aimed at unravelling some of the mysteries of the marine life of European eels, in particular the spawning migration to the Sargasso Sea. We developed and used a range of active and passive tracking techniques to track eels from river to ocean, and to measure their behaviour once at sea. More than 150 datasets were retrieved from ocean migrating eels, which enabled us to reconstruct the first 4000km of the migration from Europe to the mid-Atlantic. The field programme was coupled with modelling and analytical studies to assess recruitment dynamics, and the impacts of freshwater pollution and parasite load on eel quality. In consequence, our research has provided significant insights into the swimming capabilities and migratory behaviour of eels, the threats that migrating eels face during their migration, and how these link to the growth phase of their lives in freshwater catchments.