Wild boar movement ecology: *what do we (don't) know ?*

MORELLE K.[1], PREVOT C.[2], LEHAIRE F.[1], LEJEUNE P.[1] : [1]University of Liege - Gembloux Agro-Bio Tech, Forests Nature and Landscape - Unit of Forest and Nature Management, [2] SPW/ DEMNA, Natural and Agricultural Environment Studies Department, Belgium

Moving is crucial for every living organism. The development of advanced tracking technology increases the possibility to understand animal behaviour at fine temporal and spatial scales. However the huge amount of data now made available requires also methods and theoretical framework that can help the scientists to answer the most relevant questions. Movement ecology recently emerged as a new paradigm and framework aiming at explaining spatial behavior of any living organism. Under this framework, movement path is the result of 4 interacting components: the **internal state**, the **navigation capacity**, the **motion capacity** and the **external factors**.

Considering movement ecology framework, we reviewed current knowledge and gaps in spatial behaviour of wild boar.

External factors

We know… Spatiotemporal hunting activities are thus a major influence of wild boar individual movement and of population redistribution. Coping with environenmental change, seasonality in food availability. Mode of hunting can influence range of movement within or out of the home range. They can easily adapt their movements to the environment they evolve in (peri-urban areas, agricultural land, forest), in response to food distribution and predation risk.

We don't… How dynamics of landuse affect wild boar movement and redistribution? How conspecifics and others species interaction affect their spatial behaviour?…

Where and when to move?

We know…To move in space, wild boar can rely on well-developed olfactory sense and spatial memory. Using these cues, he is able to delineate precisely a spatial map of their environment, so that the used trail within their home range can be associated as a route-system. Based on these cues, they are more likely to used oriented than non-oriented movement.

*We don't…*How spatial memory is acquired? Are wild boar able to perform dead reckoning (self-informed movement)? To what scale are they able to sense their surrounding environment (perceptual range)? How do they decide when and where to disperse? How global cues are use in navigation?…

*We know…*motivation or readiness to move lies like for any living organism in gaining energy, mating and avoiding predation. When foraging, they use a 'win-shift' strategy between patches to avoid predation risk and conspecific competition. Gaining experience from conspecifics is also a common feature in wild boar to learn about their spatial environment

*We don't…*How costly, in energetical terms, it might be for a wild boar to move within different environment and under various weather conditions? How personalities affect spatial behaviour?

Why moving?

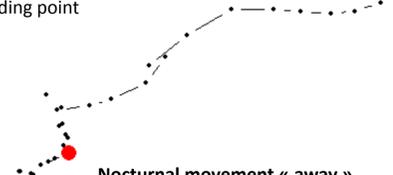*We know…*Wild boar are unguligrade that use transverse gallop to move. Evolutionnary, Suidae have kept unguligrade foot posture but they lack elongated distal segments such as in other living unguligrade s. This posture allows them to perform large step length and minimize energetic cost associated. They can use various locomotion modes according to the situation, moving slowly for feeding or exploring the environment and switching to higher speed when facing predation risk. Moreover wild boar have good swimming and jumping abilities.

*We don't…*How much energy is required for the different movement modes? To what extent mechanic adaptation allow the wild boar to perform in various conditions?…

How to move?

To answer these newcoming questions, collaborative and interdisciplinary (physiology, biomechanic, ecology,…) approach will be required. Development of tracking devices towards miniaturization and long-lasting battery, will help acquiring more data. Movement at individual and group scale over entire life history will allow to understand more precisely how decision-making and social interaction occur in wild boar.

New generation of biologgers informing on animal state (heart pulse, temperature) will also help in understanding the movement ecology of wild boar.
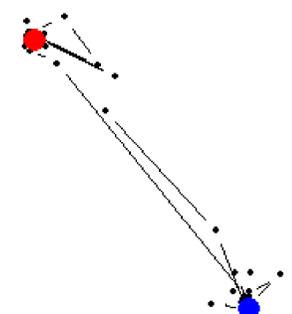
Movement path

- Starting point of the movement
- Ending point

Nocturnal movement « away »
Mean distance = 353.9m
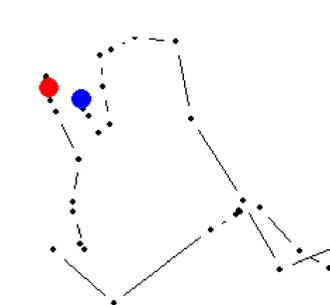
Niocturnal movement «return »
Mean distance = 108.9m

Diurnal movement
Mean distance = 26.1m

Examples of movement paths followed by Gilbert, belgian gps tracked male boar between 03.07.2011 and 07.04.2012

Others relevant questions according to you? Let's talk!

« International Union of Game Biologists », 27 – 29 August 2013, Bruxelles, Belgium

fnrs LA LIBERTÉ DE CHERCHER · Université de Liège · ULg · gembloux agro bio tech

© photos, P.Taymans (top), A. Villet (center)