

# Parameterization of the population dynamics of wild boar (*Sus scrofa* L.) in Southern Belgium

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## Introduction

Wildlife managers are facing important issues about the control of wild boar populations throughout Europe. Their numbers increased this last decade in Belgium leading to a raise in damages to grasslands and crops. The study proposes an approach of a modelisation of the population dynamics in South Belgium on the basis of the data usually recorded by hunters, i.e. sex and weight (Gamelon *et al.*, 2012). This model enables the determination of an optimal hunting bag composition to reach a given grow rate of the population.

## Methods

We used the capture-mark-recapture (CMR) data from 5 territories of South Belgium (Fig.1) of different biogeographic regions (Famenne and Ardenne) and under different population management strategies (more or less conservative). Survival rate and hunting mortality have been computed thanks to a 7-years long data set. The fecundity has been estimated by sampling of 400 genital tracts on the same period. The hunting bags from 2007 to 2012 allowed to calibrate the model.

The population dynamics have been modeled according to weight and sex categories : <30kg, 30-50kg and >50kg for females and <45kg, 45-75 kg and >75kg for males.



Fig.1: The 5 study areas are localised in Famenne, Hertogenwald and in St Hubert

## Results

The modelisation allows to estimate the demographic parameters and shows that :

- The natural survival rate is the lowest within the intermediate weight categories (70 to 80%);
- The litter size is important (6 piglets/sow in average) and varies according to the territory (differences in food availability);
- The hunting restrictions (on large sows) imply a short generation time (2-3 years);
- The great influence of the pre-weaning mortality (sensitivities >0,55 in each territories) and of the overall parameters of the intermediate female category.




	50%	32%	50%	
				→ $\lambda = 0,91$
1)	50%	32%	34%	→ $\lambda = 1$
2)	50%	19%	50%	
3)	25%	32%	50%	

Fig.2 : example of 3 possible scenarios to stabilize the Marche-en-Famenne population female population ( $\lambda=1$ ). The first line shows the current proportions of wild boars shot in each category (in average on 2009-2012). The 3 next lines show possible modifications (in red) of those proportions in order to stabilize this population.

## Perspectives

The parametrisation could be improved. However, these first results are a good start to help managers in taking decisions about the management of wild boar populations (Fig.2) in a range of places in Southern Belgium.