

Overview of animal related-accidents in one of the world's densest road network region

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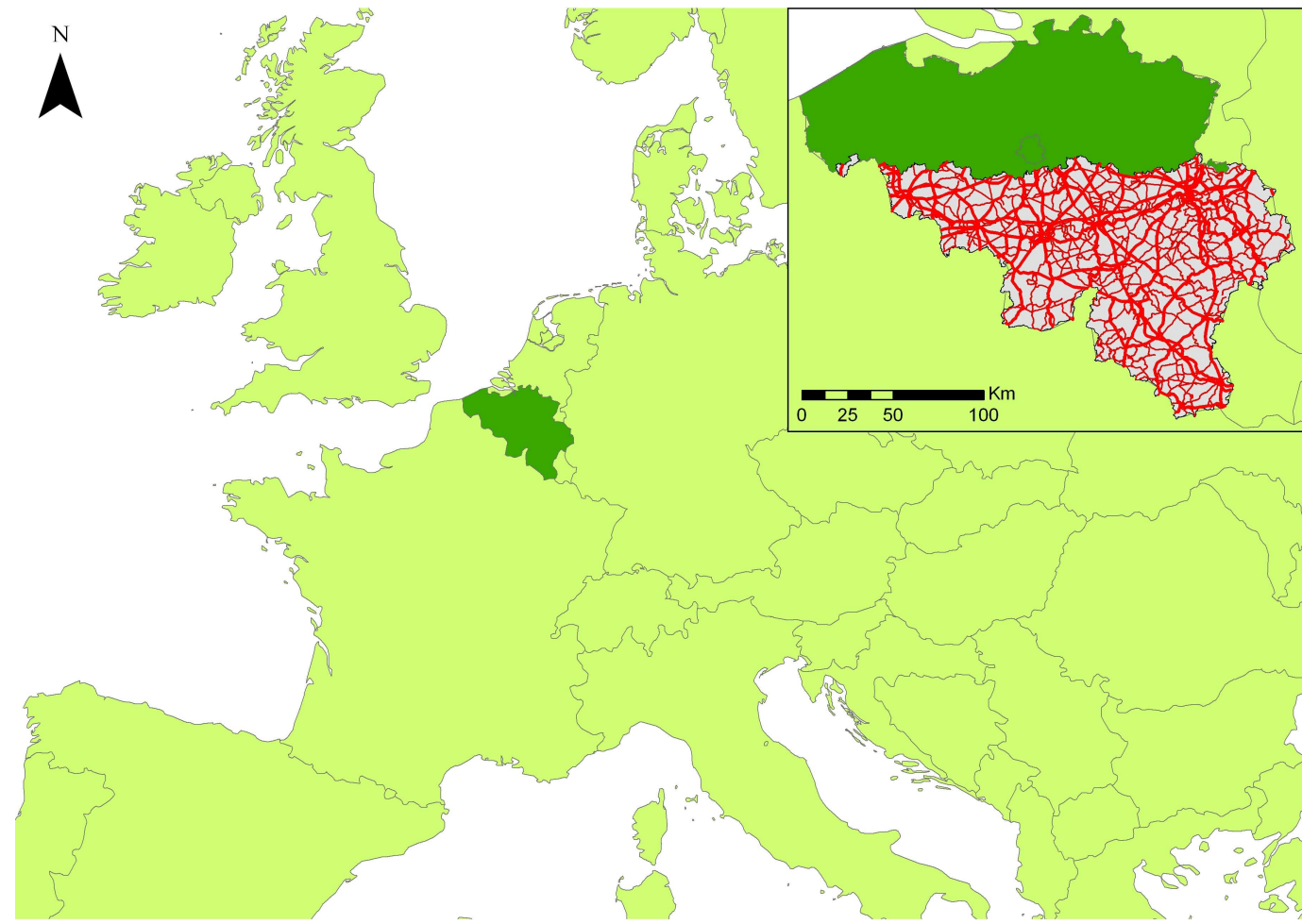
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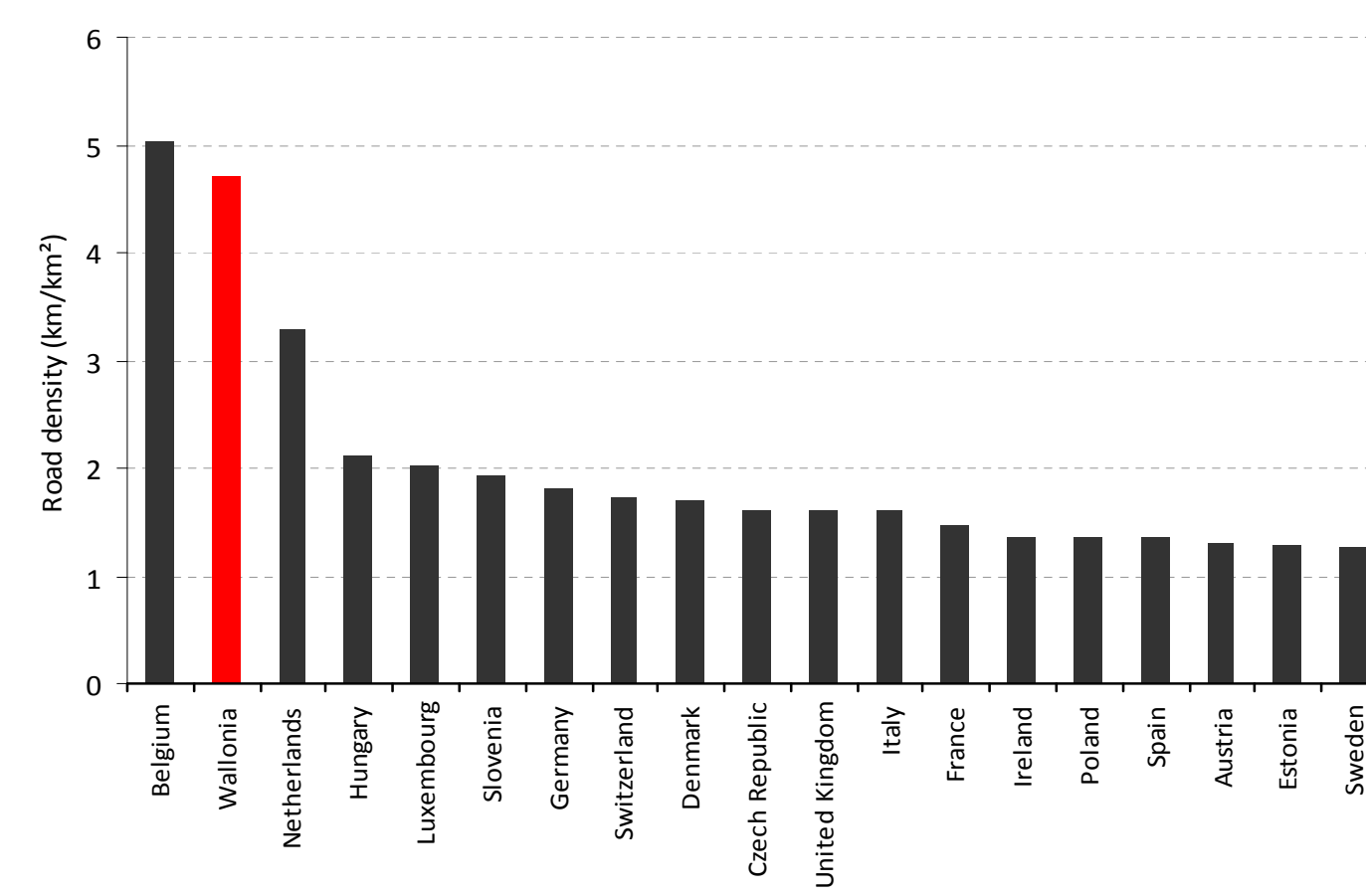
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Context



Wildlife-related accidents threaten human safety, generate high economic losses due to damage to vehicles and reduce wildlife populations. In many countries, concerns have therefore been risen on this serious issue. With its 4.7 km/km² of public roads, Southern Belgium (Wallonia) has one of the densest road networks of Western Europe and a high human population density (211 inhabitants per km²). This particular network together with the observed increase in main game species populations (red deer, roe deer and wild boar) makes Wallonia an interesting region for studying the patterns of traffic accidents caused by animals. Moreover, compared to most of European countries, no statistics were available for this area.



Objectives

Our main aim was to provide basic informations about animal-related traffic accidents. In particular we studied :

- (i) composition and percentage of involved species,
- (ii) spatial distribution and
- (iii) temporal patterns of these casualties.

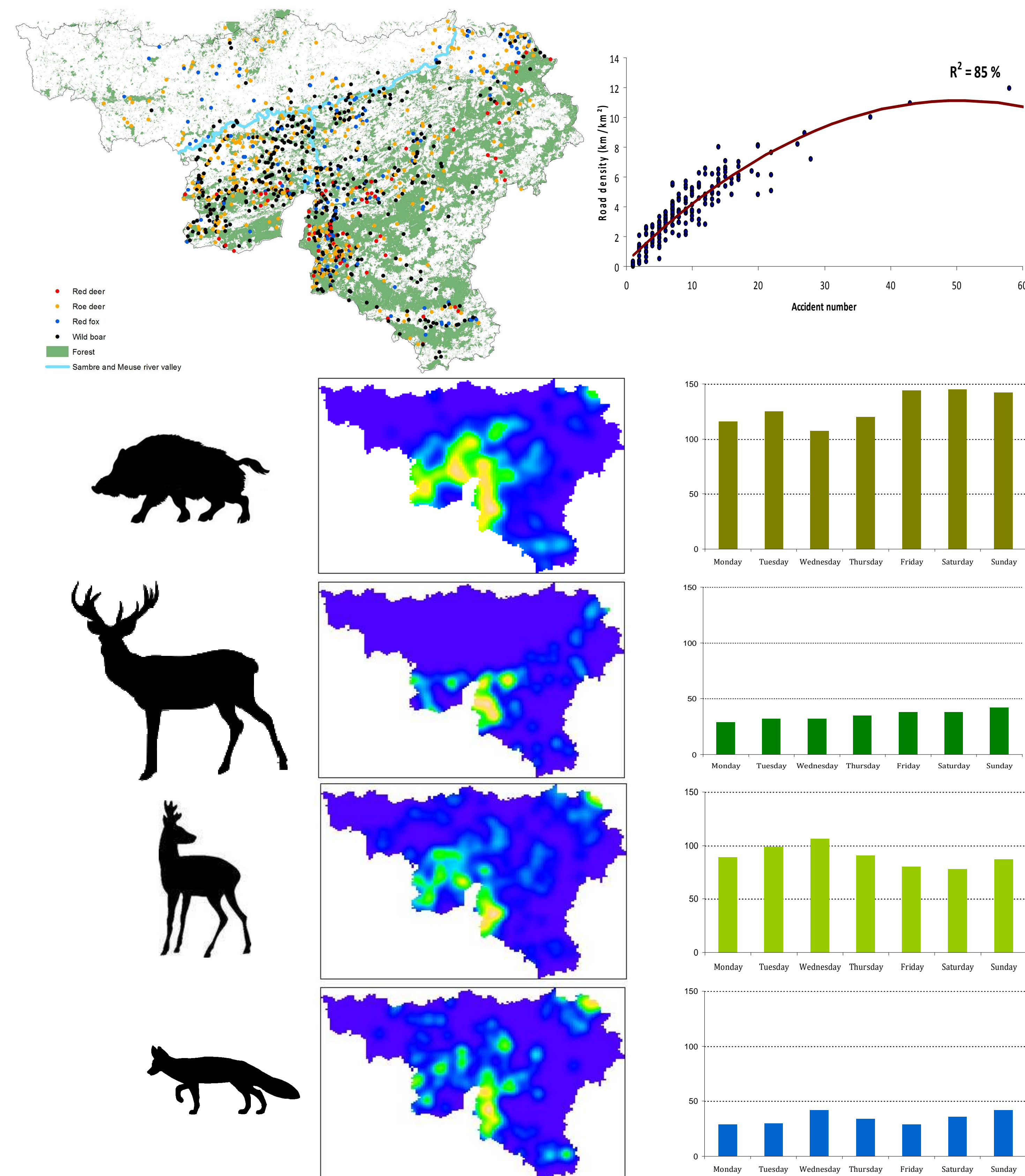
Accidents data

We investigated police database to search for traffic accident statements involving any animal species domestic or wild. The selected data covered the period between 2003 and 2011, which consisted of 3,899 accidents. Each record includes date, time, species involved, information about the location of the accident event and potential human injuries or death (510 accidents in total).

Results

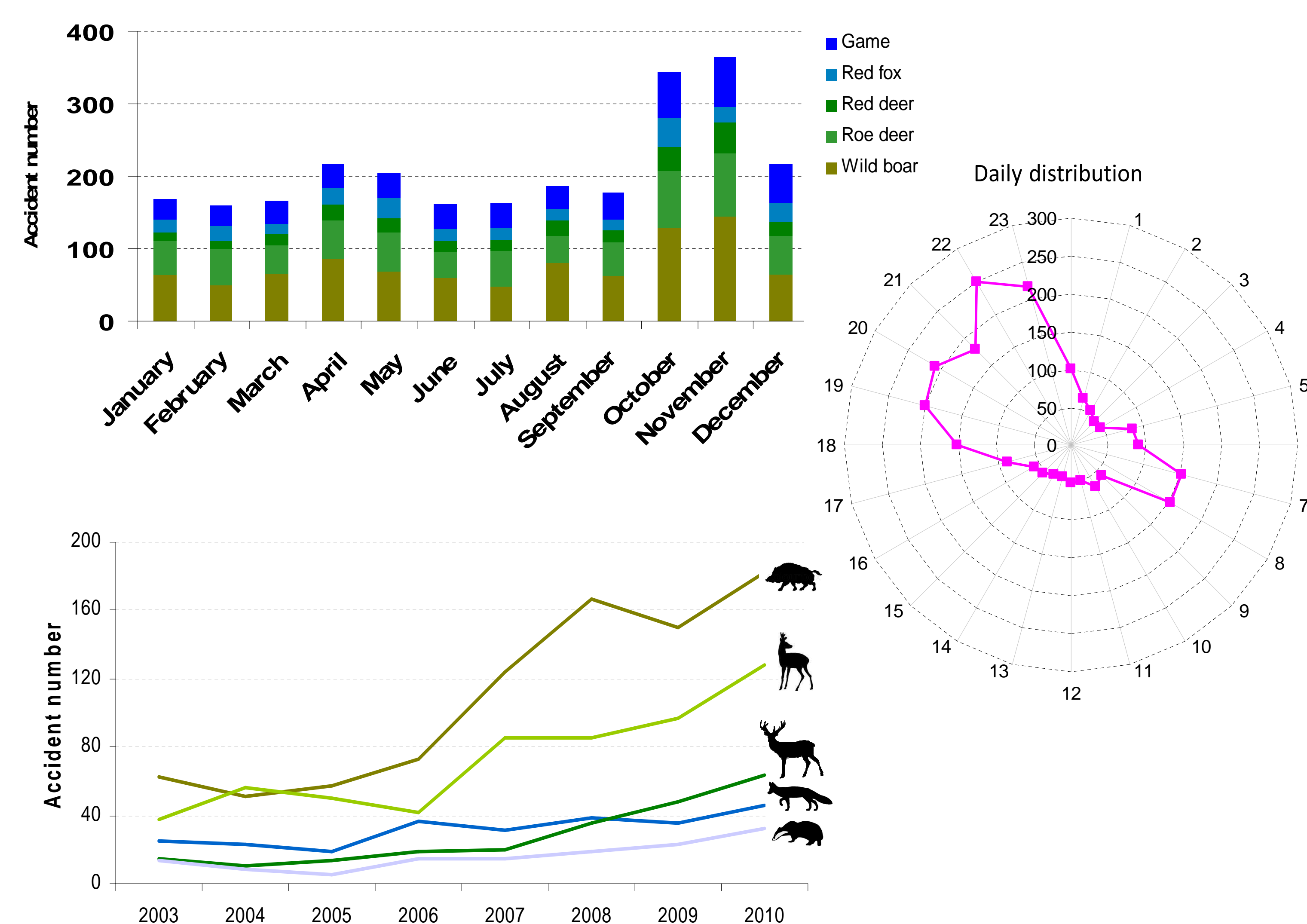
Spatial distribution

Spatial distribution of accidents shows non-random patterns, with a large proportion being distributed in the south-west of Wallonia. Combination of high road density and forest cover within this area is likely to explain this pattern but further investigation and analysis are needed. As expected, we also noticed a strong relation between road density and the number of accidents events.



Temporal distribution

Temporal distribution demonstrates positive trends during the studied period denoting the impact of population increase on accident events. At the daily and monthly scales we also observed patterns towards night and autumn increase in accident cases, because of night activity patterns of animals and the increase of movement due to hunting activities.



Conclusion and perspectives

This first overview on animal-related accidents in Wallonia showed clear spatial and temporal trends. Road density seems also to be an important factor for explaining casualties events. It confirms what is known in the literature but also highlights the needs for further analysis, that could lead to sound proposals to mitigate these casualties that have important ecological, economic and social impacts.