

## **Distribution of summer's preferred plant species determine spatial variation of body mass in roe deer fawns**

N. Pettorelli<sup>1</sup>, S. Dray<sup>1</sup>, J. M. Gaillard<sup>1</sup>, D. Chessel<sup>1</sup>, F. Klein<sup>2</sup>, G. V. Laere<sup>2</sup>

<sup>1</sup>*Université Claude Bernard Lyon 1, Villeurbanne, France*

<sup>2</sup>*Office National de la chasse, Paris, France*

We analyzed the relative importance of temporal and spatial variations in the body mass of European roe deer over 24 years using data on body mass of 1235 fawns captured at known locations. We then related the spatial variations with variations in the species composition of plants from 575 sites in the forest. The combination of temporal and spatial effects accounted for 36.75% and 39.2% of the variability among-individuals observed in the body mass of male and female eight-month fawns, while the cohort effect alone accounted for 20,36% and 19,96% of the observed variance, in males and females respectively.

The spatial distribution of fawn body mass was perennial and similar in the two sexes, and predicted values showed a 2 Kg range over the reserve. The occurrence of three species known to be important food items in spring/summer roe deer diet, hornbeam (*Carpinus betulus*), bluebells (*Hyacinthoides* sp.) and wild asparagus (*Ornithogalum* sp.) was positively related to fawn body mass of both sexes. On the contrary, the occurrence of the species known to be avoided in spring/summer roe deer diet like butcher's broom (*Ruscus aculeatus*), beech (*Fagus sylvatica*) and brambles (*Rubus* sp.) was negatively related to fawn body mass