Biometrical approach to evaluate the relationship between roe deer body parameters and winter feeding resources

Paola Scocco[1], Andrea Brusaferro[1], Cesare Pacioni[1], Francesca Mercati[2] and Andrea Catorci[1]

[1]*School of Biosciences and Veterinary medicine, University of Camerino, Camerino, Italy*
[2]*Department of Veterinary medicine, University of Perugia, Perugia, Italy*

Introduction: The study is aimed to analyze the biometrical data referred to animals pertaining to class age 0 (0-11 months), in roe deer population of central Italy Apennine, in order to evaluate the relationship between size/shape of body structure/parameters and feeding resources available during the autumn-winter period.

Materials and Methods: The analysis of the size was performed on 56 roe deer obtained by selective shooting. For the mandible shape analysis 27 samples were treated with the GeoGebra's program. To evaluate the relationship between size/shape of body structure/parameters and the feeding resources, an environmental category, derived from the carrying capacity of forest ecosystems relative to the hunting zone, was attributed to each animal. Statistical analysis of size was performed by ANOVA. Shape variables were generated using a Generalized Procustes Analysis program.

Results: The analysis of the size showed no significant differences for analyzed parameters between sex, while five parameters showed significant differences among environmental categories. As mandible concerns, it showed an increasing size trend linked to the available feeding resources. This is also supported by the fact that the shape analysis showed a more open mandibular angle (for the mandibular dorsal view) in those animals living in the hunting zone characterized by highest feeding resources, in particular in subjects pertaining to the sub-class 0-8 months.

Conclusion: Data analysis suggests that the mandible seems to be the element whose development is mainly affected by the winter feeding resource availability. In the roe deer, the mandible reaches the definitive size during the first living year. So, the food availability during the first winter season could represent a critical factor for the development of this bone. This approach applied to a wider database could be useful to define body marker parameters related to environmental carrying capacity to planning the roe deer selective shooting.

length: 299 words (max. 300)
choose form of presentation: preferably poster