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*Original Citation:*

*Availability:*

This version is available at: 11577/3198934 since: 2016-09-17T09:06:47Z

*Publisher:*

*Published version:*

DOI:

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***HYSTRIX***  
*the Italian Journal of Mammalogy*

Volume 27 (Supplement) • 2016

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**Impact Factor (2014) 2.860**

**HYSTRIX, the Italian Journal of Mammalogy** is an Open Access Journal published twice per year (one volume, consisting of two issues) by Associazione Teriologica Italiana. Printed copies of the journal are sent free of charge to members of the Association who have paid the yearly subscription fee of 30 €. Single issues can be purchased by members at 35 €. All payments must be made to Associazione Teriologica Italiana onlus by bank transfer on c/c n. 54471, Cassa Rurale ed Artigiana di Cantù, Italy, banking coordinates IBAN: IT131084305108000000054471.

The Italian Teriological Association is available to promote exchanges with journals published by other scientific associations, museums, universities, etc. For information please contact the ATIt secretariat.

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Information about this journal can be accessed at <http://www.italian-journal-of-mammalogy.it>

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## **X Congresso Italiano di Teriologia**

**Acquapendente (VT), 20–23 Aprile 2016**

edited by

R. Chirichella, S. Imperio, A. Molinari, G. Sozio, S. Mazzaracca, D.G. Preatoni

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**Publication information:** *Hystrix*, the Italian Journal of Mammalogy is published as a printed edition (ISSN 0394-1914) twice per year. A single copy of the printed edition is sent to all members of Associazione Teriologica Italiana. The electronic edition (ISSN 1825-5272), in Adobe® Acrobat® format is published “online first” on the Journal web site (<http://italian-journal-of-mammalogy.it>). Articles accepted for publication will be available in electronic format prior to the printed edition, for a prompt access to the latest peer-reviewed research.

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# X Congresso Italiano di Teriologia

Teatro Boni, Acquapendente (VT), 20-23 Aprile 2016

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edited by

R. Chirichella, S. Imperio, A. Molinari, G. Sozio, S. Mazzaracca, D.G. Preatoni

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Citazione consigliata / Recommended citation

Chirichella R., Imperio S., Molinari A., Sozio G., Mazzaracca S., Preatoni D.G. (Eds.) 2016. X Congr. It. Teriologia. *Hystrix*, the Italian Journal of Mammalogy 27 (Supplement).

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X Congresso Italiano di Teriologia

## Ecological factors affecting Alpine chamois population recruitment: remote sensing can support adaptive management

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The analysis of ecological factors able to affect the life history traits of ungulates is important to reveal key information on population dynamics of wild herbivores. As regard to bovids, it is often crucial for juveniles and yearlings to gain quickly body size and mass, as such growths primarily increase chance to reach reproductive maturity (i.e., an increase in the survival probability). Accordingly, we modeled a set of ecological factors accounting for the variation of Alpine chamois (*Rupicapra rupicapra*) population recruitment through three indexes: i) the ratio kids/adult females (NK/NF), ii) the ratio yearlings/adult females (NY/NF), and iii) the yearlings eviscerated body mass (YBM). These indexes were derived respectively from block count census and from hunting records in the last 45 years in different ecological contexts in the South-West Trento province. These indexes were associated to forage quality/quantity, winter harshness, and local chamois density. In detail, we considered NDVI (Normalized Difference Vegetation Index) as a proxy for the quality of Alpine meadows used by chamois in spring and summer and snow cover data belonging to the National Aeronautics and Space Administration (NASA) remote sensing dataset (TERRA-MODIS). The reproductive success of these populations was strongly influenced both by the quality of meadows during births period

(May) and by the space-time pattern of growth and maturation of Alpine pastures in spring and summer periods. Even winter harshness played an important role in this process. In particular, i) the NK/NF was positively influenced by the average quality of the grazing season previous to the births period and by the maximum NDVI value recorded in May (i.e., births period); ii) the NY/NF was negatively affected by the extent of snow cover in the first winter of kids and positively related to the average quality of the pasture in the subsequent spring and summer (i.e., the feed intake period in which individuals had to recover weight loss derived from previous winter); and iii) the YBM revealed a negative trend during the study period suggesting a difficult adaptation to climate and environmental changes taking place. Contrary to our expectations, local density was not able to influence these variables. This result may suggest that local density are not exceedingly high in the study area and therefore are not able to promote density dependent phenomena. In conclusion, these results contribute to increase the knowledge of the mechanisms underlying Alpine chamois population dynamics and give insights to plan adaptive management and conservation of this species.

X Congresso Italiano di Teriologia

## Many Italian Mammals are likely to be at risk from water pollution

M. PACIFICI

Sapienza Università di Roma, Dipartimento di Biologia e Biotecnologie "Charles Darwin"



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The use of pollutants from agriculture and industry has increased steeply over the last 50 years, causing serious environmental consequences. Water pollution is caused by the introduction of contaminants to a system, and it can be determined by the addition of organic and inorganic material, floating matter, pathogens and increases in water temperature. Chemical runoff from farms and industries is leaching into nearby rivers, streams and groundwater, killing thousands of animals. Many species of mammals use aquatic habitats for foraging and for drinking water. These species often play a fundamental ecological role and can be considered as environmental indicators. In this study I analysed

the relationships between the distribution of mammal species in Italy known to be sensitive to water pollution from the literature, and the distribution of both legal and illegal dumps, agricultural areas, industries and the pollutants they release. In this way, I found that most of the species considered in the study can suffer from water pollution in at least part of their range. This is mainly due to the fact that they live in proximity to sources of pollution, and this is likely to influence their presence in the most at risk sites. In order to avoid losing mammals that play a key role in the ecosystems, we should pay particular attention to emissions in sites that host large number of sensitive species.



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*the Italian Journal of Mammalogy*  
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Edited and published by Associazione Teriologica Italiana

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