ISSN 0394-1914

HYSTRIX
the Italian Journal of Mammalogy

Volume 25 (Supplement) • 2014

published by
Associazione Teriologica Italiana

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Edited and published by Associazione Teriologica Italiana

Impact Factor (2012) 0.352

***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: IT13I0843051080000000054471.

Associazione Teriologica Italiana secretariat can be contacted at segreteria.atit@gmail.com

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

The Editorial Office can be contacted at info@italian-journal-of-mammalogy.it

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IX Congresso Italiano di Teriologia

Civitella Alfedena (AQ), 7-10 Maggio 2014

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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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Associazione Teriologica Italiana established a Best Paper Award for young researchers. Eligible researchers are leading authors less than 35 years old, and within 7 yers from their PhD (but young researcher at an even earlier stage of their career, i.e. without a PhD, are also eligible), who have expressed interest in the award in the Communications to the Editor (step 1 of the online submission procedure; for details, see the Electronic Publication Guide; http://www.italian-journal-of-mammalogy.it/public/journals/3/authguide.pdf).

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Finito di stampare nel mese di aprile 2014 - Typeset in LaTeX

Stampato con il contributo di – Printed with the contribution of

Progetto LIFE09/NAT/IT/000160 Arctos; Società Italiana di Ecopatologia della Fauna (SIEF)

Stampa: Edizioni Belvedere, via Adige, 45 – 04100 Latina (Italia)

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Riassunti: Comunicazioni e Poster

edited by
S. Imperio, S. Mazzaracca, D.G. Preatoni

Organizzato da
Associazione Teriologica Italiana onlus

In collaborazione con

Parco Nazionale
d'Abruzzo Lazio e Molise

Società Italiana di
Ecopatologia della Fauna

Progetto LIFE09/NAT/IT/000160 Arctos

IX Congresso Italiano di Teriologia

To feed or not to feed? The effectiveness of supplemental feeding sites for roe deer (*Capreolus capreolus*), with reference to box trapping success rate and winter space use

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Supplemental feeding is a diffused hunted ungulate management practice in several countries, especially where winter conditions are particularly harsh and diminish the probability of survival of animals. Thus, the management of supplemental feeding sites is primarily aimed to help ungulates' overwinter survival. Feeding sites are generally set in overwinter spots and continuously replenished throughout winter time with high energetic value food. Therefore supplemental feeding stations represent an important attractive resource that can bias animals' spatial use. This particularly applies to those species that need to continuously feed to satisfy their energetic requirements because they have limited ability to store fat reserves. These physiological traits are typical of the European roe deer (*Capreolus capreolus*), a small cervid distributed from Mediterranean to Scandinavia, across a variety of landscapes and climates. Roe deer are known to be "income breeder", i.e. they continuously use their energy during the reproductive period in summer, and do not store much fat in winter. Moreover, they are not particularly adapted to harsh winter conditions, especially deep snow cover and low temperatures (which increase the basal metabolic rate). Therefore, northern latitudes and alpine areas are considered suboptimal habitats, i.e. two extremes of roe deer distribution range. Not surprisingly, supplemental feeding practice has been substantially used in these two areas, but not many studies assess the effectiveness of this practice, in terms of affecting animals' space use and resource selection.

Because of their attractive role for roe deer, supplemental feeding sites have been often chosen as locations to deploy box traps to capture and individually mark this ungulate for research purposes. The access to food in proper feeding sites is periodically limited, so that animals are pushed to get into box traps, that are instead refurnished with food.

In this work we focus on an alpine population of roe deer, in Trentino (North-Eastern Italian Alps; Val Rendena, Valli Giudicarie), where supplemental feeding practice has been carried out in the medium term (from 20 to few years). We performed roe deer captures with box trapping technique over two winter seasons (2012-2013 and 2013-2014), and then monitored the use of feeding sites by means of GPS collars fit to captured animals. We present the capture success rate, with hypothesis of variation linked to a variety of factors, such as weather conditions and topographic distribution of traps. Moreover, we show the importance of these punctual resources on roe deer space use, showing how it deviated from random according to distribution of supplemental feeding sites.