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(Article begins on next page)

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GRAZING FOR MULTIPURPOSE MANAGEMENT OF SITES OF COMMUNITY INTEREST (SCI): THE CASE OF VALLONE MASSELLO (GERMANASCA VALLEY, WESTERN ALPS, ITALY).

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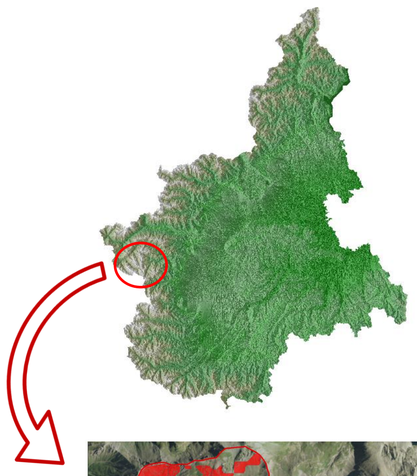
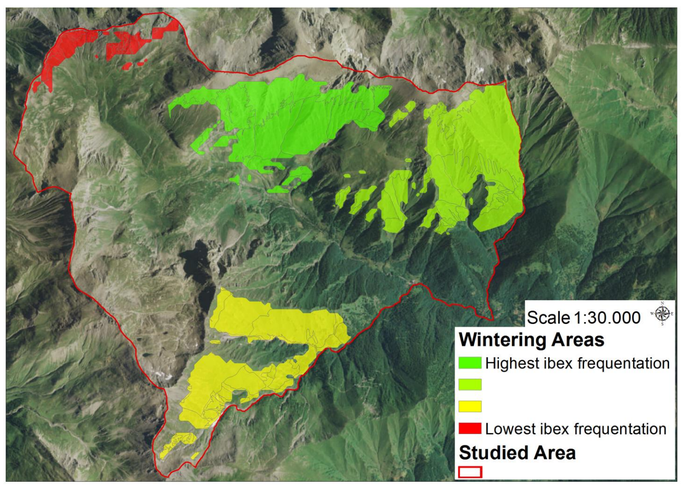
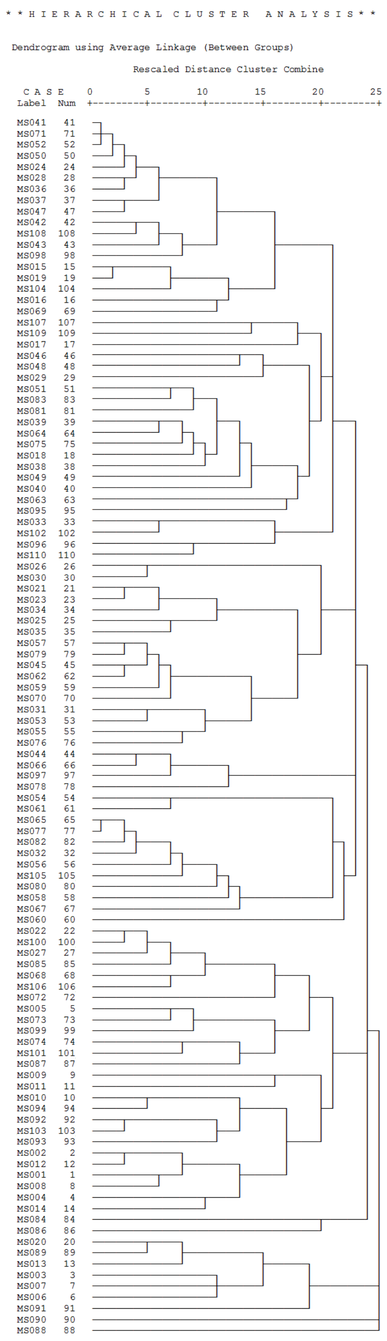
The studied Area – The Vallone Massello, located in Germanasca Valley (Piedmont) and positioned at an altitude range between 1000 m and 3000 m a.s.l., is characterized by a continental climate , with high amounts of snowfall.



Purpose -The goal of this work was to raise awareness to safeguard flora and fauna, with special reference to the study of the interactions among domestic herbivores and ibex (*Capra ibex* L. 1758) during summer. Moreover, by considering that the area was included into a Site of Community Interest (SCI Val Troncea - IT1110080), the research also aimed at understanding the role of grazing for the multipurpose management of the site.

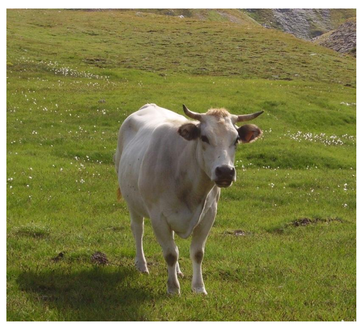


Materials and methods - Since 1988 the ibex, reintroduced in the neighbouring Val Troncea Natural Park, has begun to use for wintering some parts of the Vallone. Continuous monitoring for 20 years allowed the determination of optimal geomorphology conditions for wintering. Ibex presence ranged from 1300 to 2800 m altitude, from 30 to 45° slope, and from 90 to 203° exposition. As relations between ibex presence and vegetation were hypothesized, the botanical composition of wintering areas was surveyed using the Daget & Poissonet (1969) point-quadrat method. Vegetation types were identified by Cluster analysis (Cavallero et al., 2007) and Pastoral Values calculated subsequently according to Daget & Poissonet (1972). The spatial distribution of the vegetation types was analysed by means of a $\chi 2$ test.



Results - Results confirmed a significant role of vegetation in defining animal predilection for particular areas. The ibex preferred areas used by domestic herbivores in which there is a higher variability of vegetation types. In fact, different vegetation types are essential to meet wild animal needs in adverse seasons. The thermic condition types (dominated by *Sesleria varia*, *Onobrychis montana*, *Festuca* gr. *ovina*, or *Brachypodium rupestre*), which generally spread on the mountainsides with the highest insolation, are used by the ibex in spring, due to the earlier snow thaw. The intermediate condition types (dominated by *Poa violacea*, *Avenella flexuosa*, *Carex sempervirens*, *Trifolium alpinum*, or *Phleum alpinum*) are used subsequently when animals need more energy to face the winter loss of reserves. The snowbed condition types (dominated by *Salix herbacea* or *Carex foetida*), which have the lowest surfaces in the study area, are mainly used in summer during young weaning, being this period vital for their growth.

Discussion - By analysing vegetation data, we could provide pointers for the management of herds and flocks in summer to improve vegetation composition and, consequently, to optimise the relationships between domestic and wild animals in respect of the EEC Directive 92/43/CEE. In fact, due to the multiple impacts of livestock on vegetation (i.e. defoliation, dung deposition, trampling), grazing may be considered a valid tool in land management, providing benefits for both the herbivore groups. Different interventions in grazing management can be proposed depending on the objectives. In general a rational grazing, with balanced defoliation and dung deposition, is needed to maintain the vegetation types. In particular, a transfer of fertility, with defoliation higher than dung deposition, is suggested to maintain legume plant presence; an extensive sheep grazing helps preserving vegetation types of thermic and intermediate conditions where access is difficult for cattle; overnight or daytime rest paddocks for grazing animals are necessary on pastures needing a quick increase in fertility; a manual harvest of nitrophilous plant species helps in restoring degraded vegetation; reducing as possible domestic animal movements is however needed to assure continuity of suitable winter areas for wild animals feeding. In the study area, for each intervention a priority scale (from 5, low priority, to 1, high priority) was suggested. Finally, looking at the multifunctionality of the SCI and in order to increase its carrying capacity in favour of the ibex population growth, breeding based on a direct removal of grass is a positive prototype of anthropic activity in an alpine environment, as it favours the preservation of the wealth and beauty of alpine flora and fauna.



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