

Determination of the Mallorcan feral goat's diet through microhistological analysis

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CONCLUSIONS

We can confirm that na Burguesa's feral goats include in their diet most of the vegetal species present in the area, specially woody shrubs in a high percentage, and we can conclude that the innate feeding behavior of this goats will be useful in order to reduce the combustible biomass of the forests.

We detected evident variations in the intake of some plant species through the year, proving these goat's ability to select food.

INTRODUCTION

Grasses and shrubs play an important role in the propagation of wildfire. The abundance of these vegetal forms is positively correlated with the propagation rate (Agee et al. 2000, Diamond et al. 2009). Several studies have proved that, due to their feeding behaviour, goats are the most trained ruminants to clear the forest, helping to create and mantein fire-breaks. (Torrano i Valderrabano 2005, Dopazo et al. 2009).

OBJECTIVES

The goal of this study is to determine of which plant species and in which percentage the Mallorcan feral goat (*Capra hircus*) feeds itself in the na Burguesa mountain area, and also to detect possible variations of this diet throughout the seasons, and whether the shepherding of this goat could be used to reduce the combustible biomass of the forests.

METHODS

The determination of the Mallorcan feral goat's diet was done through microhistological analysis (Stewart 1967) of the feces taken in the na Burguesa mountains. Samples taken in February, May, August and October were analyzed to provide a vision of the diet throughout the seasons.

To prepare the samples before their analysis, it was necessary to digest the organic matter with a solution of nitric acid (HNO₃).

The identification of epidermic fragments on the microscope, its done with the help of an epidermis collection of plant species of the area.

RESULTS

- The main component of the diet are shrubs (69,9%), followed by grasses (27,2%) and forbs (2,9%).
- The main species found in the diet are rockroses (*Cistus spp.*) and "càrritx" (*Ampelodesmos mauritanica*). In certain seasons, the wild-olive (*Olea europaea var. silvestris*), rosemary (*Rosmarinus officinalis*) and "llostó" (*Brachypodium retusum*) are present in a high percentage too.
- The collected data show evident variations in the intake of some plant species through the year.

Table 1. Mean of the percentage of epidermic fragments detected in the diet in every season

	WINTER	SPRING	SUMMER	AUTUMN
<i>Ampelodesmos mauritanica</i>	22,48	3,46	20,37	12,28
<i>Anthyllis cytisoides</i>	0,56	4,71	3,35	0,00
<i>Arbutus unedo</i>	1,41	2,79	3,26	0,10
<i>Asparagus sp</i>	0,00	2,69	0,28	0,10
<i>Asphodelus aestivus</i>	0,47	0,38	0,00	0,00
<i>Brachypodium retusum</i>	6,11	1,83	3,35	15,11
<i>Chamaerops humilis</i>	0,00	0,00	0,56	0,00
<i>Cistus sp</i>	28,41	24,21	16,65	33,63
<i>Erica multiflora</i>	3,76	0,67	2,33	1,36
<i>Globularia alypum</i>	1,60	1,63	2,05	3,51
<i>Juniperus oxycedrus</i>	0,47	0,10	0,00	0,00
<i>Olea europaea var. silvestris</i>	4,70	22,38	8,09	2,53
<i>Phillyrea angustifolia</i>	3,57	1,15	8,84	3,22
<i>Pinus halepensis</i>	3,67	1,73	1,95	1,85
<i>Pistacia lentiscus</i>	3,86	2,31	3,35	0,78
<i>Quercus coccifera</i>	2,54	1,34	6,60	1,27
<i>Rosmarinus officinalis</i>	3,20	3,17	5,12	14,42
<i>Smilax aspera</i>	0,38	8,55	1,30	0,00
Graminoides	6,87	7,49	5,21	4,29
Herbàcies no graminoides	2,73	4,71	2,05	1,36
Llenyoses	3,20	4,71	5,30	4,19

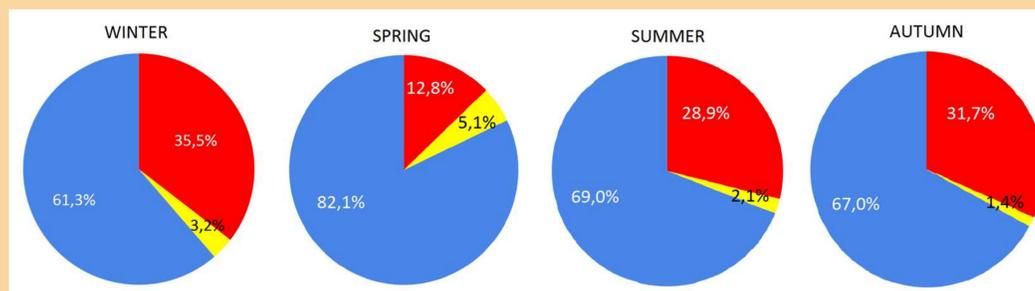


Figure 1. Evolution of the intake of grasses, shrubs and forbs through the year.



Figure 2. Mallorcan feral goat
Source: Jordi Bartolomé



Figure 3. Location of serralada de na Burguesa.
Source: wikicommons

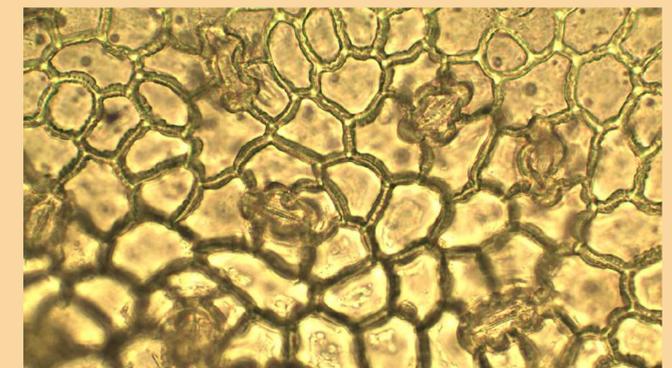


Figure 4. Epidermic fragment of *Globularia alypum*.
Source: Javier Pareja