

## INTRODUCTION

The Climate Change and the abandonment of farmlands are contributing to increase the risk of wildfires. One management tool used to reduce fuel loads is controlled livestock grazing.

## OBJECTIVES

The aim of this study is to evaluate the effect of Pottoka horses for the control of the pinewood undergrowth vegetation in the Mediterranean basin.



Figure 1: Pottoka horses grazing in study area. Source: Jordi Bartolomé.

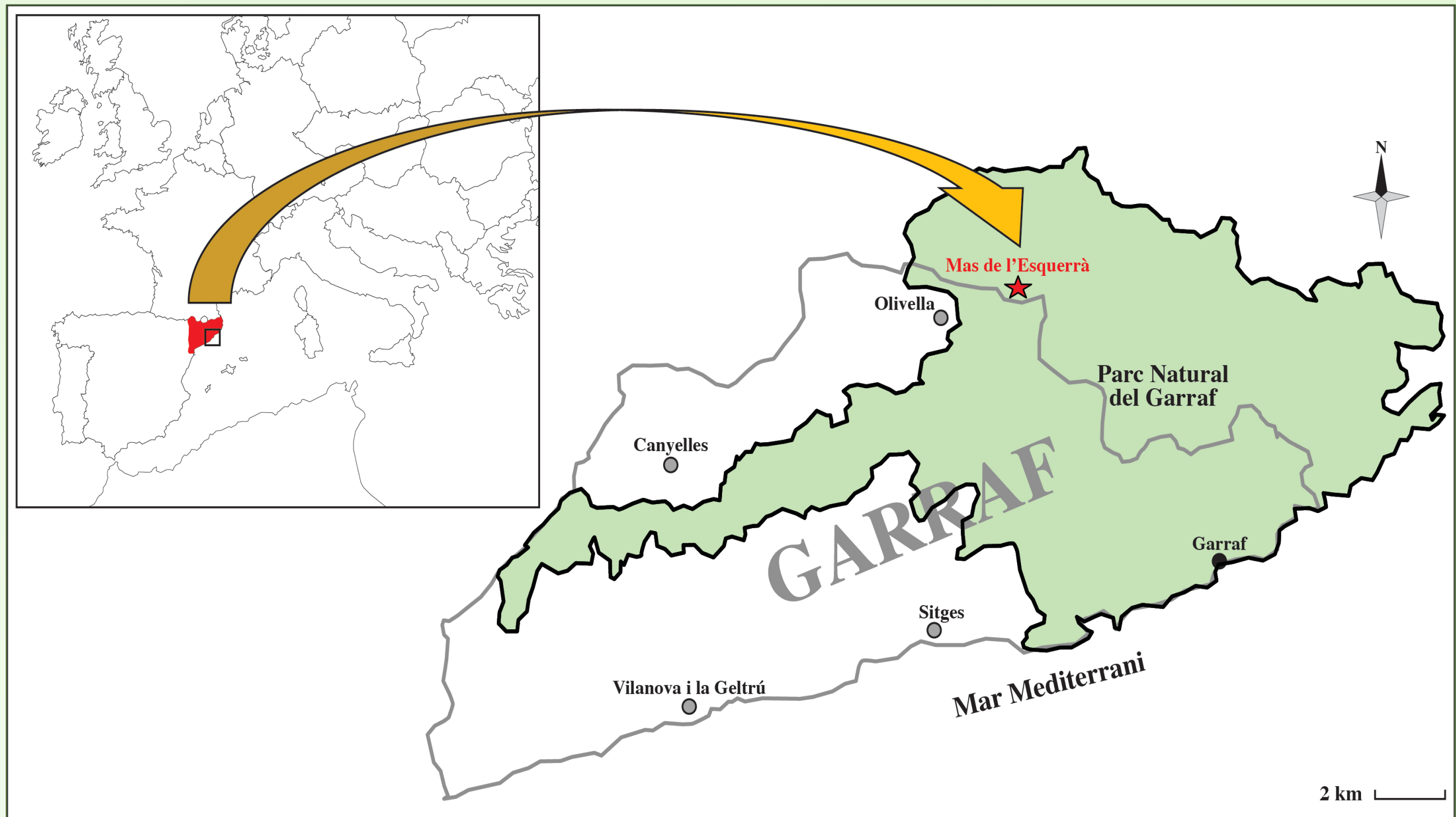


Figure 2: Location of Mas de l'Esquerrà within the Garraf Natural Park.

## MATERIAL & METHODS

- **Study area:** Closed pinewood of 30 ha located in Mas de l'Esquerrà (Garraf Natural Park) where 7 Pottoka horses were introduced.
- **Collection and treatment of samples:**
  - Line-intercept method of 50 m was employed to determinate plant cover.
  - 12 faecal samples were collected from 3 different horses at each season during the 2018-2019.
  - Micro-histological analysis was used to determinate the diet composition ➡ 200 epidermal fragments/sample
- **Data processing:** descriptive statistic, similarity index (Kulczynski), preference index (Ivlev) and analysis of variance (ANOVA).

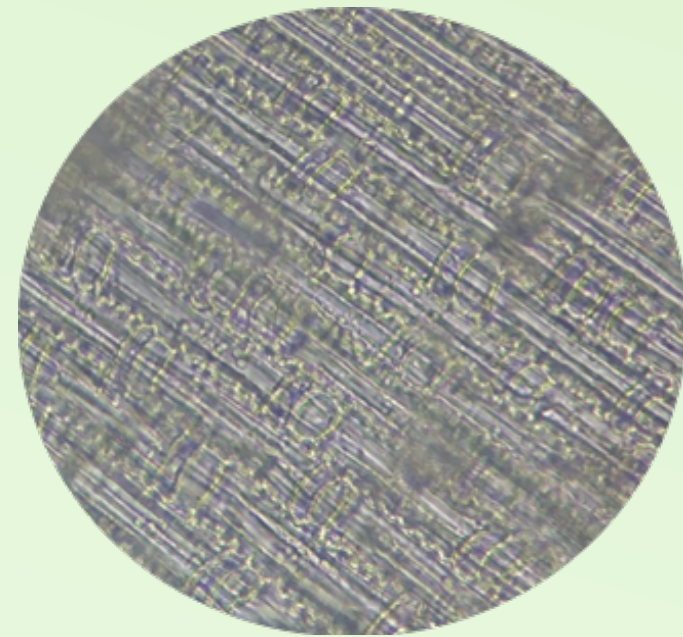


Figure 3: Epidermal fragment of *Ampelodesmos mauritanica*. 400x

## RESULTS

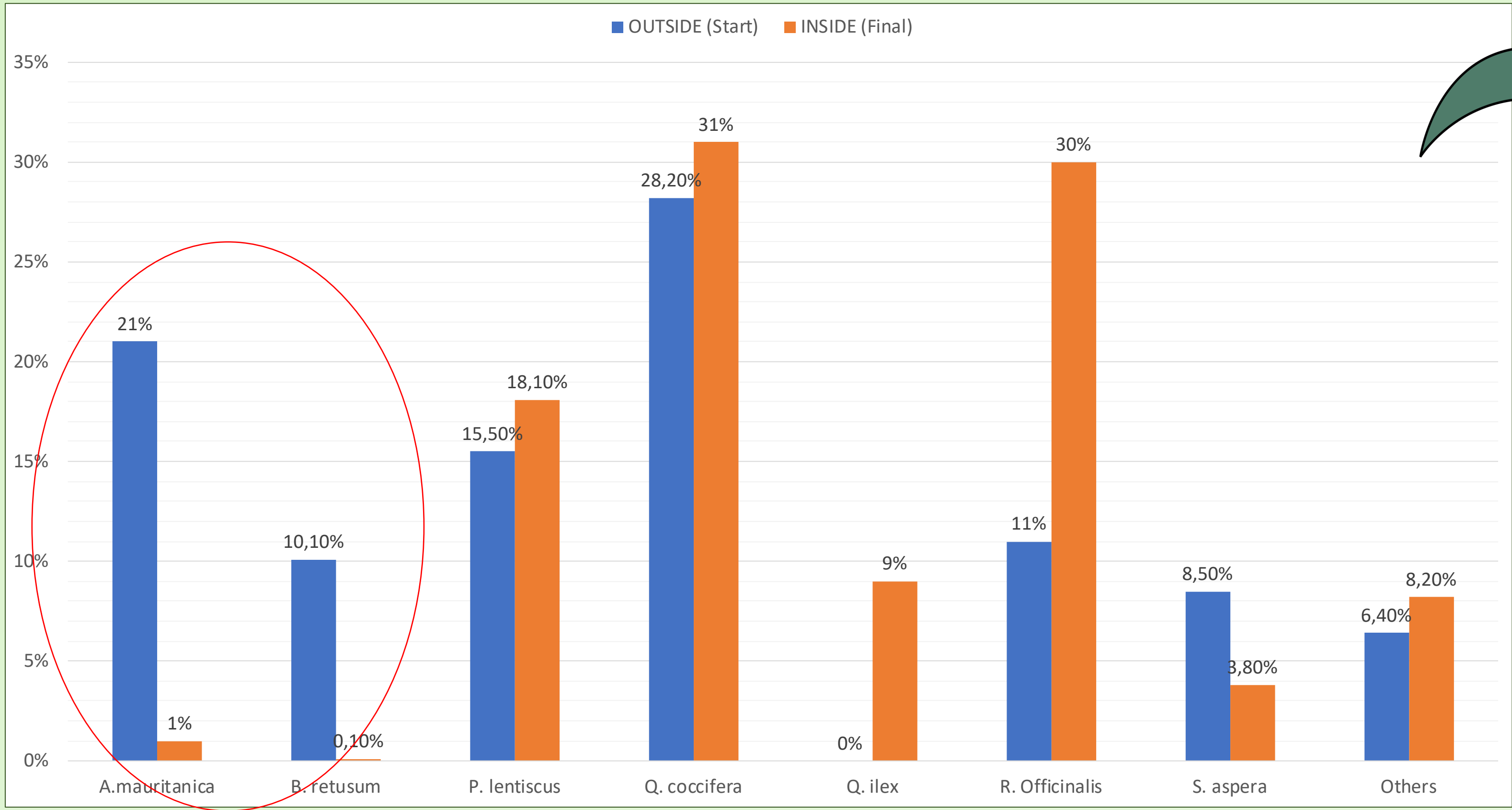


Figure 4: Percentage of relative plant cover.

Only 14 species were detected in feces and were classified in three groups:

- **Graminoids:** *A. mauritanica*, *B. retusum* and *Carex sp.*
- **Woody:** *C. vitalba*, *D. hirsutum*, *E. multiflora*, *H. helix*, *J. oxycedrus*, *O. europeae*, *P. halepensis*, *Q. coccifera*, *Q. ilex* and *R. alaternus*.
- **Herbaceous:** *R. peregrina*.

Kulczynski's index

- Start 33 %
- Final 18,4 %

Table 1: Selection values for the different ingested species. The data is Ivlev index.

SPECIES	OUTSIDE (Start)	INSIDE (Final)
<i>Ampelodesmos mauritanica</i>	0,3	0,9
<i>Brachypodium retusum</i>	0,4	1
<i>Dorycnium hirsutum</i>	0	0
<i>Erica multiflora</i>	1	1
<i>Hedera helix</i>	1	1
<i>Pinus halepensis</i>	0,7	0,8
<i>Quercus coccifera</i>	-1	-0,7
<i>Quercus ilex</i>	0	0,1
<i>Rhamnus alaternus</i>	0,7	0,9
<i>Rubia peregrina</i>	0	0

## Season effect on diet

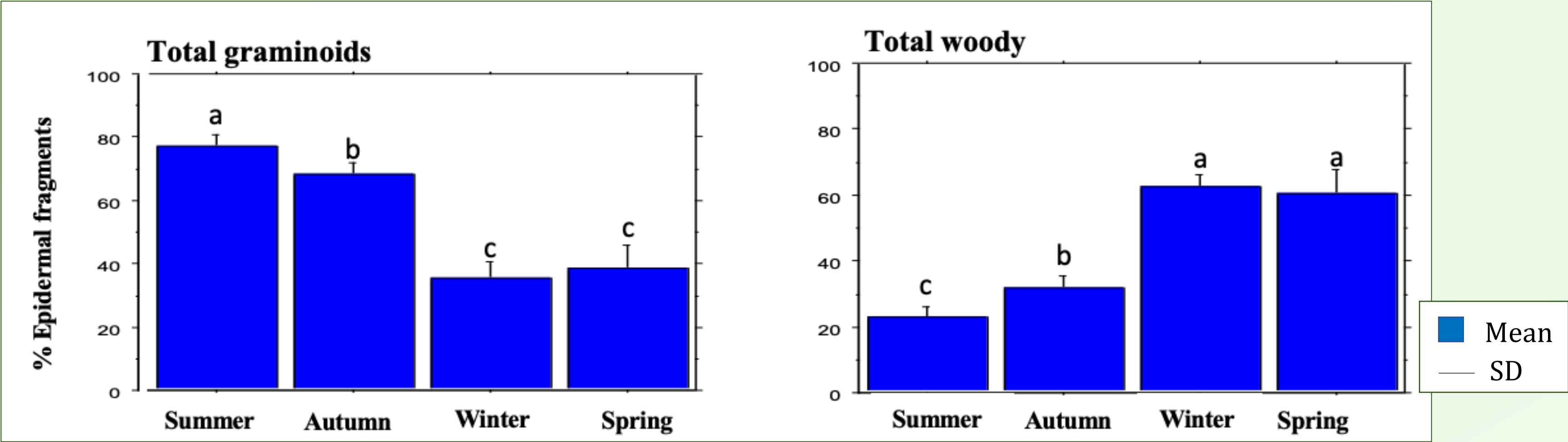
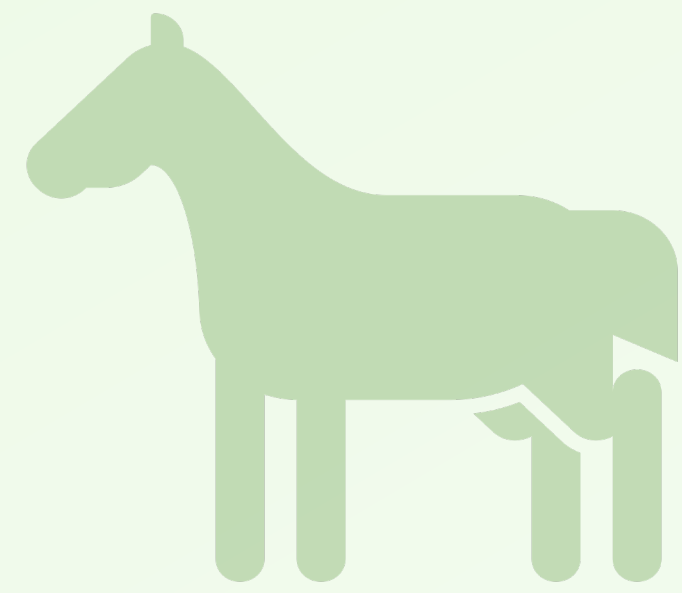


Figure 5: Percentage of graminoids and woody species ingested in each season. Different letters (a,b,c) represent significant difference ( $p < 0,05$ ).

- ➡ Preferred
- ➡ Rejected
- ➡ Indifferent



## CONCLUSIONS

- ✓ Small size horses, as Pottoka breed, can be useful to control fine fuel of the pinewood undergrowth, such as graminoids species.
- ✓ Wildfire prevention could be improved by using mixed flocks that include some browser herbivores, such as goats, in addition to horses.