FIREBREAK MAINTENANCE WITH EQUINES IN SERRA DE TRAMUNTANA MOUNTAINS (MALLORCA, UNESCO WORLD HERITAGE)

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INTRODUCTION
The problem

FLAMMABLE MATERIAL + VISITORS + HOT AND DRY SUMMERS

INCREASE OF WILDFIRE RISK
INTRODUCTION

The solution: Firebreaks?

- Steep places?
- How much does it cost?

Alternatives?
OBJECTIVES

To assess the **effectivity** of using herds of mixed **equine species** at high stock density **to maintain firebreaks** in Mediterranean Mountain areas
MATERIAL AND METHODS

The Place

West Mediterranean Basin

Galatzó (39.6N, 2.5E)
MATERIAL AND METHODS

The Climate

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Precipitation (mm)</td>
<td>355</td>
<td>566</td>
</tr>
<tr>
<td>Mean Temperature (ºC)</td>
<td>16.7</td>
<td>16.4</td>
</tr>
<tr>
<td>Drought period</td>
<td>Jun-Aug</td>
<td>Apr-Jul</td>
</tr>
</tbody>
</table>
MATERIAL AND METHODS

Firebreak maintenance: The stockyards

- High stock density
- 2000 m²
- Mixed equine herds
- 3-7 days
MATERIAL AND METHODS

Biomass consumption

- Dry biomass
- 4m$^2$/plot
- 4 plots/stockyard

- Botanic composition
- 8 Transects of 20m$^2$
RESULTS AND DISCUSSION
Biomass consumption and stockyard traits

<table>
<thead>
<tr>
<th>Season</th>
<th>Nº of days</th>
<th>Nº of mules</th>
<th>Nº of horses</th>
<th>Nº of donkeys</th>
<th>Stock density</th>
<th>Biomass consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
<td>5.1 ± 0.63ab</td>
<td>2.0 ± 0.00b</td>
<td>5.0 ± 0.00b</td>
<td>35.2 ± 1.27b</td>
<td>213.3 ± 6.87b</td>
<td>0.52 ± 0.055a</td>
</tr>
<tr>
<td>Summer</td>
<td>3.5 ± 0.96a</td>
<td>1.7 ± 0.21b</td>
<td>3.3 ± 1.05b</td>
<td>35.3 ± 2.95b</td>
<td>201.7 ± 21.08b</td>
<td>0.44 ± 0.135a</td>
</tr>
<tr>
<td>Autumn</td>
<td>6.8 ± 0.48b</td>
<td>1.0 ± 0.00a</td>
<td>0.0 ± 0.00a</td>
<td>26.0 ± 0.00a</td>
<td>135.0 ± 0.00a</td>
<td>0.51 ± 0.079a</td>
</tr>
<tr>
<td>Winter</td>
<td>5.5 ± 0.50ab</td>
<td>1.0 ± 0.00a</td>
<td>0.0 ± 0.00a</td>
<td>26.0 ± 0.00a</td>
<td>135.0 ± 0.00a</td>
<td>0.33 ± 0.055a</td>
</tr>
</tbody>
</table>

- High stock densities
- Biomass consumption was high regardless stock density, nº of days or season
- Donkeys performed the best
High Biomass Consumption
Lower soil cover after regrowth
RESULTS AND DISCUSSION

Soil cover and Botanic composition

- **Ampelodesmos mauritanica** the most consumed
- Non-vegetated areas increased from 28% to 76%
- **P. lentiscus** and **Ch. humilis** were also reduced
CONCLUSIONS

• *Ampelodesmos mauritanica* biomass consumption was high and the proportion of this species was significantly reduced

• Equine grazing at high stocking densities for short periods appeared to be an efficient method in firebreak maintenance in Mediterranean rangelands

• Future works:
  • Grazing schedule and economic viability (How long and how often)
  • Plant biodiversity before and after grazing
  • Animal health and welfare
• THANK YOU VERY MUCH