Trends and threats to permanent grasslands and pastures in mainland Portugal

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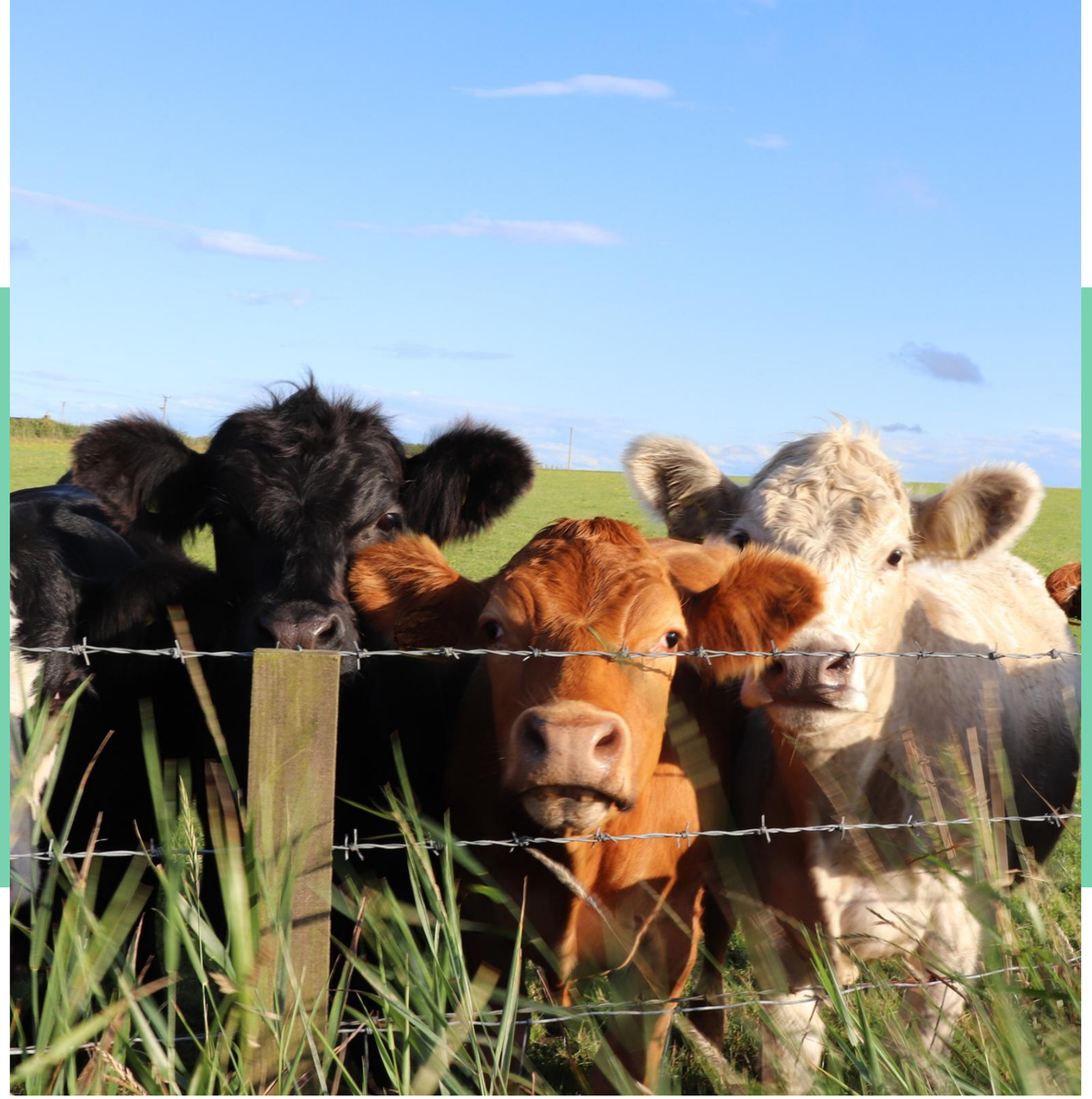

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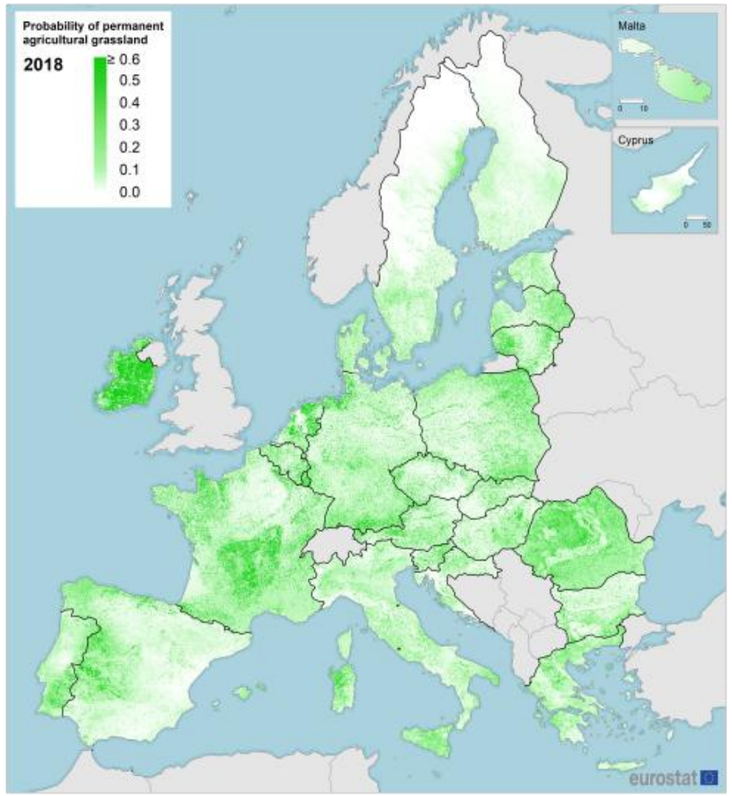
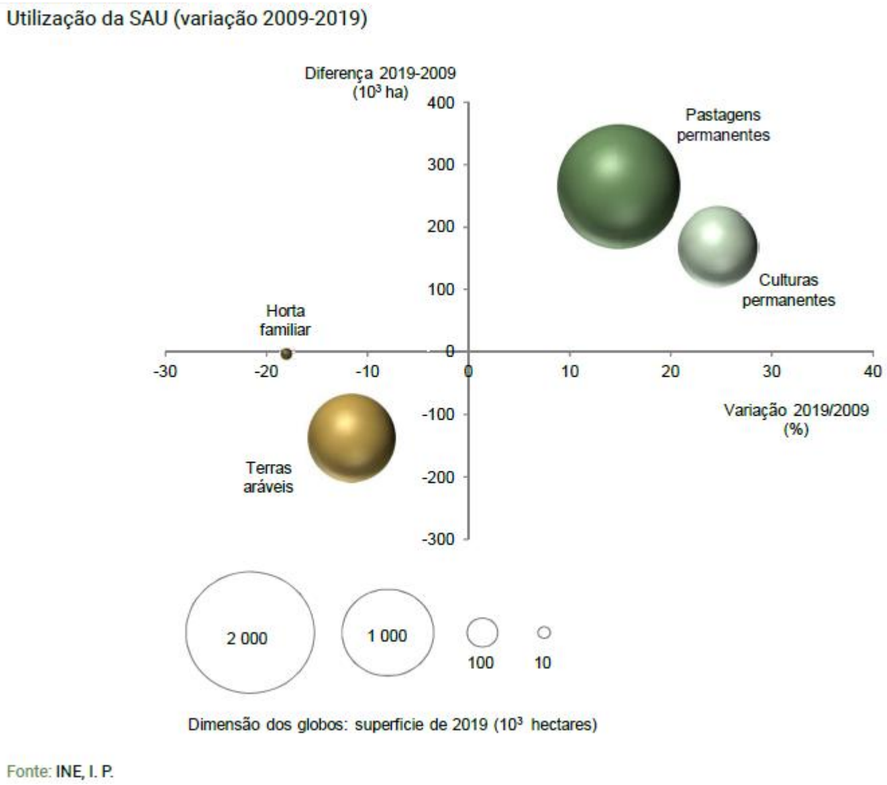
Permanent grasslands and pastures in the EU and Portugal



Permanent grasslands and pastures correspond to **13% of the EU**'s area



Fonte: INE, I. P.

Biggest agricultural land cover in Portugal: 51,7% SAU

Grassland degradation

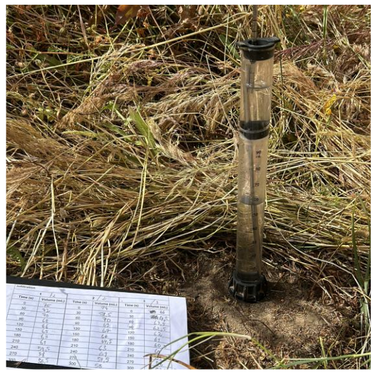
Grassland is considered degraded if the **supply of multiple ecosystem services falls short** of that **demanded** by grassland **stakeholders**.

Animal feed

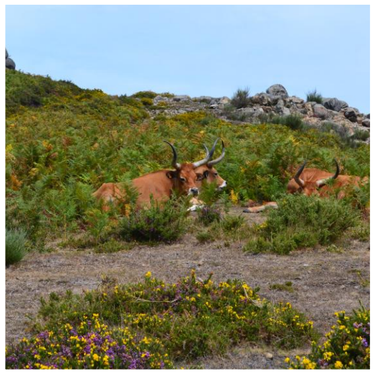
Biodiversity

Climate regulation

Water purification



Cultural values



Bardgett, R. D., Bullock, J. M., Lavorel, S., Manning, P., Schaffner, U., Ostle, N., Chomel, M., Durigan, G., L. Fry, E., Johnson, D., Lavallee, J. M., Le Provost, G., Luo, S., Png, K., Sankaran, M., Hou, X., Zhou, H., Ma, L., Ren, W.,...Shi, H. (2021). Combatting global grassland degradation. *Nature Reviews Earth & Environment, 2(10), 720-735. https://doi.org/10.1038/s43017-021-00207-2*

Main drivers of global grassland degradation

Biophysical

Declining rainfall

Droughts

Wildfires

Socioeconomic factors

Overgrazing

Land use change

Woody plant encroachment

Overview

Extent

1) Are permanent grasslands and pastures in decline in mainland Portugal?

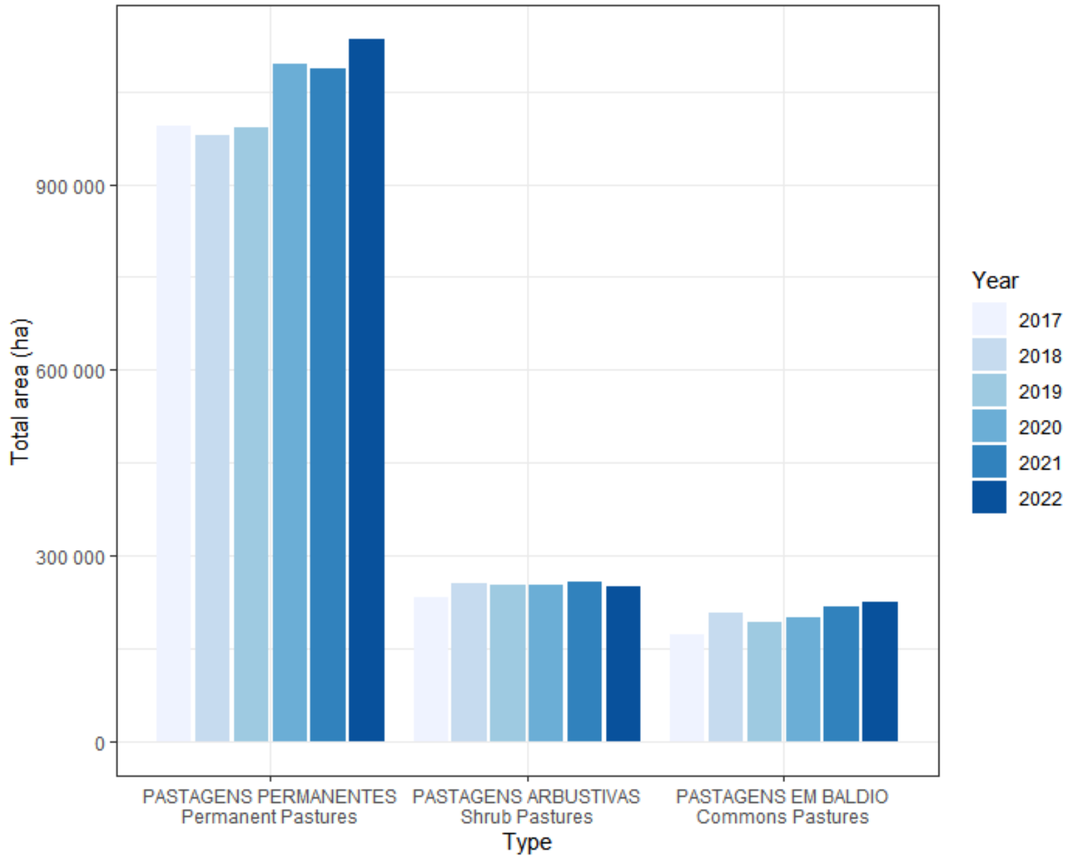
Socio-economic related threats

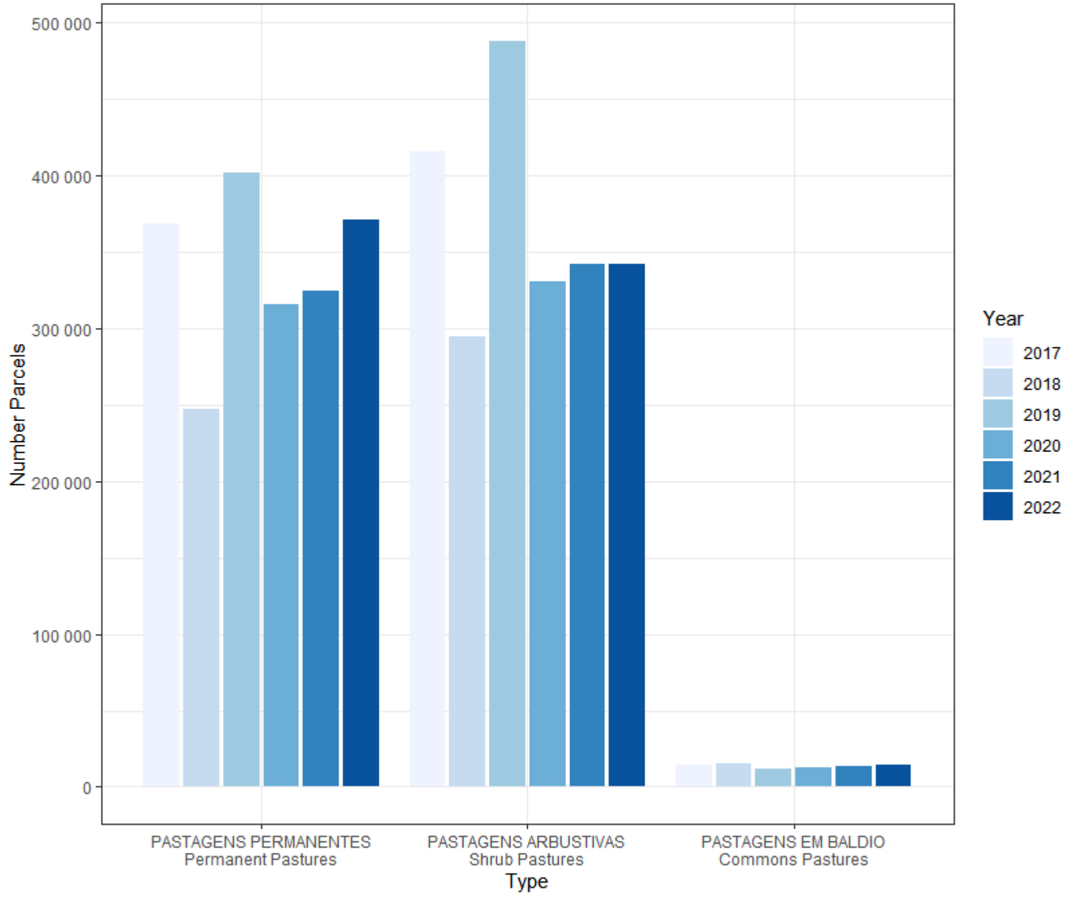
2) How are permanent grasslands and pastures managed?
3) How intensively are permanent grasslands and pastures managed?

Abiotic related threats

4) How resilient are permanent grasslands to recent climate change?

The extent of permanent grasslands is increasing





Dados IFAP

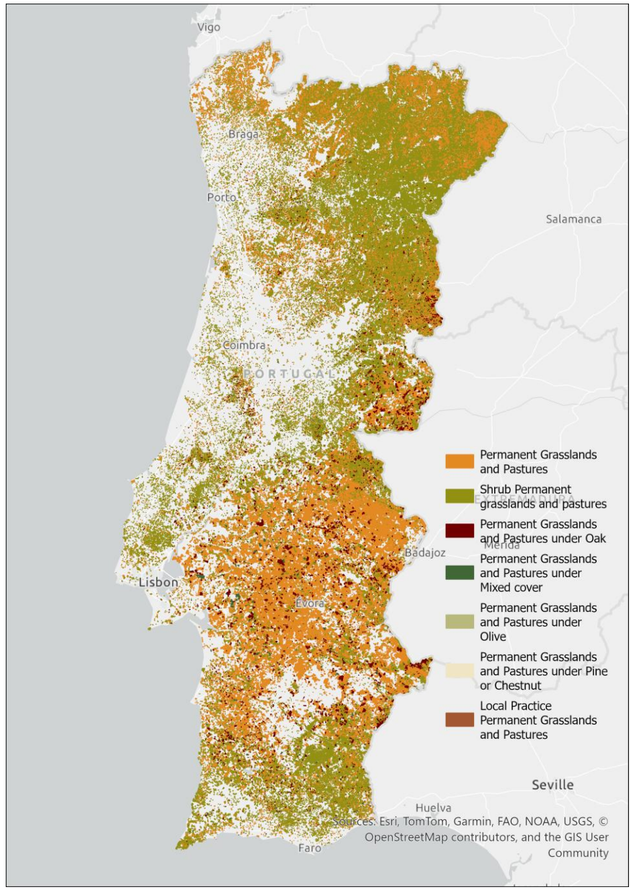
Permanent grasslands are concentrated in the South while the North is dominated by commons

North

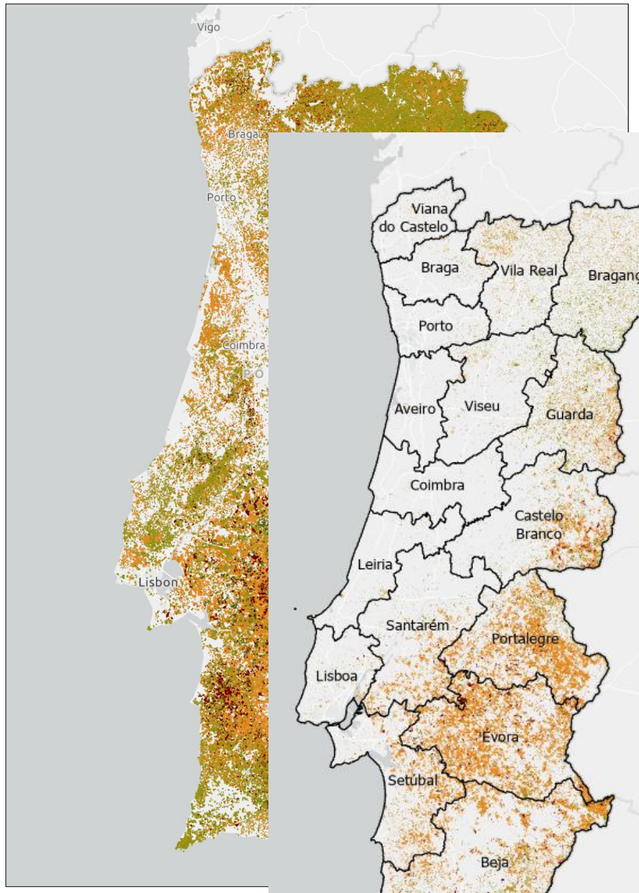
South

Dados IFAP

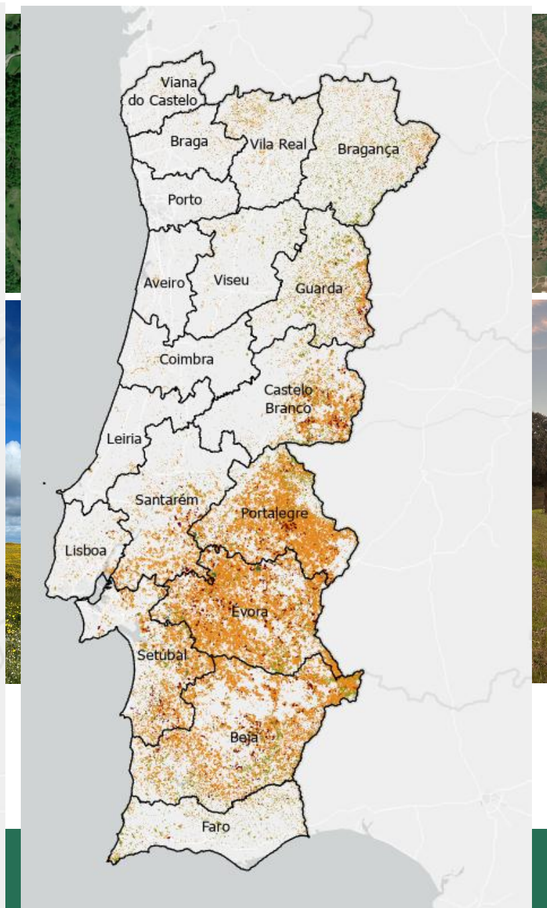
Geographical distribution of permanent grasslands and pastures



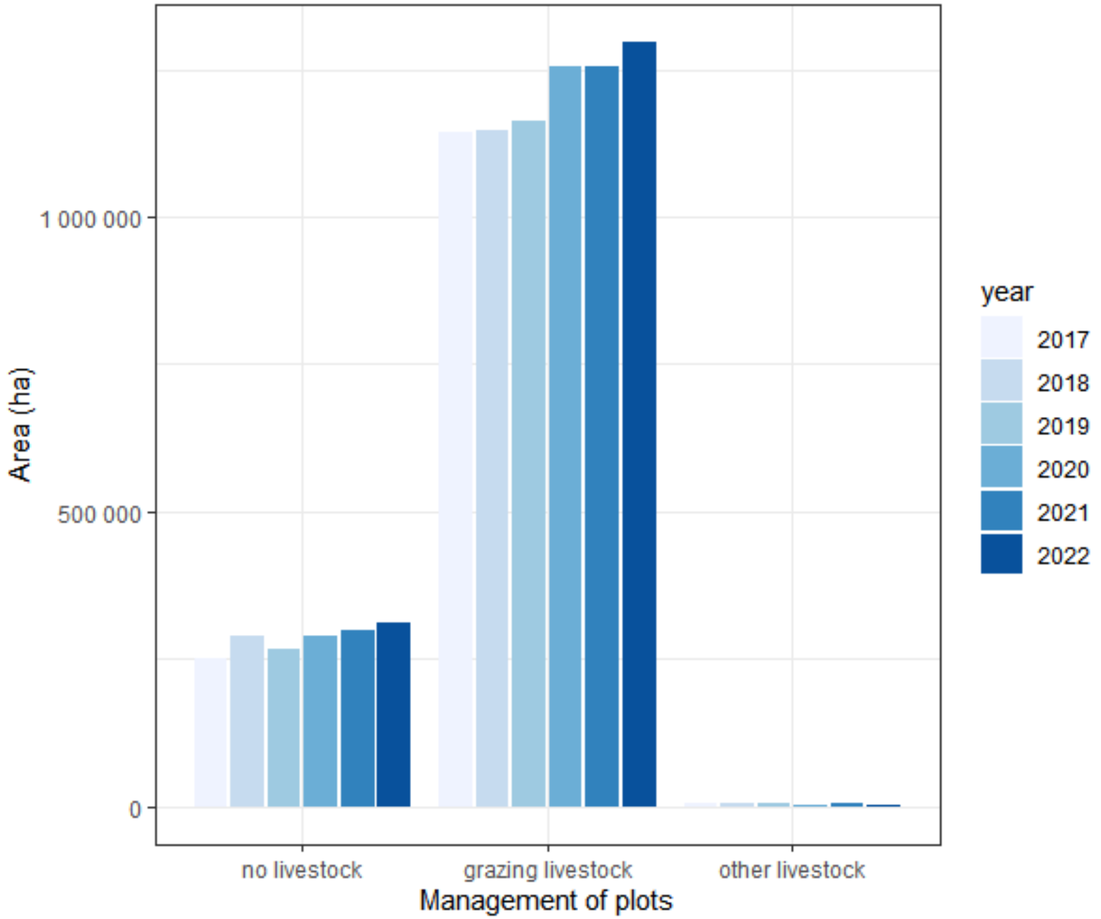
Dados IFAP 2017

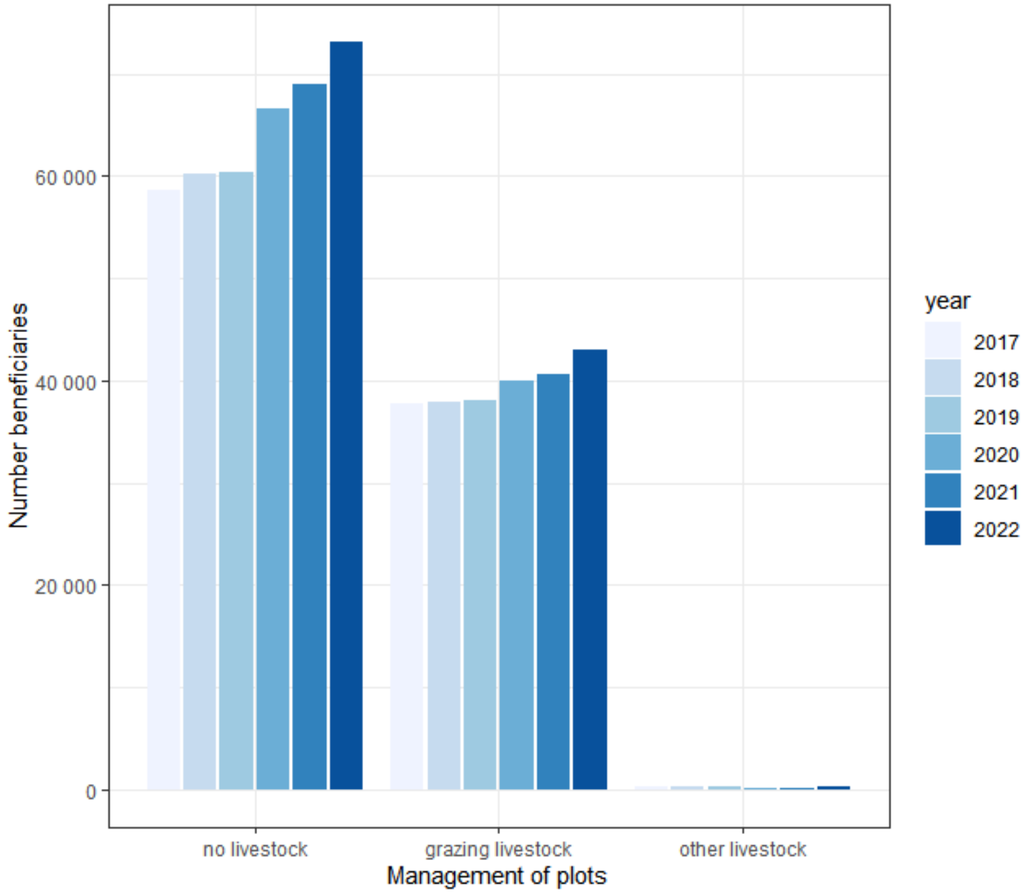


Dado

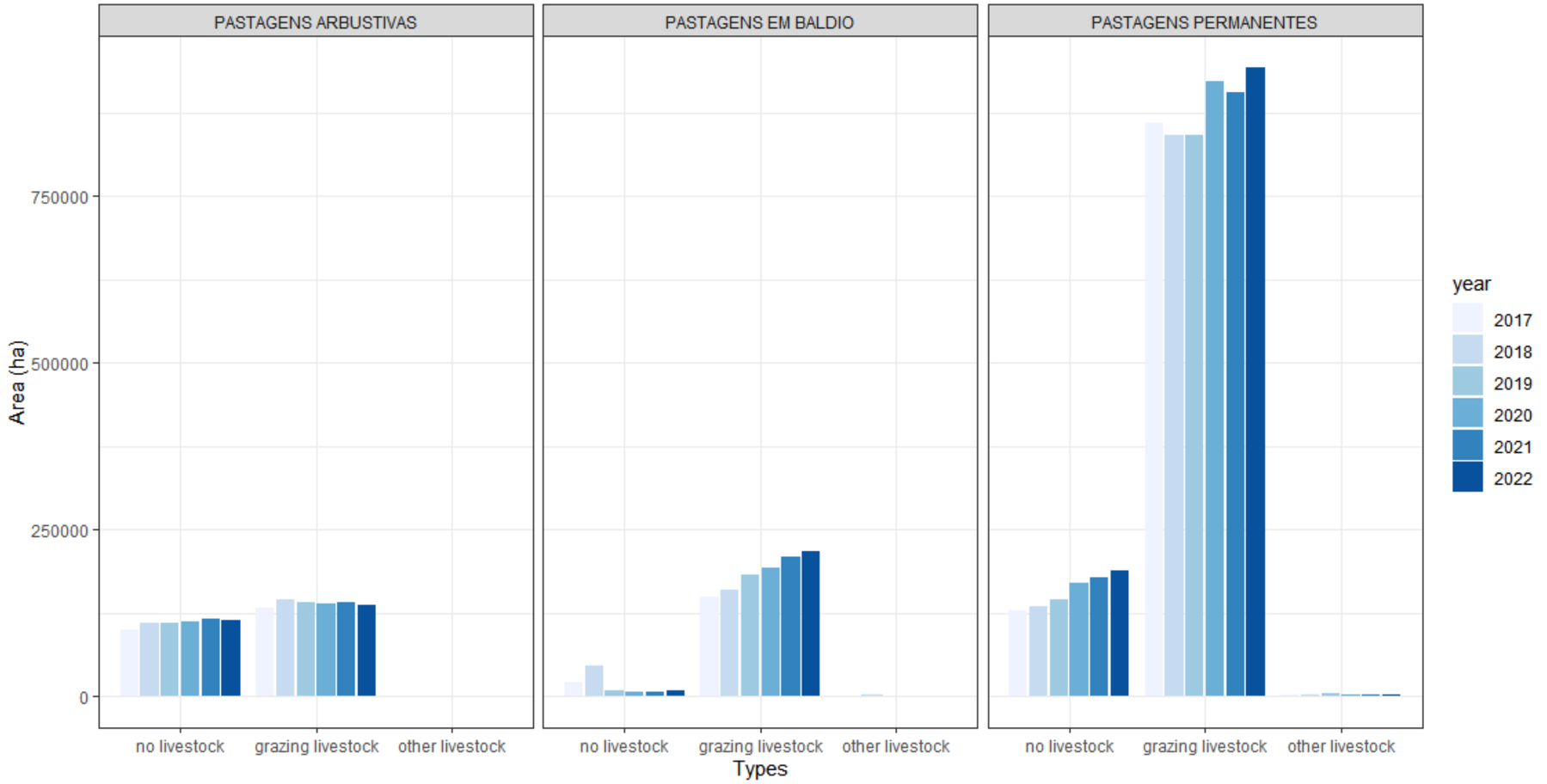


Most permanent grasslands are grazed, but most beneficiaries do not have livestock

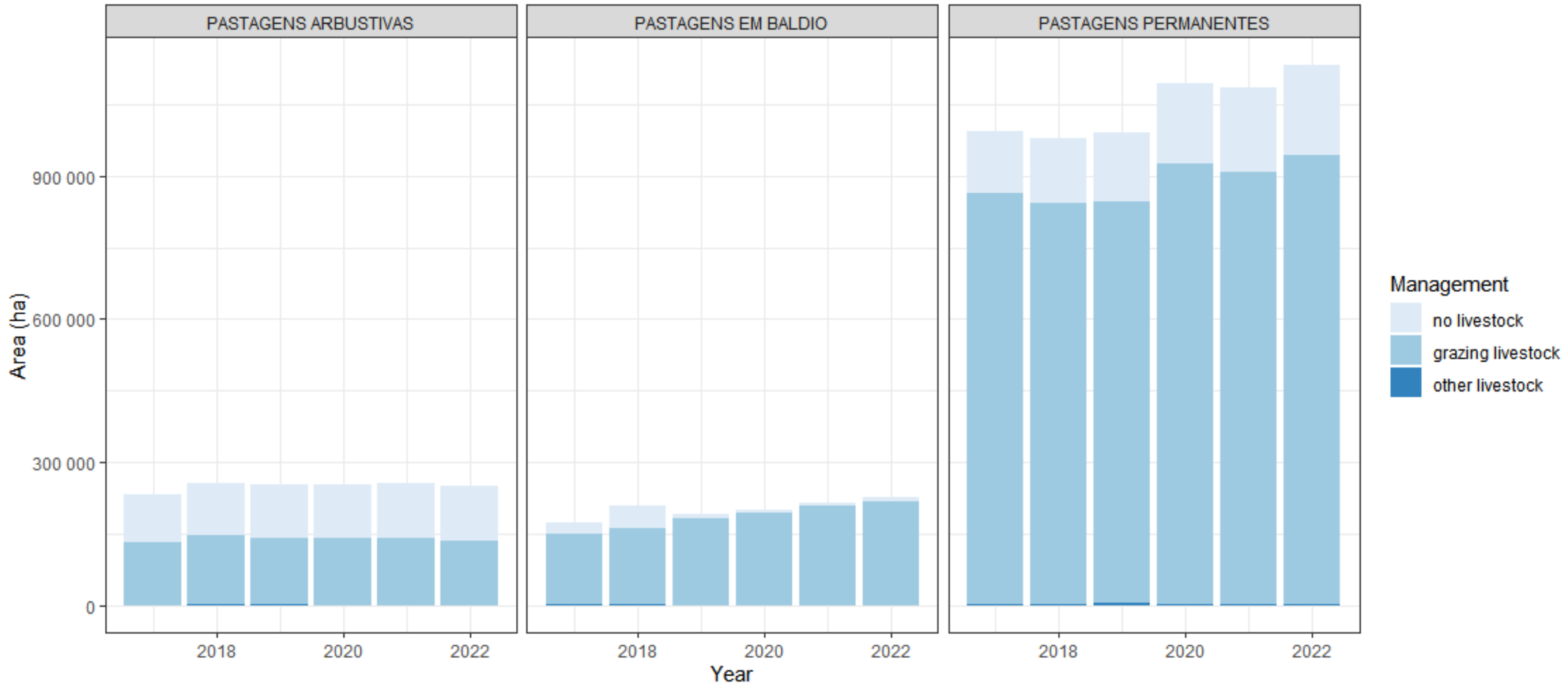




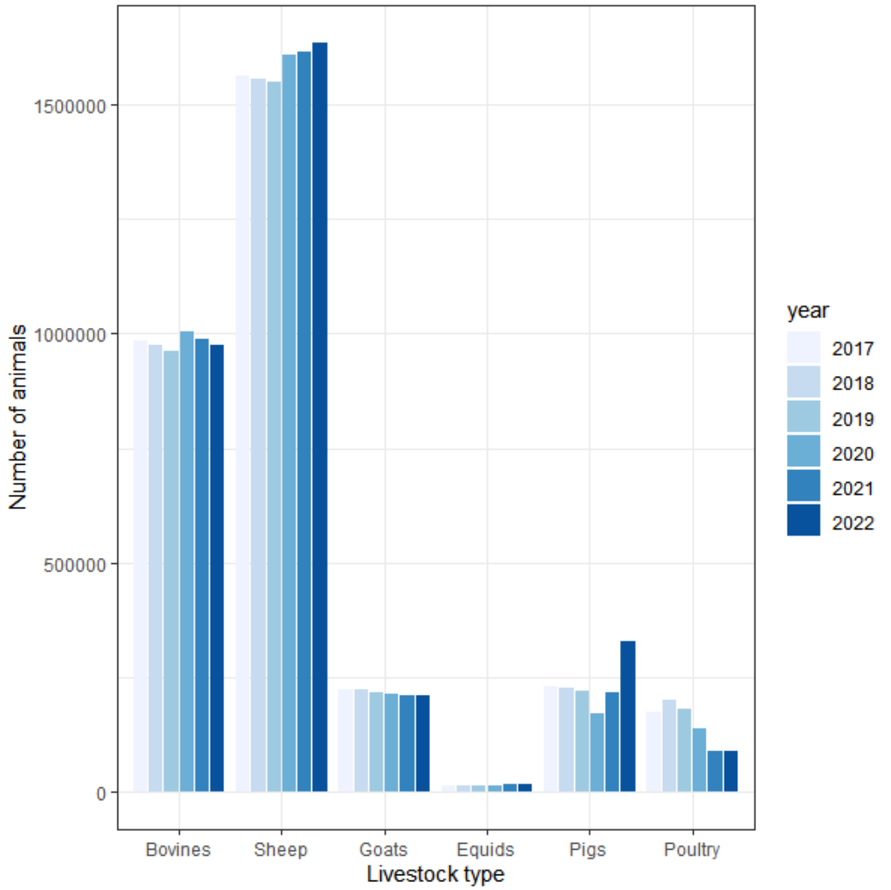
Management tendencies differ between permanent and shrub grasslands

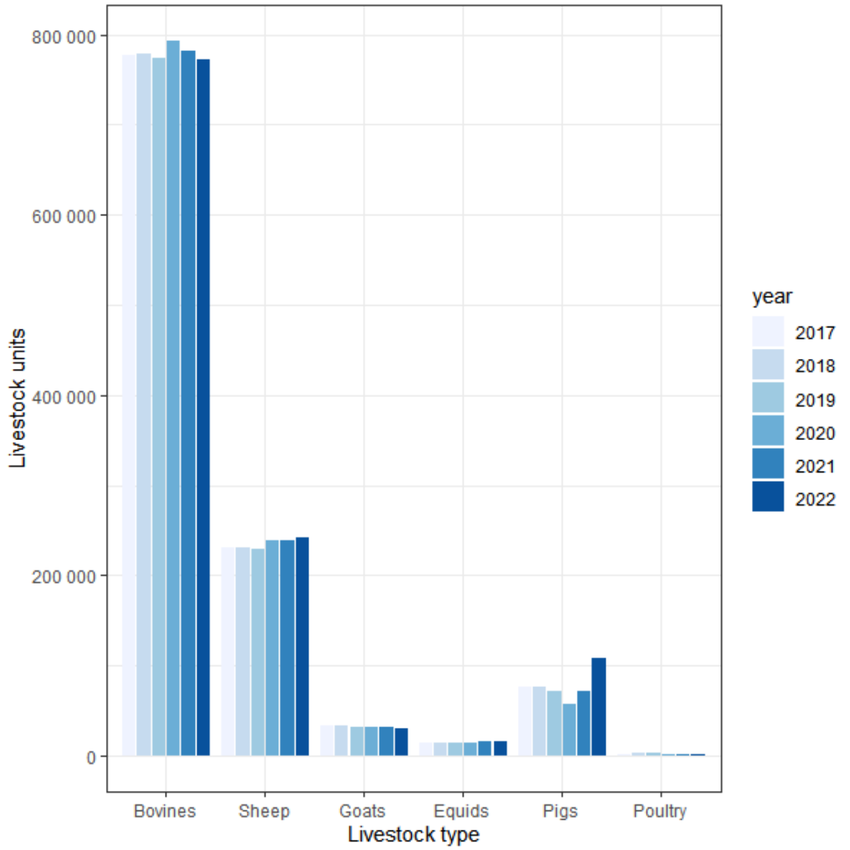


Management differs between permanent and shrub grasslands

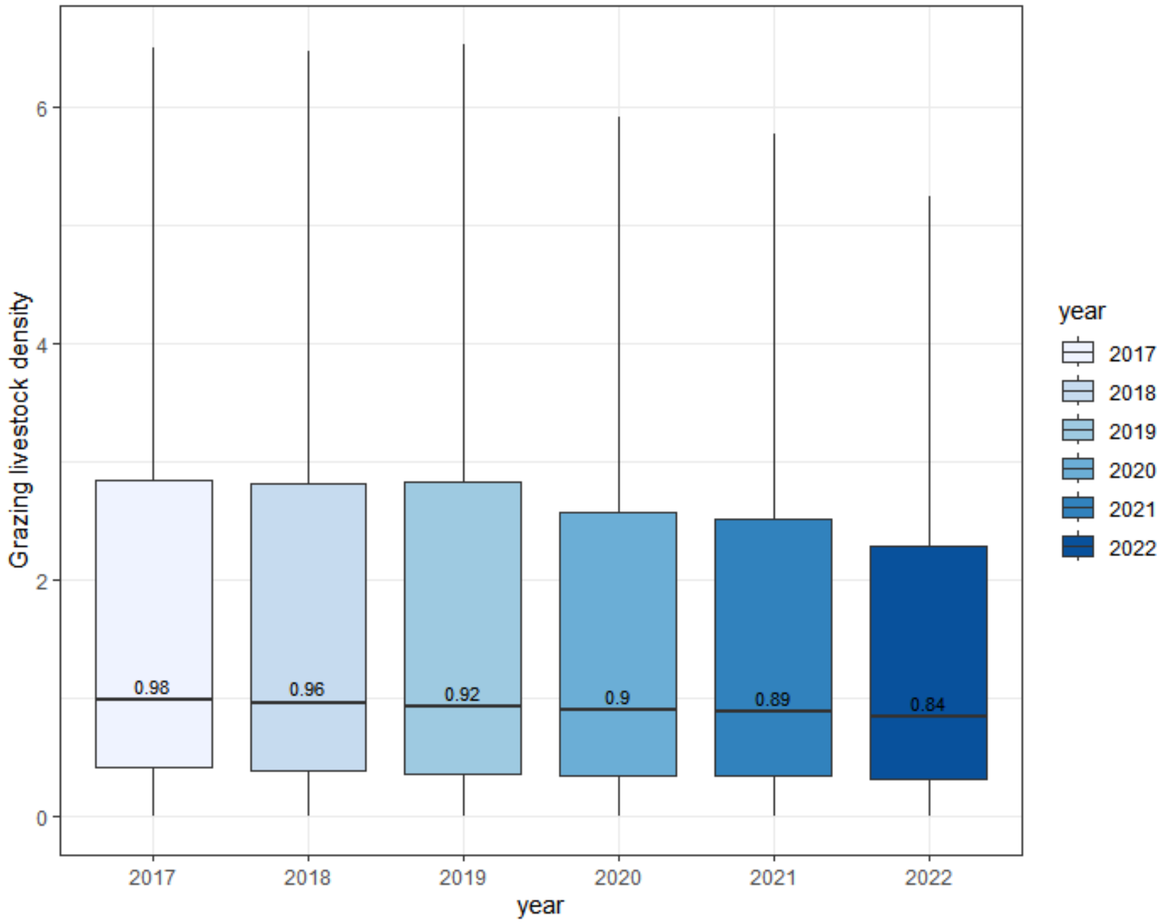


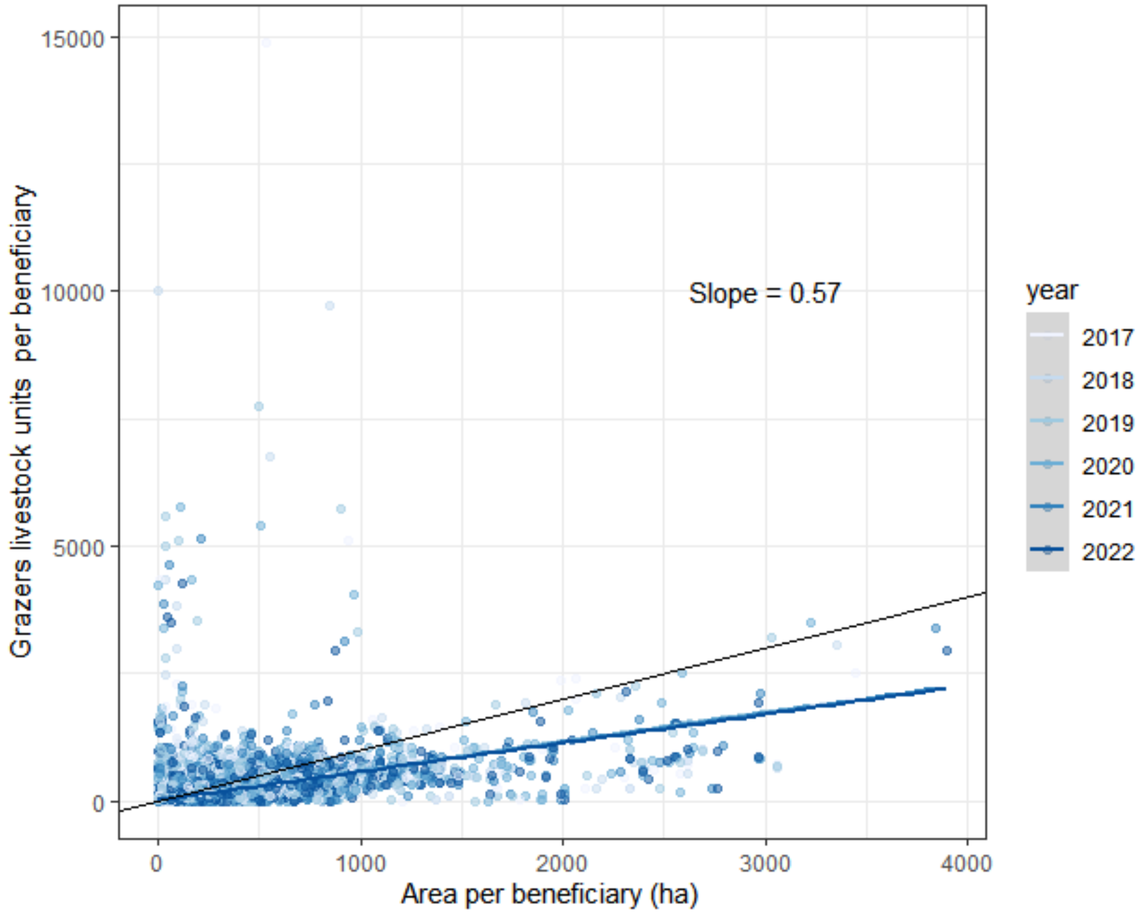
Sheep are more abundant, but bovines represent higher feed requirements



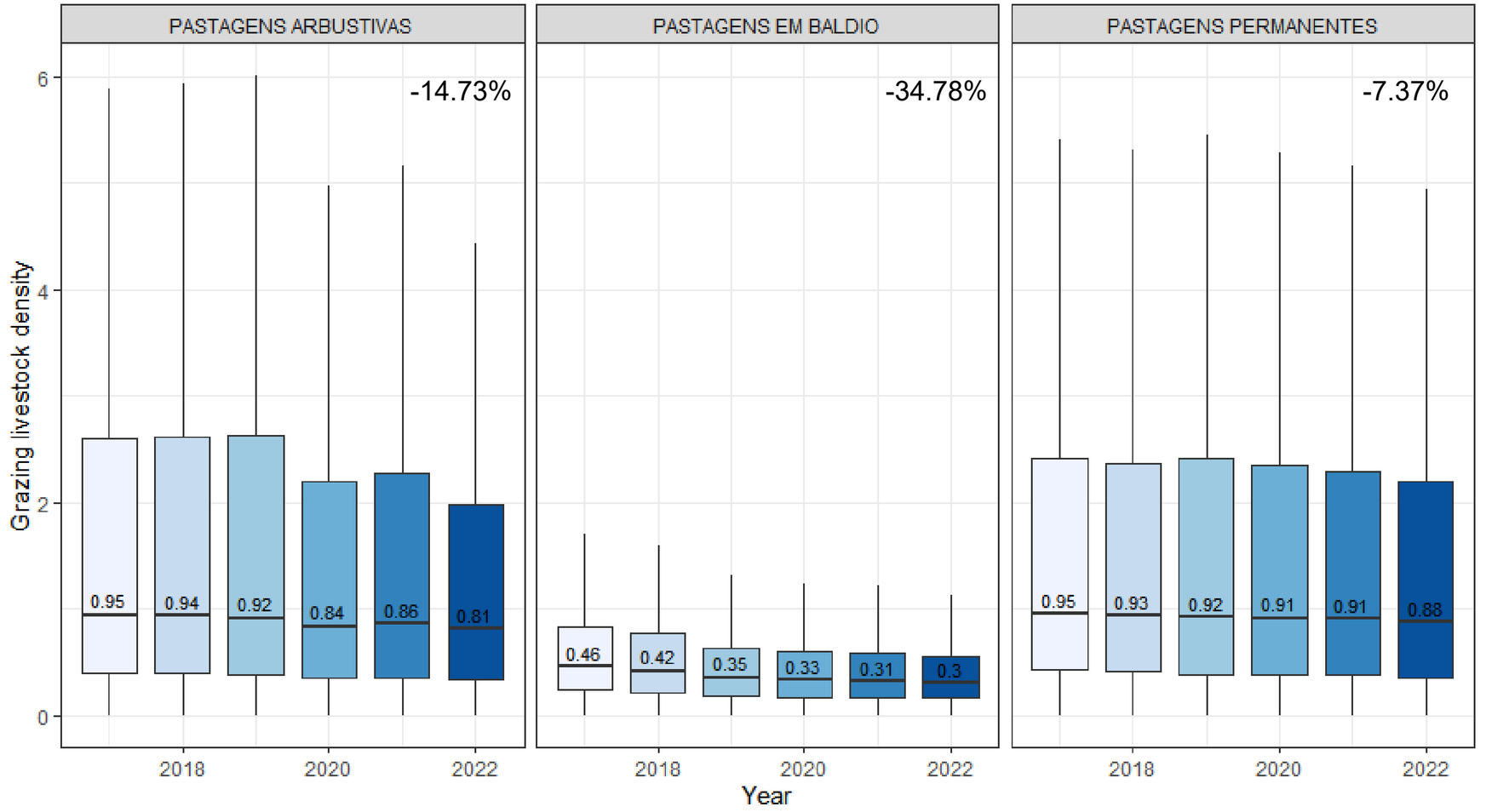


Grazing livestock density shows decline

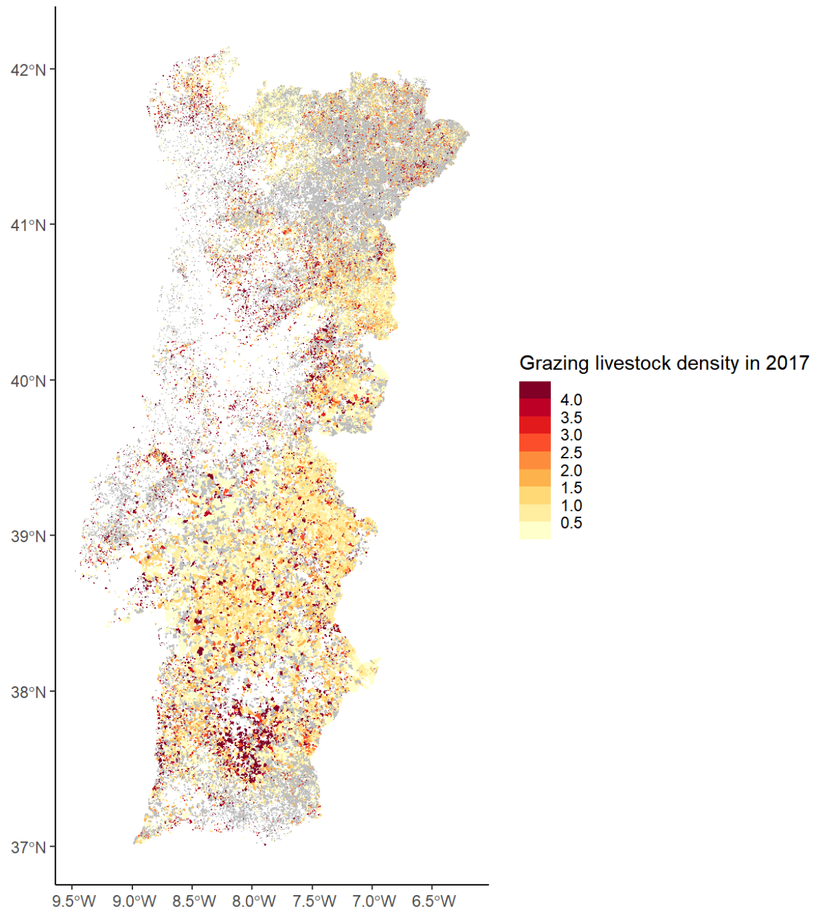


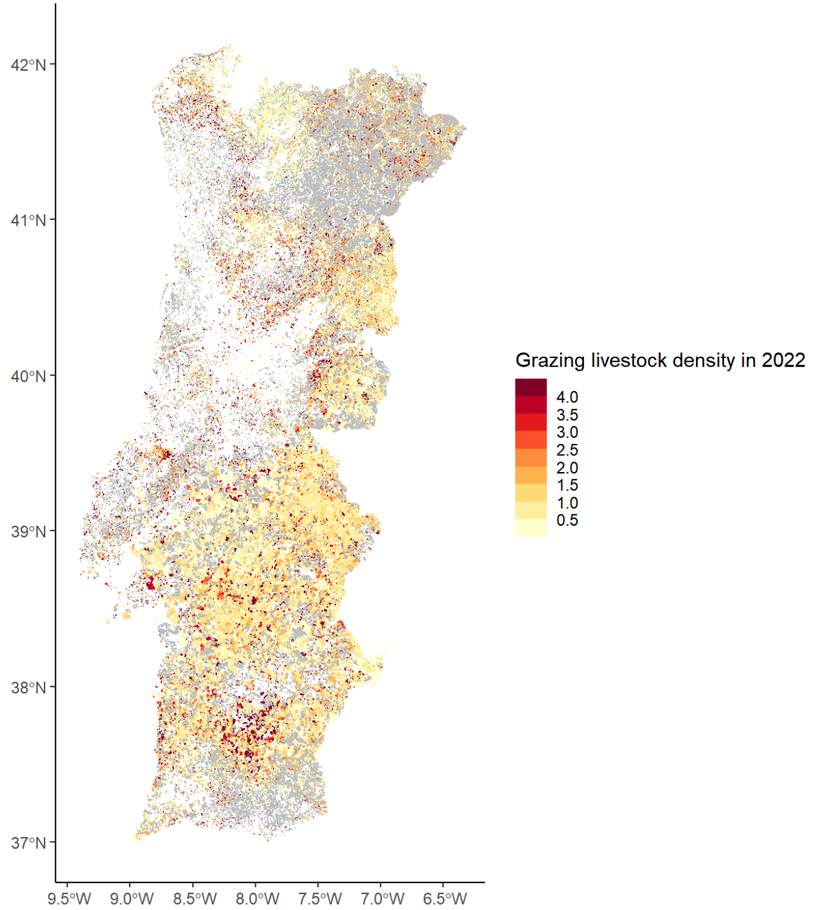


Declines in grazing livestock density are larger in shrub and commons grasslands

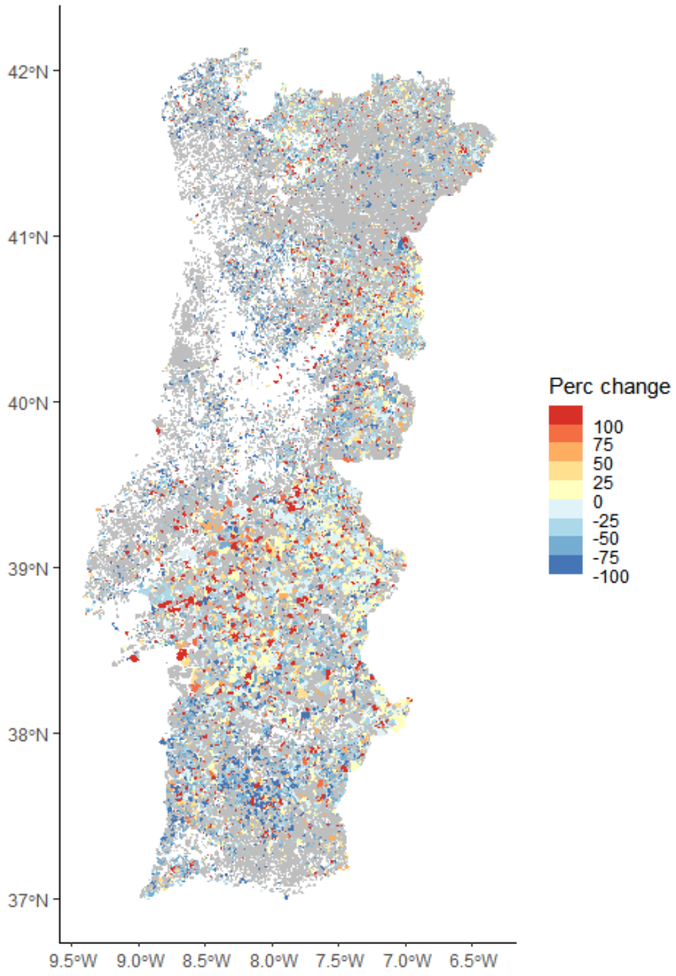


Grazing density patterns

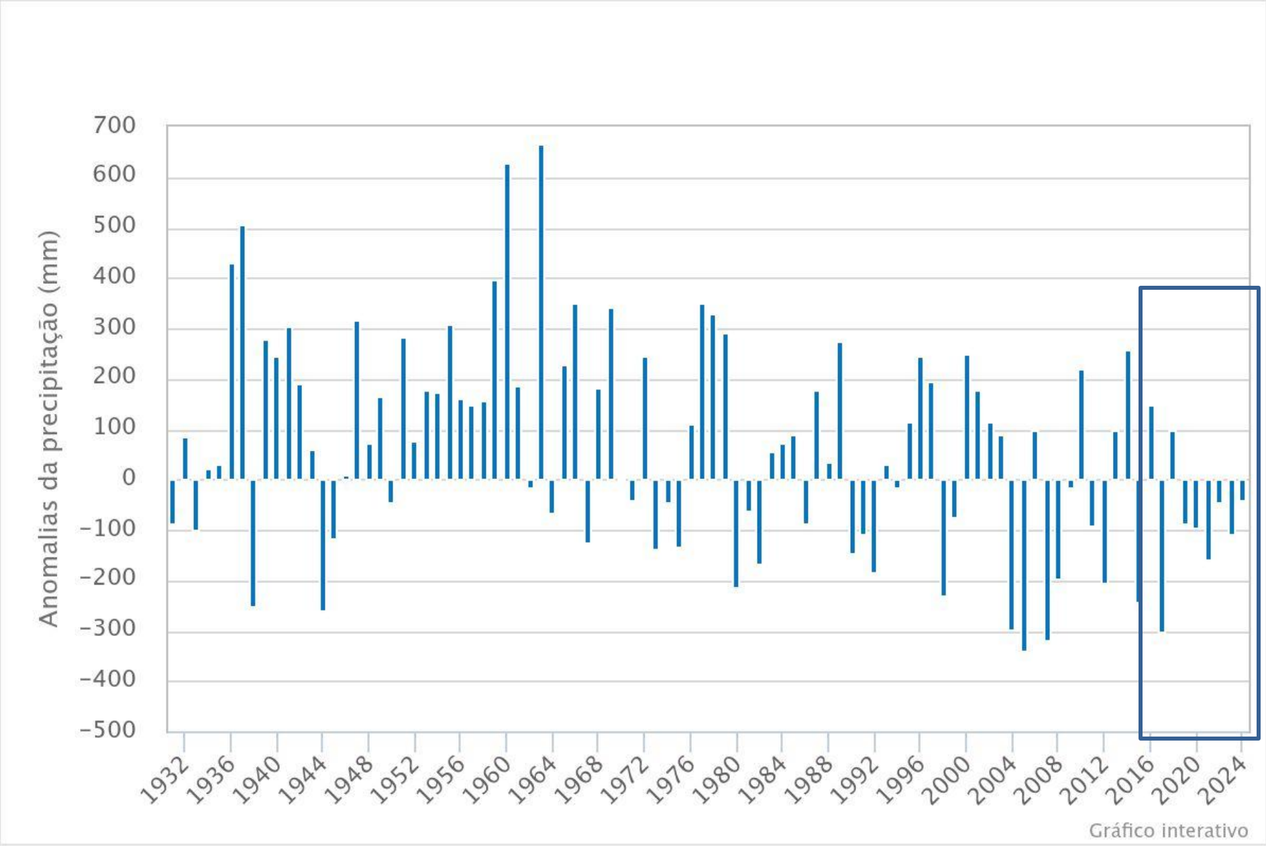


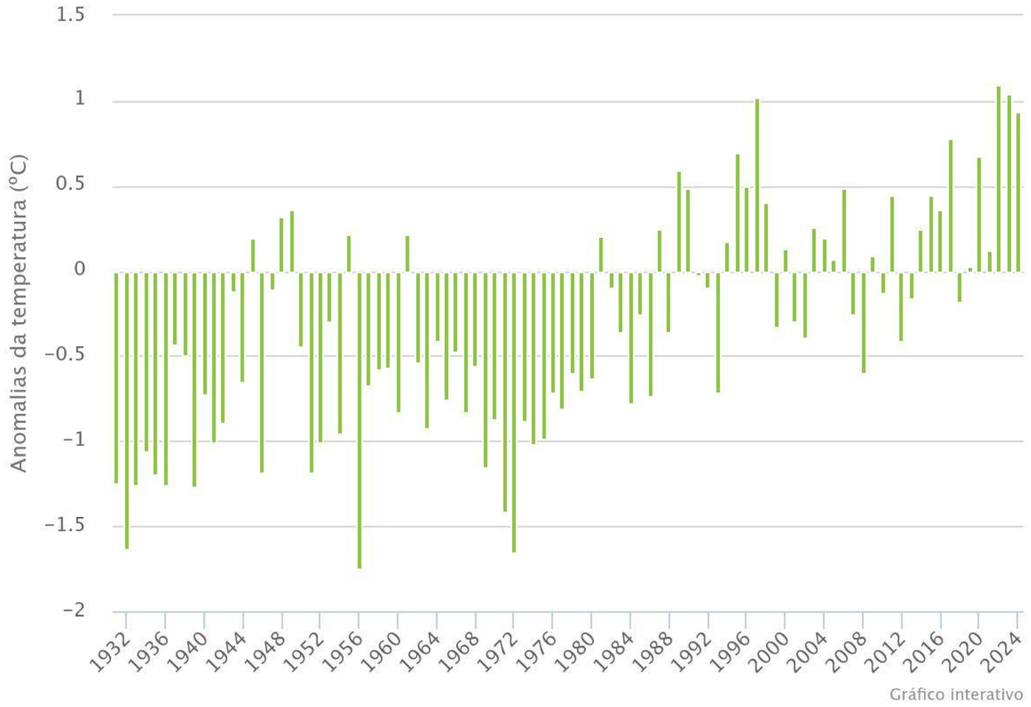


Grazing density is increasing and decreasing



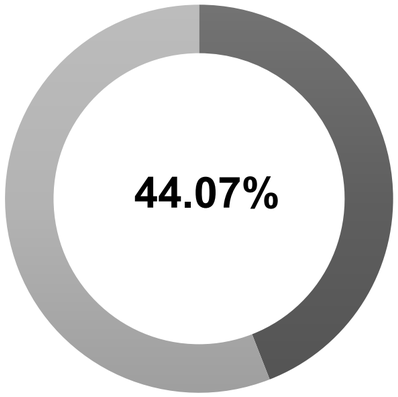
Increasing frequency of dry and warm years



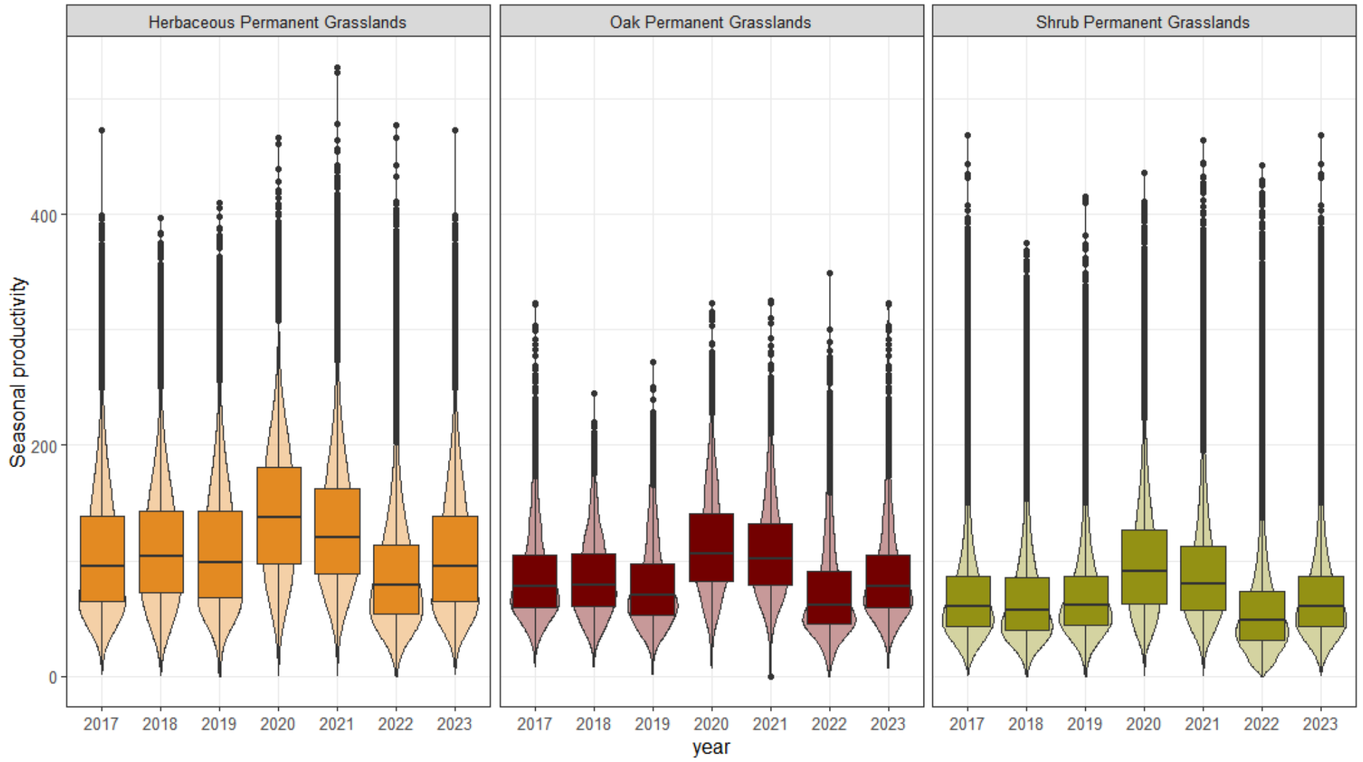


Fonte: IPMA, 2024

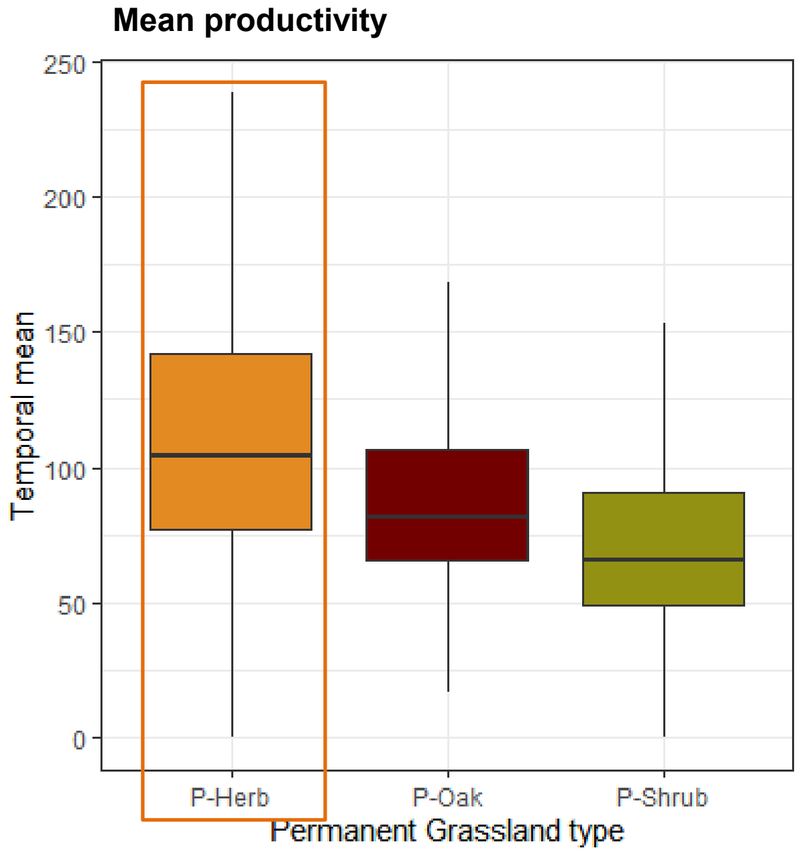
Declines in productivity associated with extreme drought

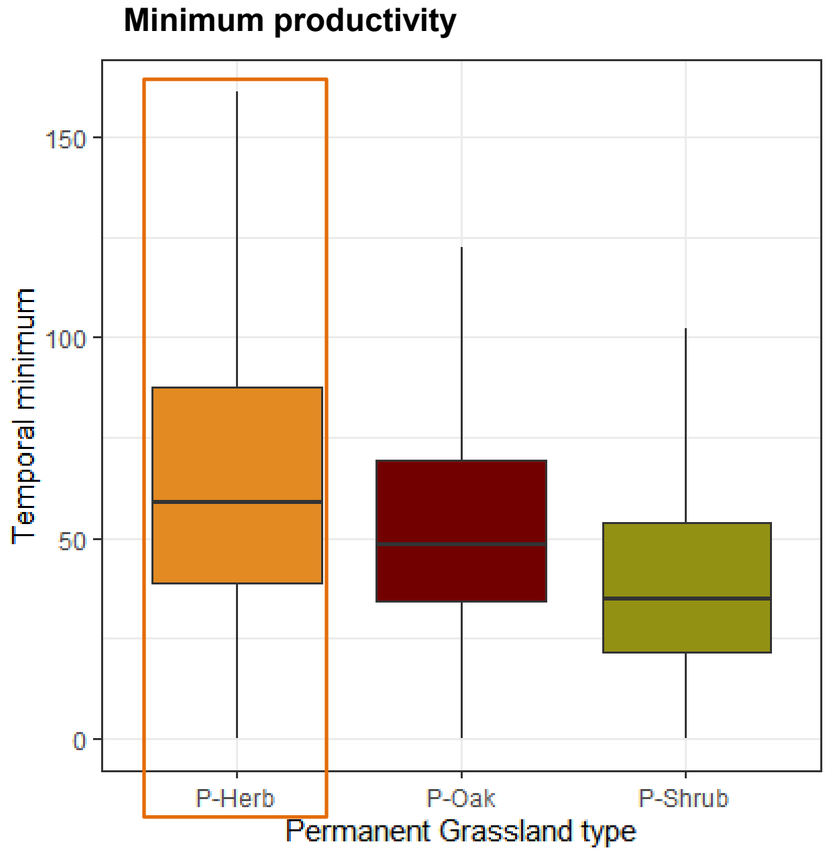


Decline in median grassland seasonal productivity due to 2022 drought relative to 2020

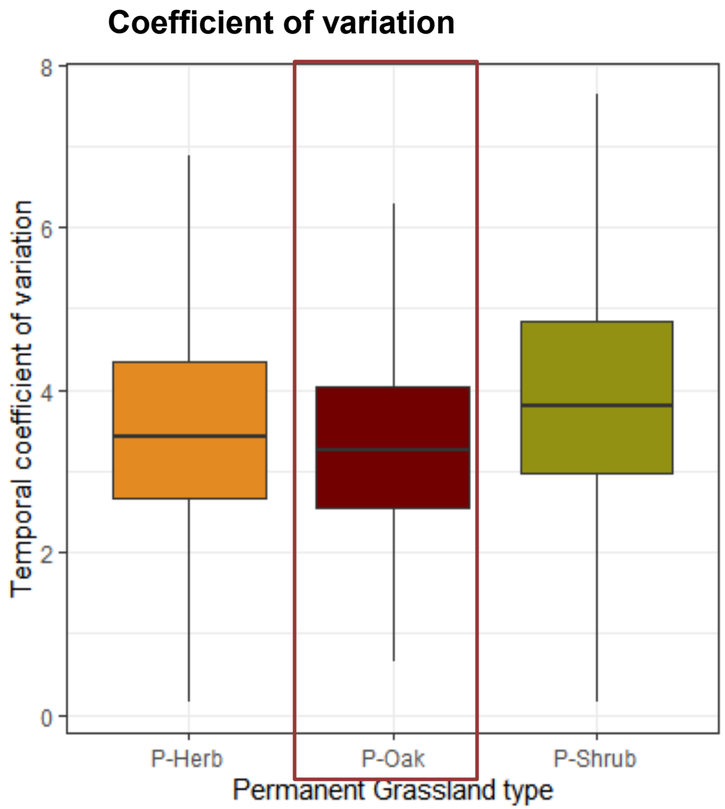


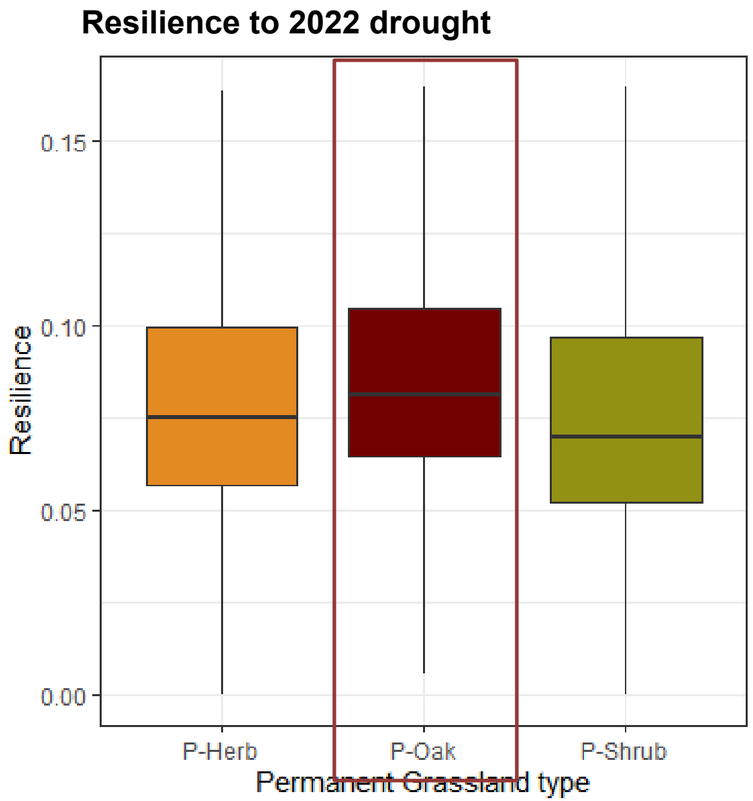
Higher productivity in herbaceous only grasslands





Higher temporal stability and resilience in grasslands with oak overstory





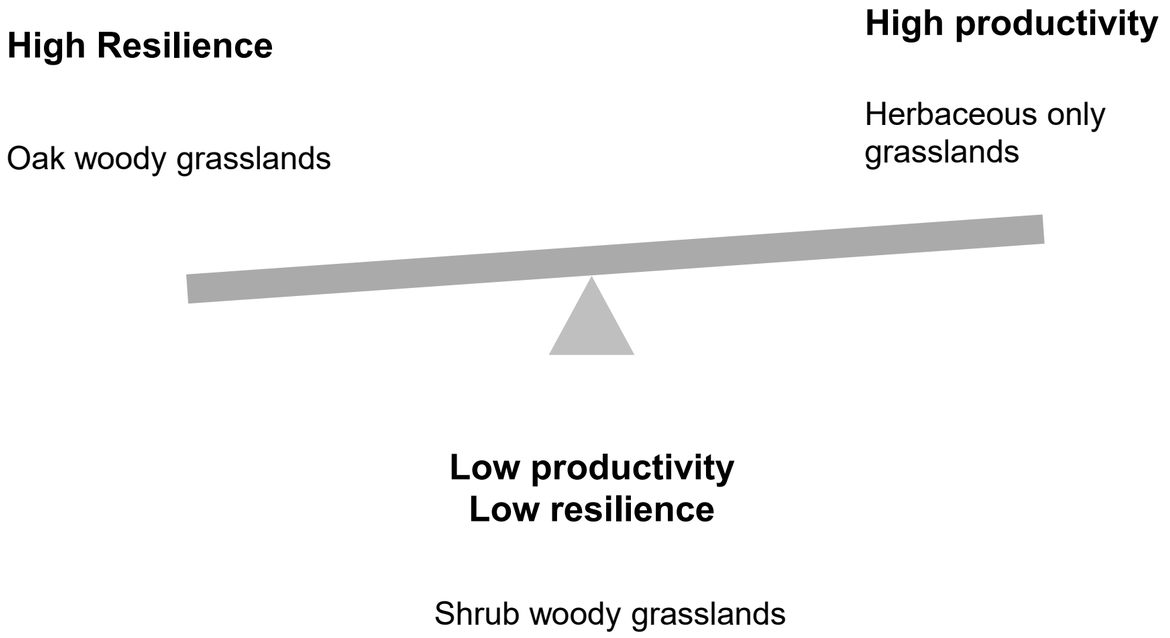
Conclusions

01. Extent
Increasing, mainly in S Portugal.

02. Management
Majority of herbaceous pastures are grazed, but only half of shrub pastures are grazed.

03. Management intensity
Grazing intensity is declining particularly in shrub and commons pastures.

04. Resilience to climate change
Oak pastures may help mitigate climate change effects.



Take-home messages

01. Permanent grasslands are increasing but face different challenges across Portugal.

02. Climate and social trends will likely interact to reinforce abandonment and intensification pathways.

03. Need for regional adaptation of policies considering ecosystems carrying capacity, climate and socio-economic trends.

OBRIGADA

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