

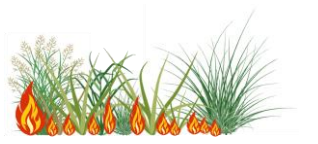


**Grass traits variability influences
flammability in open savannas in the
Cerrado**

Vagner Zanzarini

Alessandra Fidelis

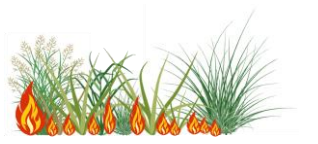
Introduction



Tropical savannas - Mostly
composed by plants that can easily
burn



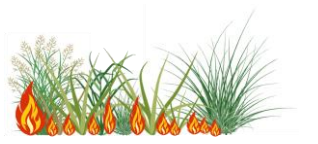
Introduction



Tropical savannas - Mostly
composed by plants that can easily
burn, improving fire occurrence and
spread



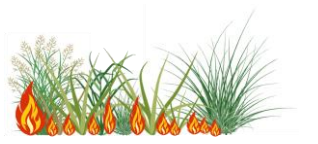
Introduction



Grasses – traits enhancing their capacity to burn and sustain fire



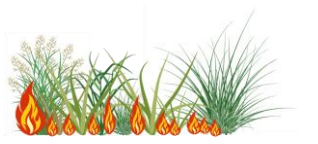
Introduction



Grasses – traits enhancing the capacity to burn and spread fire, being thus a **flammable group**



Introduction

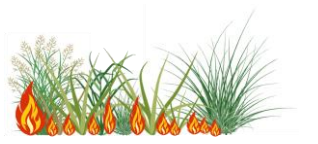


Cerrado open savannas

80% of grass cover, high species richness



Introduction



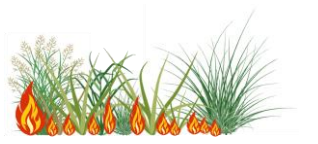
Cerrado open savannas

80% of grass cover, high species richness

Major component of the **fuel load**



Introduction



Cerrado open savannas

80% of grass cover, high species richness



Major component of the **fuel load**

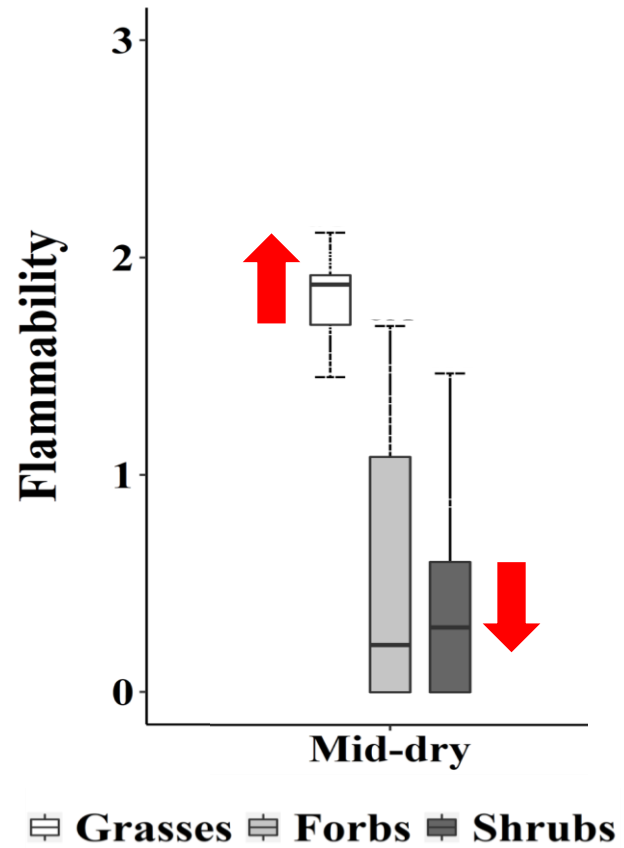
More informations: Cassy Rodrigues poster presentation

“Fire frequency affects fire behavior in open savannas in the Cerrado”

Introduction



Grasses – high flammability

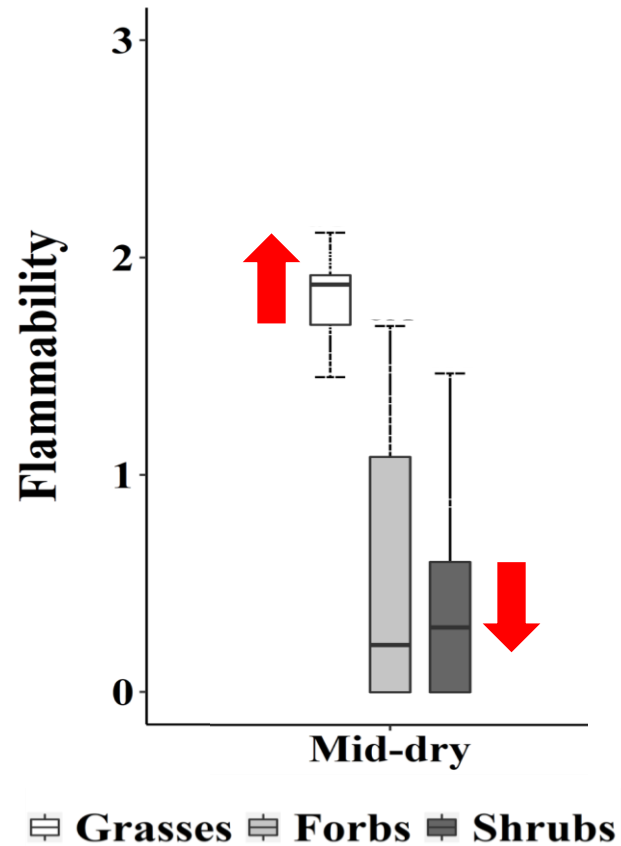


Introduction



Grasses – high flammability

Does all grasses burn the same way?



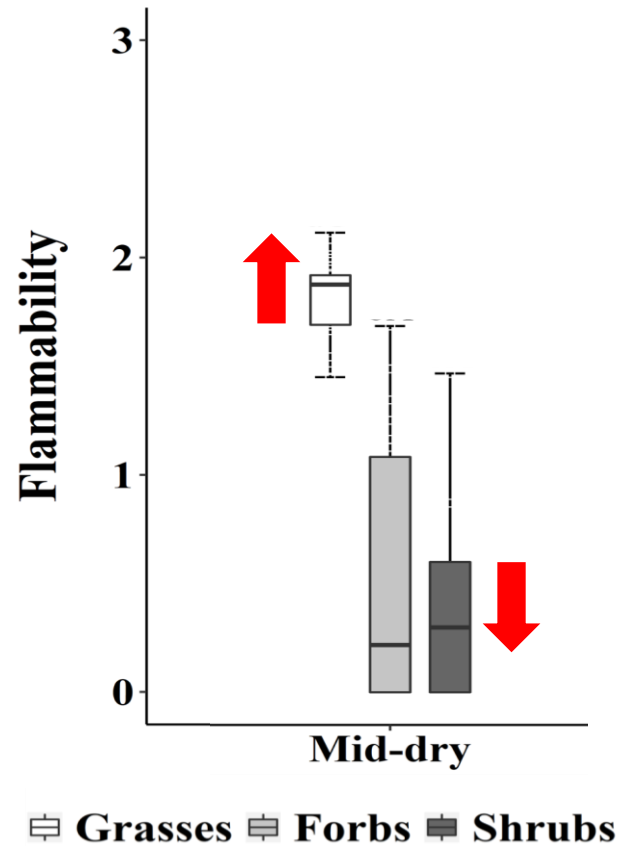
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Grasses – high flammability

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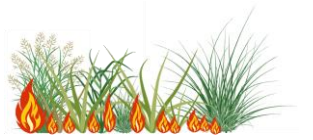
What traits are related to the variability in grass flammability?



Study area



Methods



21 grass species during the dry season

10 individuals/species

Plant and flammability traits measurements:



Dead biomass (%)



Moisture content (%)



Specific Leaf Area ($\text{cm}^2/\text{g}^{-1}$)



Maximum temperature °C



Burn rate cm/s

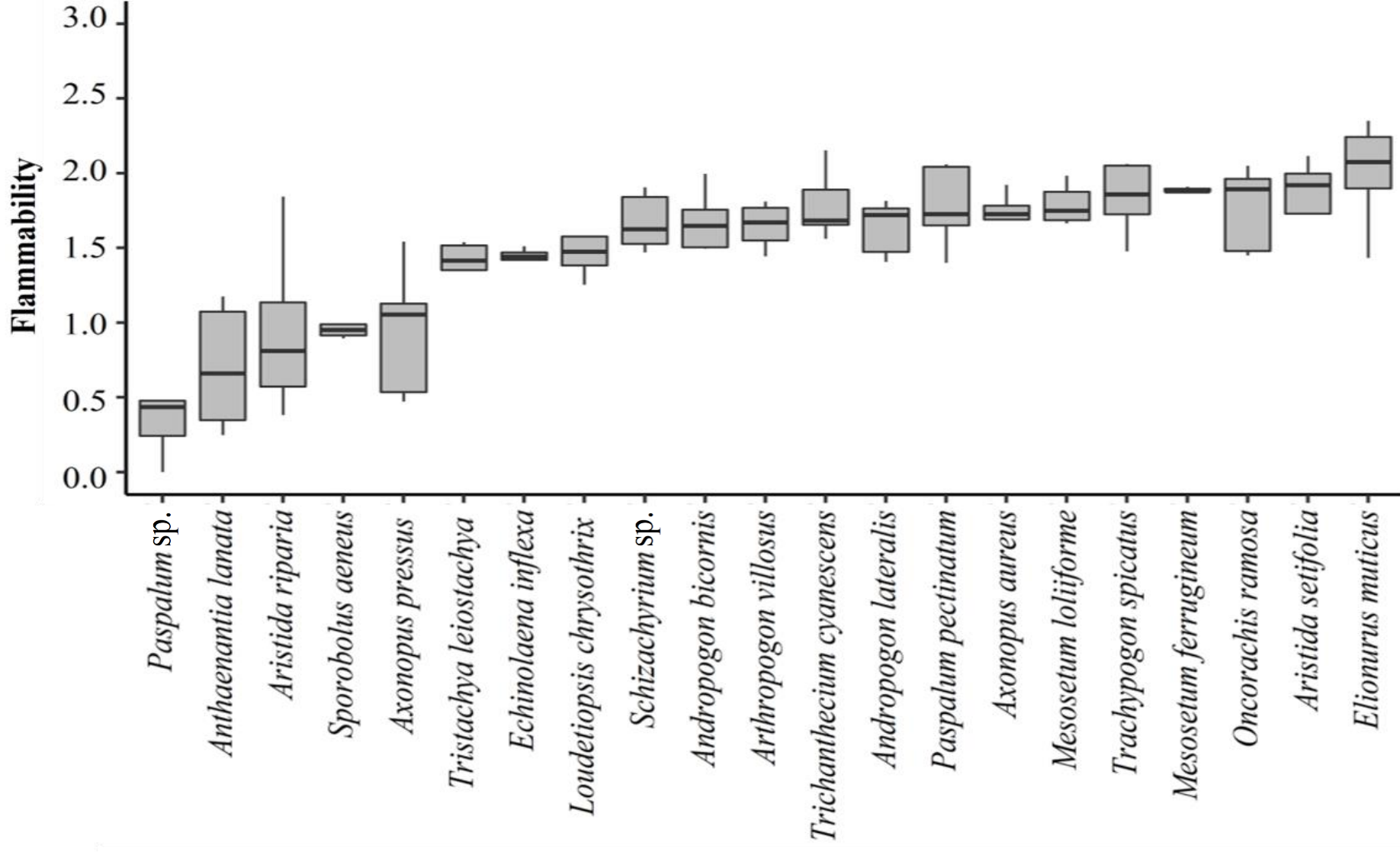


Burnt biomass %

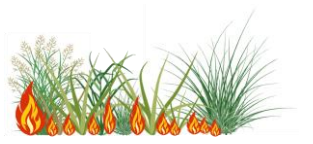


FLAMMABILITY (0-3)

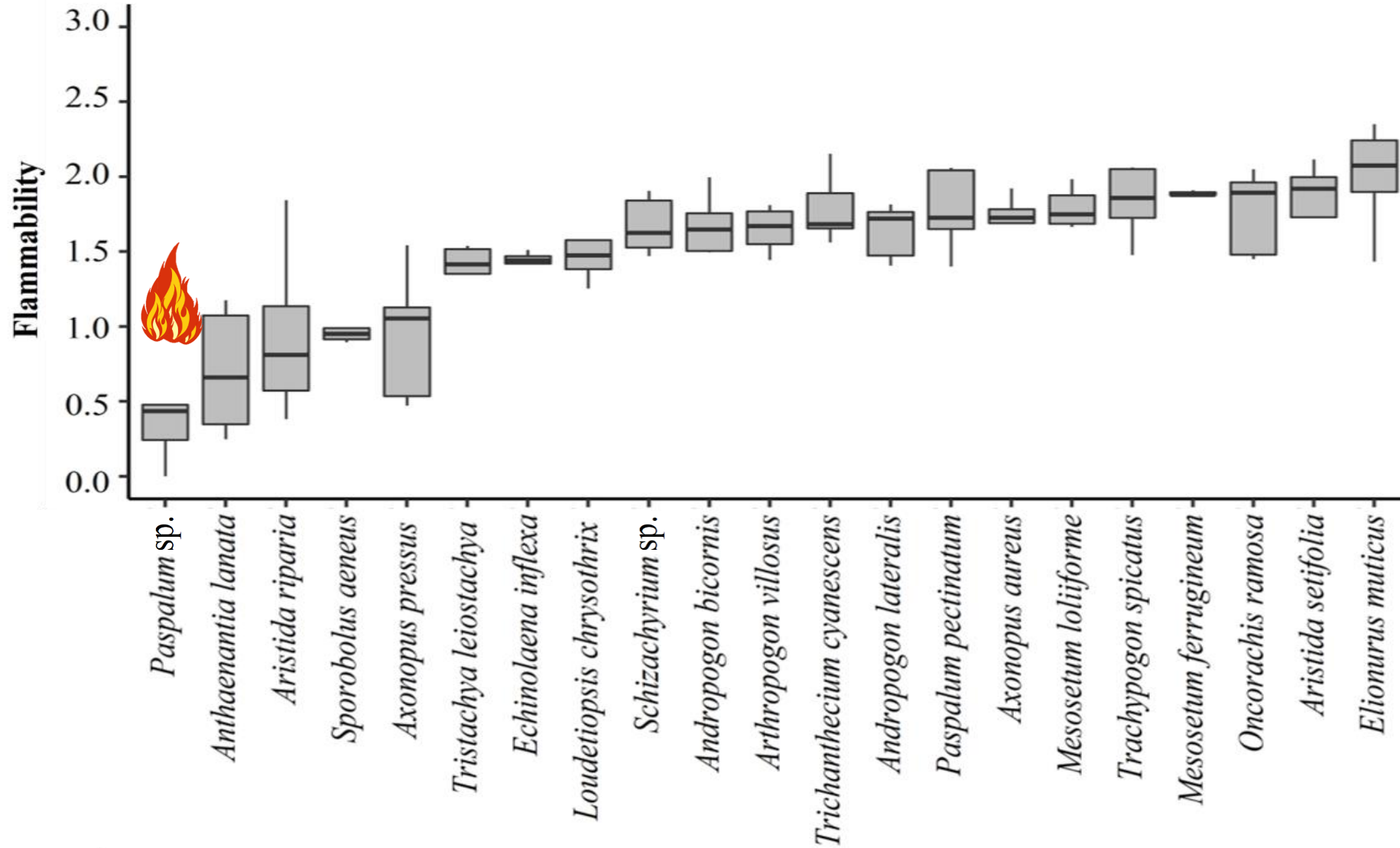
Results



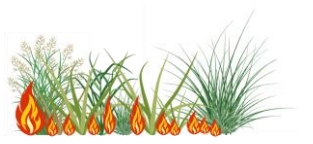
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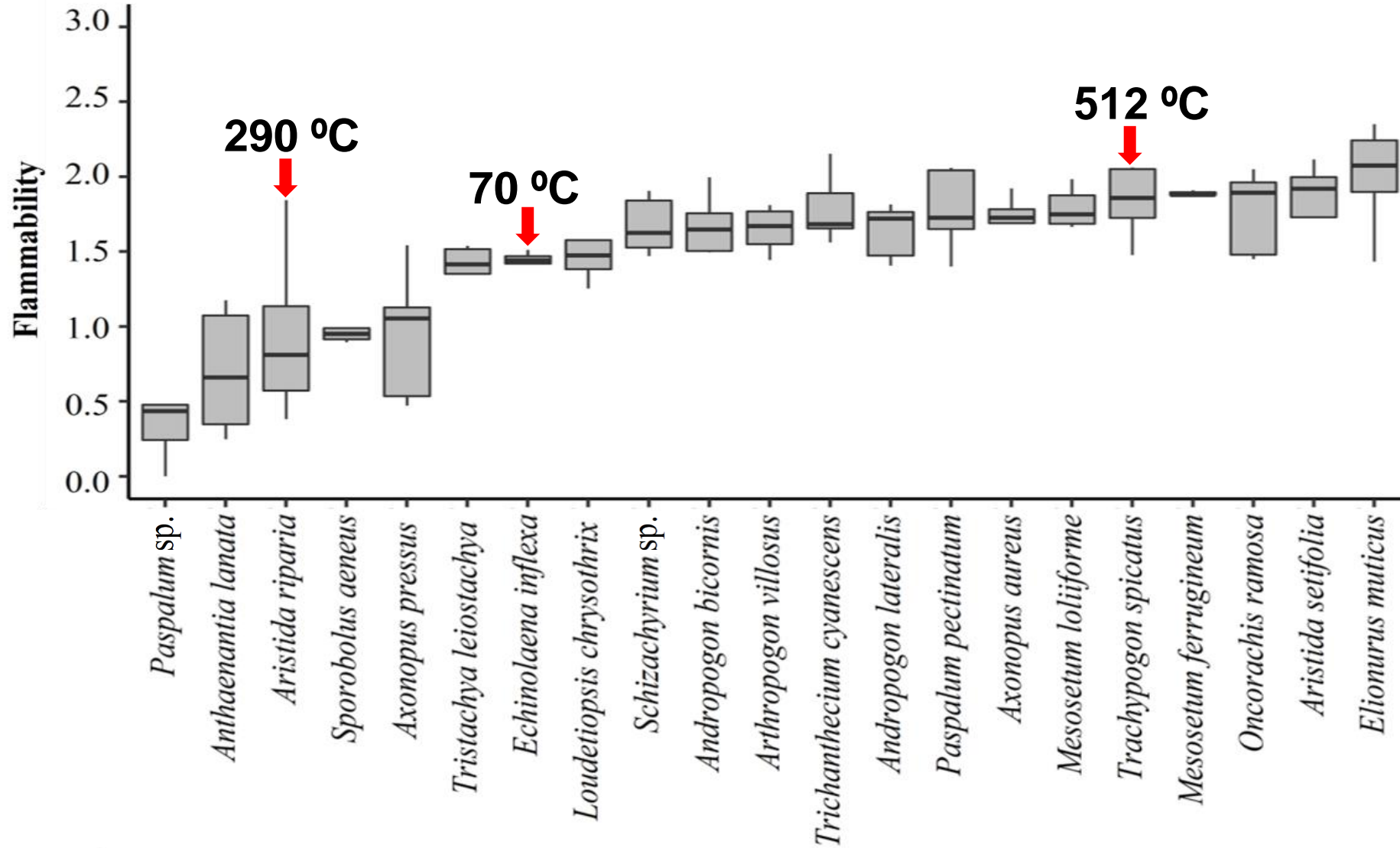
Interespecific variability



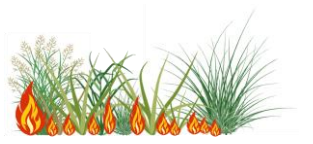
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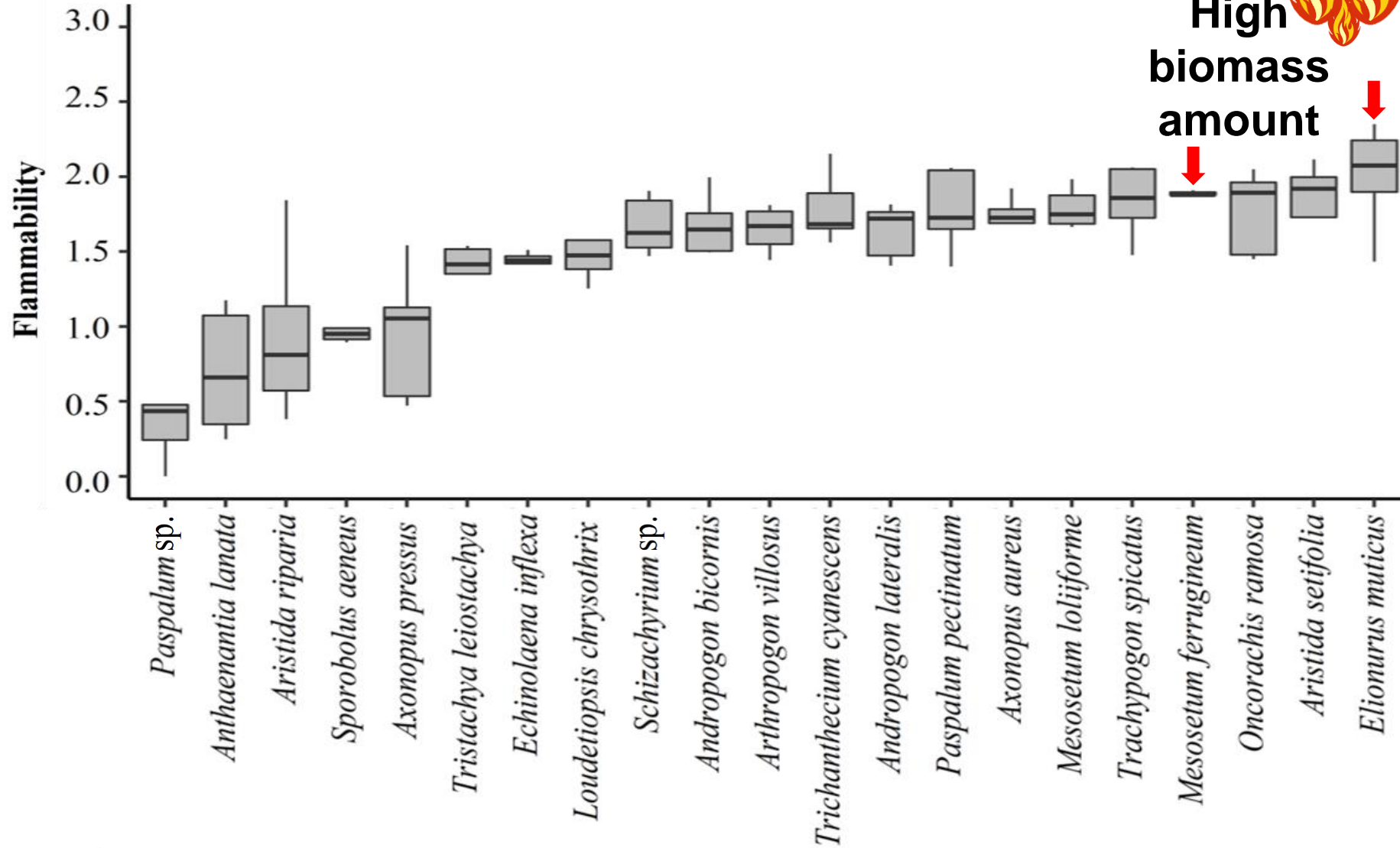
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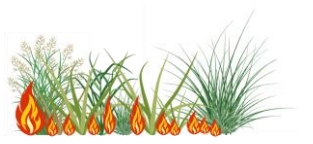
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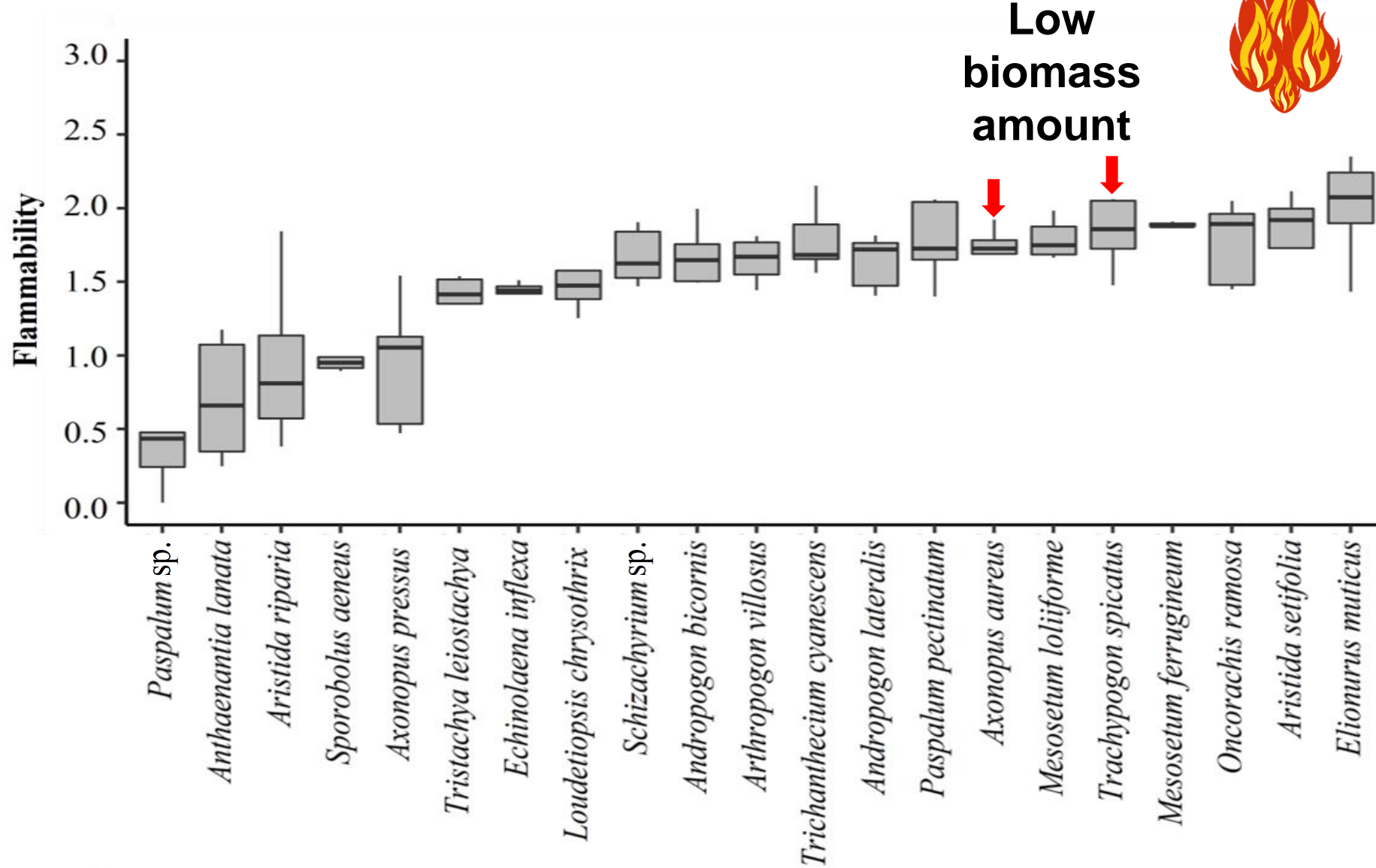
Inter-specific variability



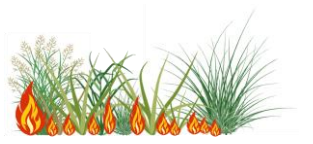
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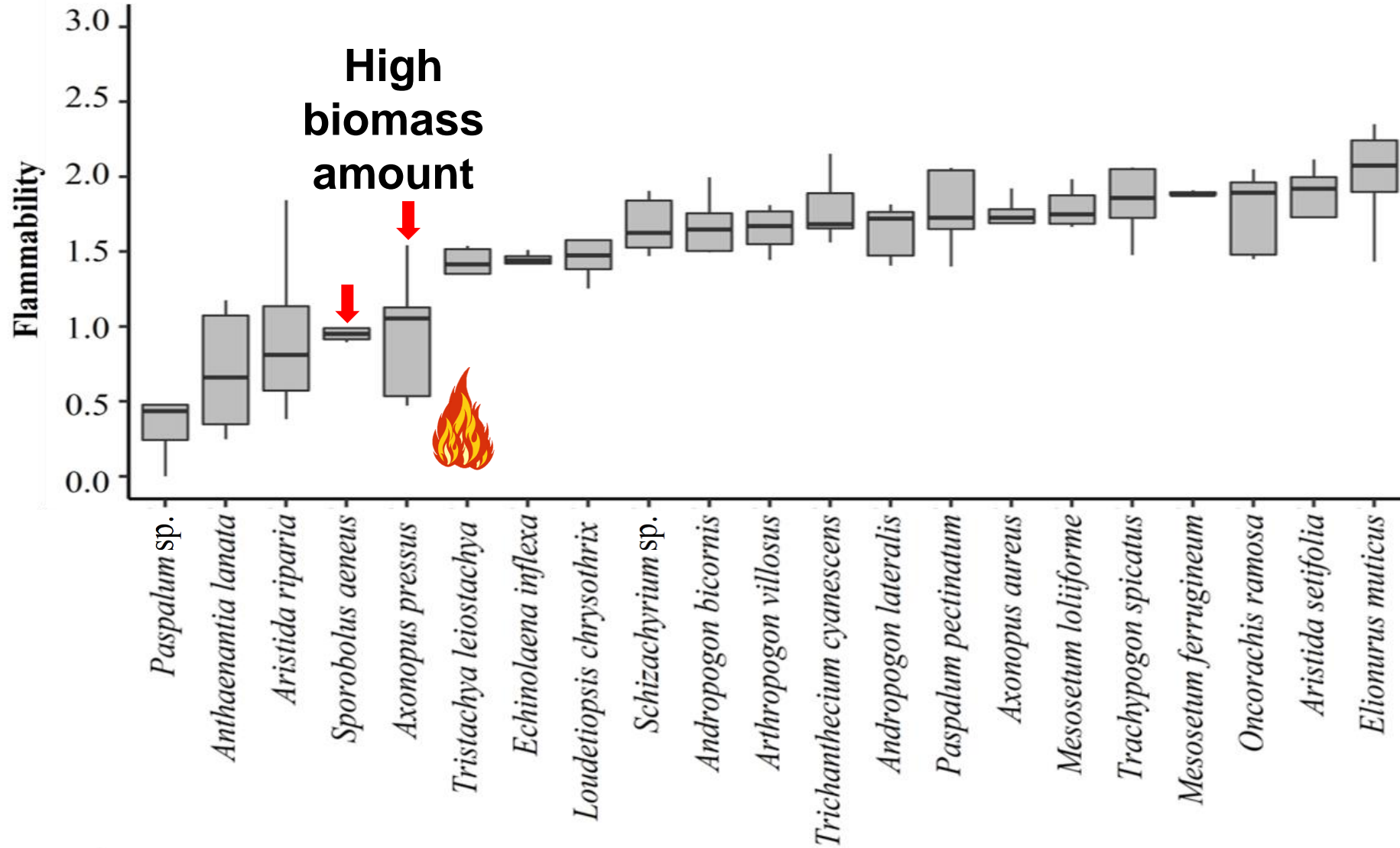
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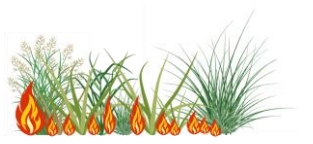
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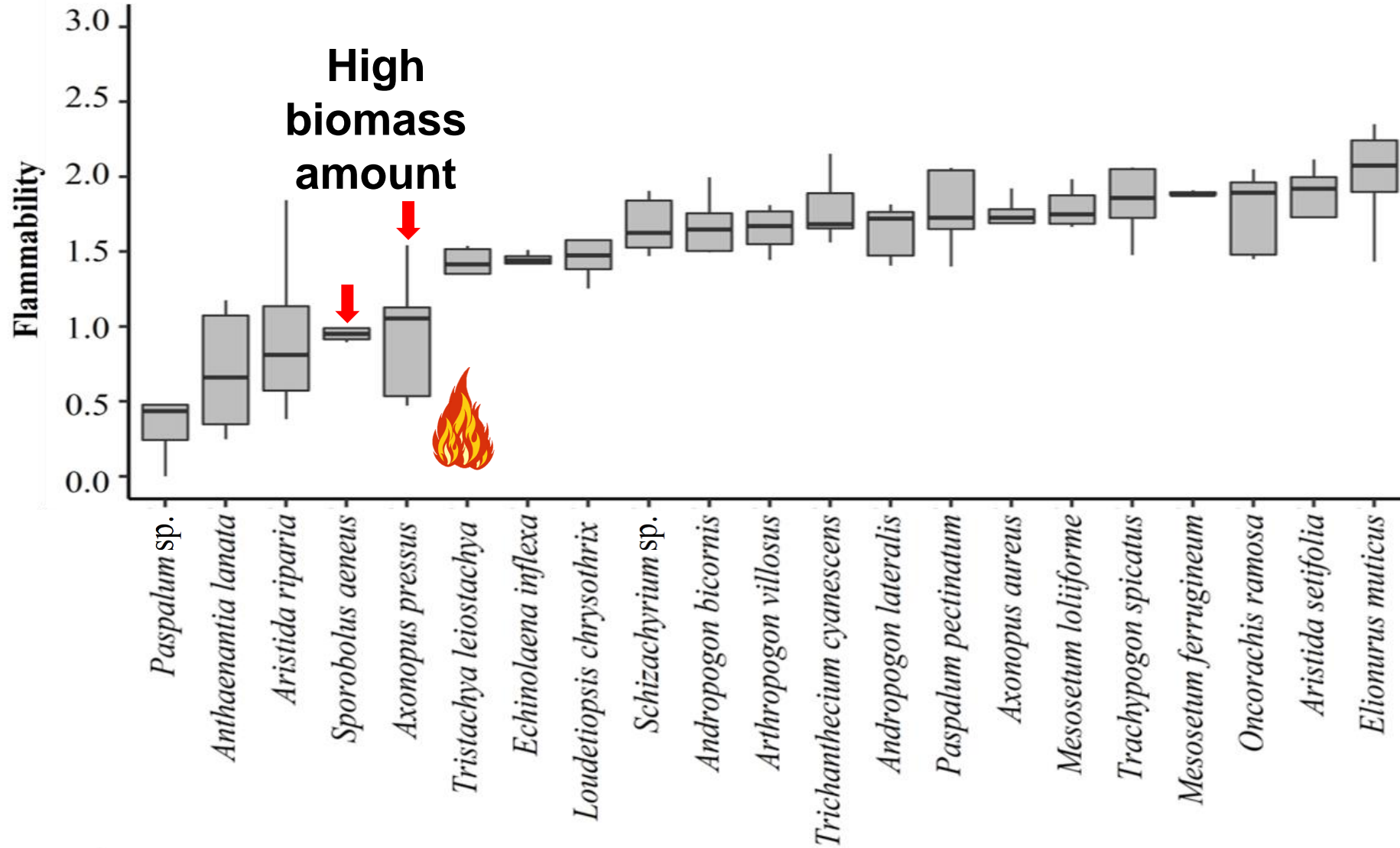
Inter-specific variability



Results



Inter-specific variability



Results



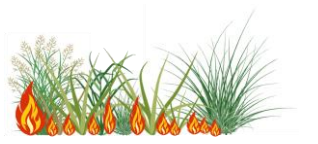
Models	$\Delta AICc$	wAICc
% Dead biomass	0.0	0.98
Moisture content	9,7	0.007
Specific leaf area	10,3	0.005
Moisture content + dead biomass	12,2	0.002
Specific leaf area + dead biomass	12,8	0.001
All variables	25,1	<0.001

Amount of dead biomass of each species



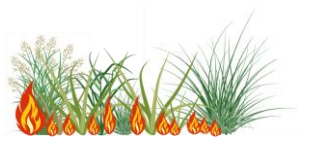
Conclusions

Not all grasses burn the same way!



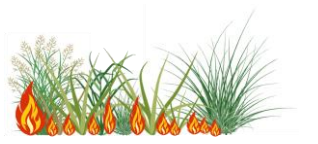
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Not all grasses burn the same way!



Inter-specific variability is essential to the flammability and the way that savannas burn

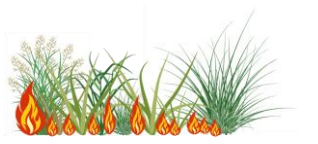
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Inter-specific variability is essential to the flammability and the way that savannas burn

Occur due to the differences in plant traits, as dead biomass amount of each species

Conclusions

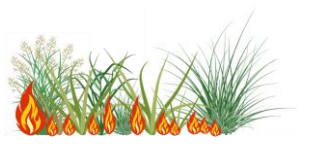


Inter-specific variability is essential to the flammability and the way that savannas burn

Occur due to the differences in plant traits, as well as biomass amount of each species,

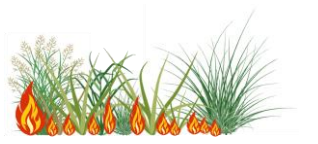
Influencing the fire behavior in the system

Conclusions



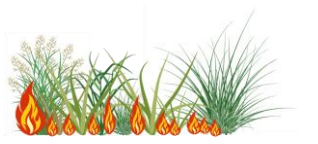
High flammable species can enhance low flammable species to burn and to be consumed,

Conclusions



High flammable species can enhance low flammable species to burn and to be consumed, **promoting fire spread**

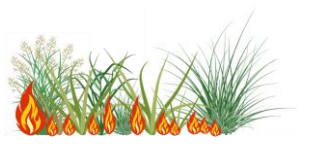
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High flammable species can enhance low flammable species to burn and to be consumed, promoting fire spread

Maintaining the function of open savannas

Conclusions



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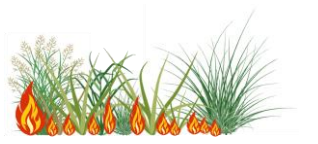
Maintaining the function of open savannas



Fire-ignitors

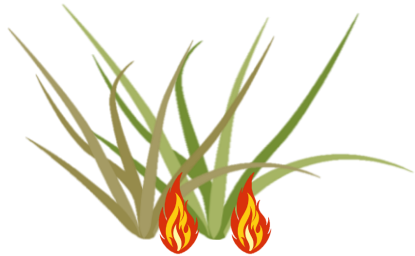
- *Trachypogon spicatus*
- *Axonopus aureus*

Conclusions



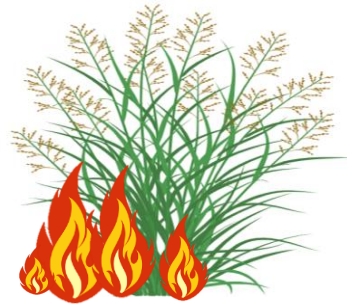
High flammable species can enhance low flammable species to burn and to be consumed, promoting fire spread in the community

Maintaining the function of open savannas



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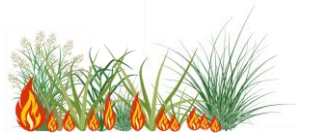
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Fire-sustainers

- *Mesosetum ferrugineum*
- *Elionurus muticus*

Conclusions



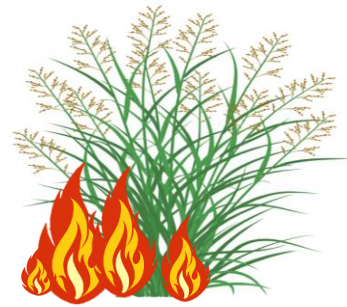
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Maintaining the function of open savannas



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- *Arthropogon villosus*



Conclusions

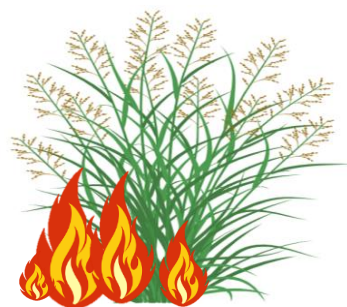
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Maintaining the function of open savannas



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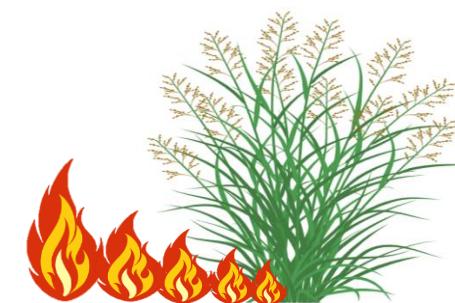
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- *Mesosetum ferrugineum*
- *Elionurus muticus*



Fire-spreaders

- *Arthropogon villosus*



Fire-stoppers

- *Sporobolus aeneus*

Thank you!



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