

Fire effects on the seed bank of open savannas of the Cerrado



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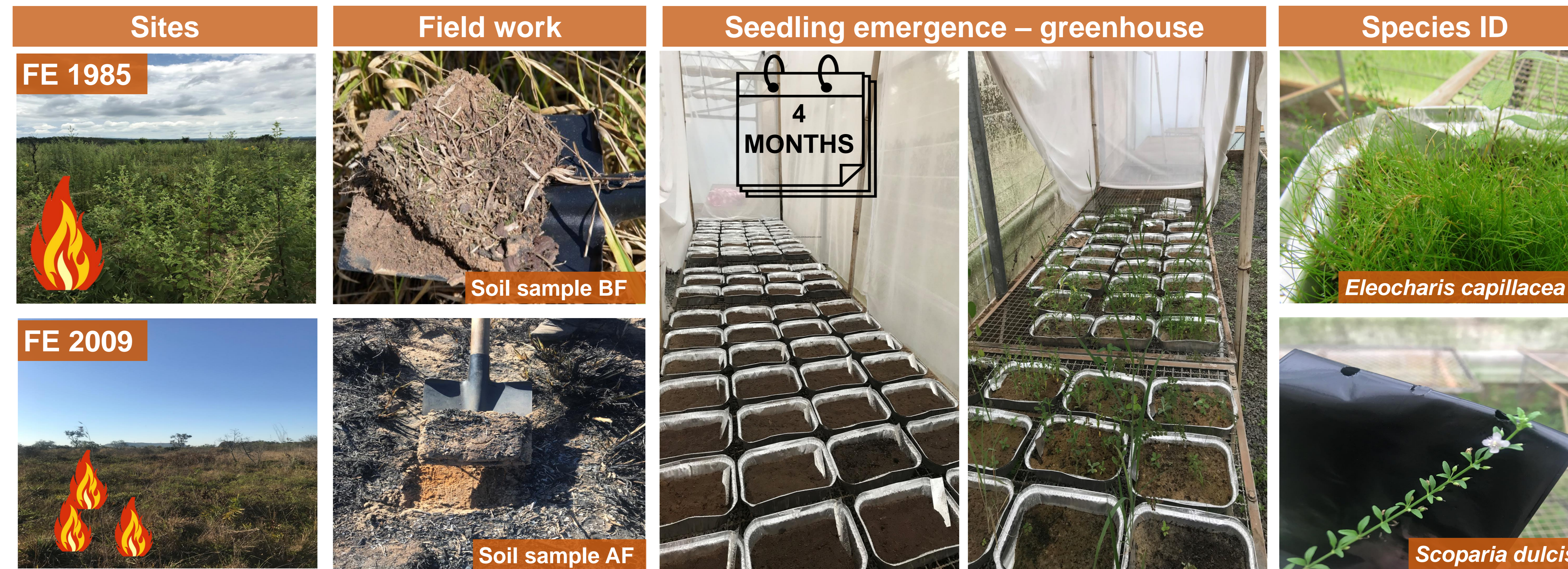
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Introduction

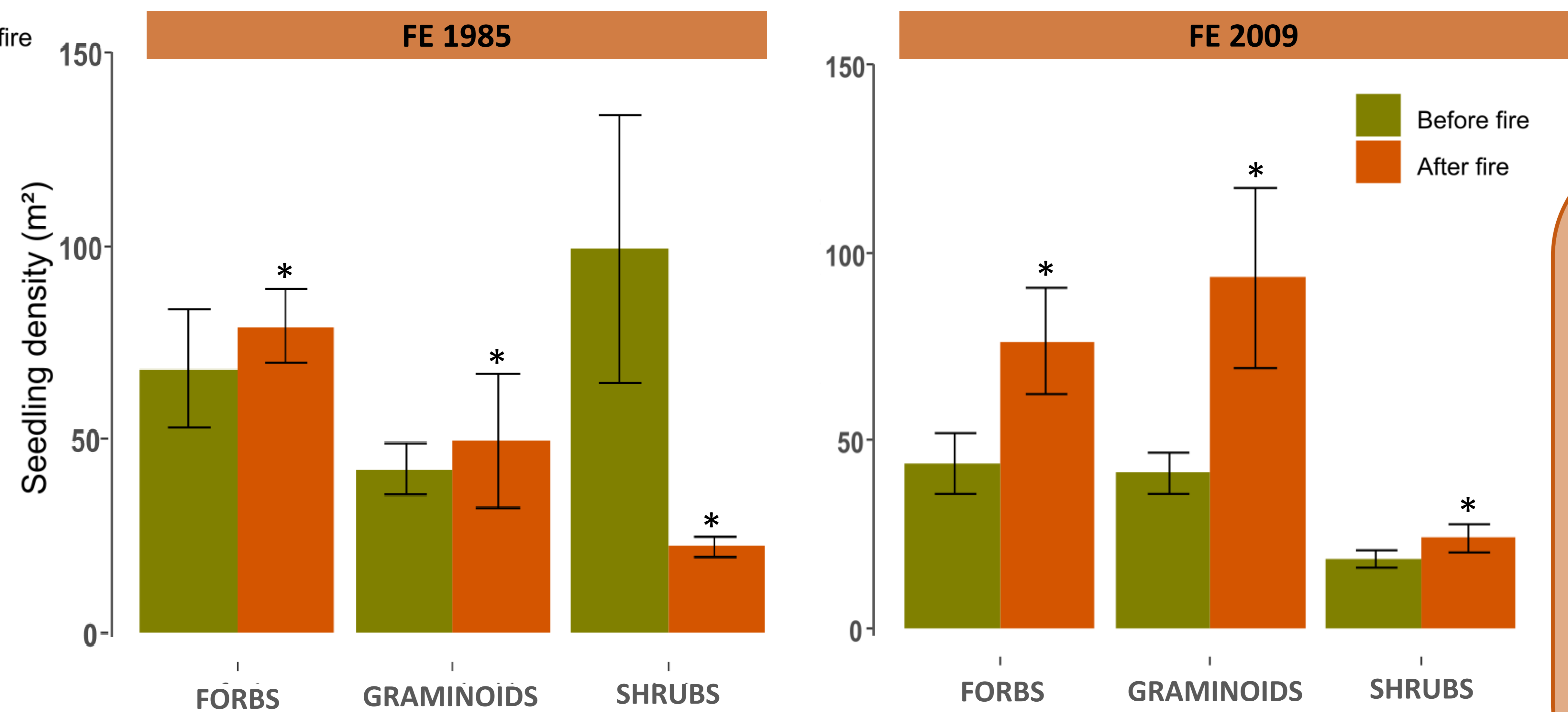
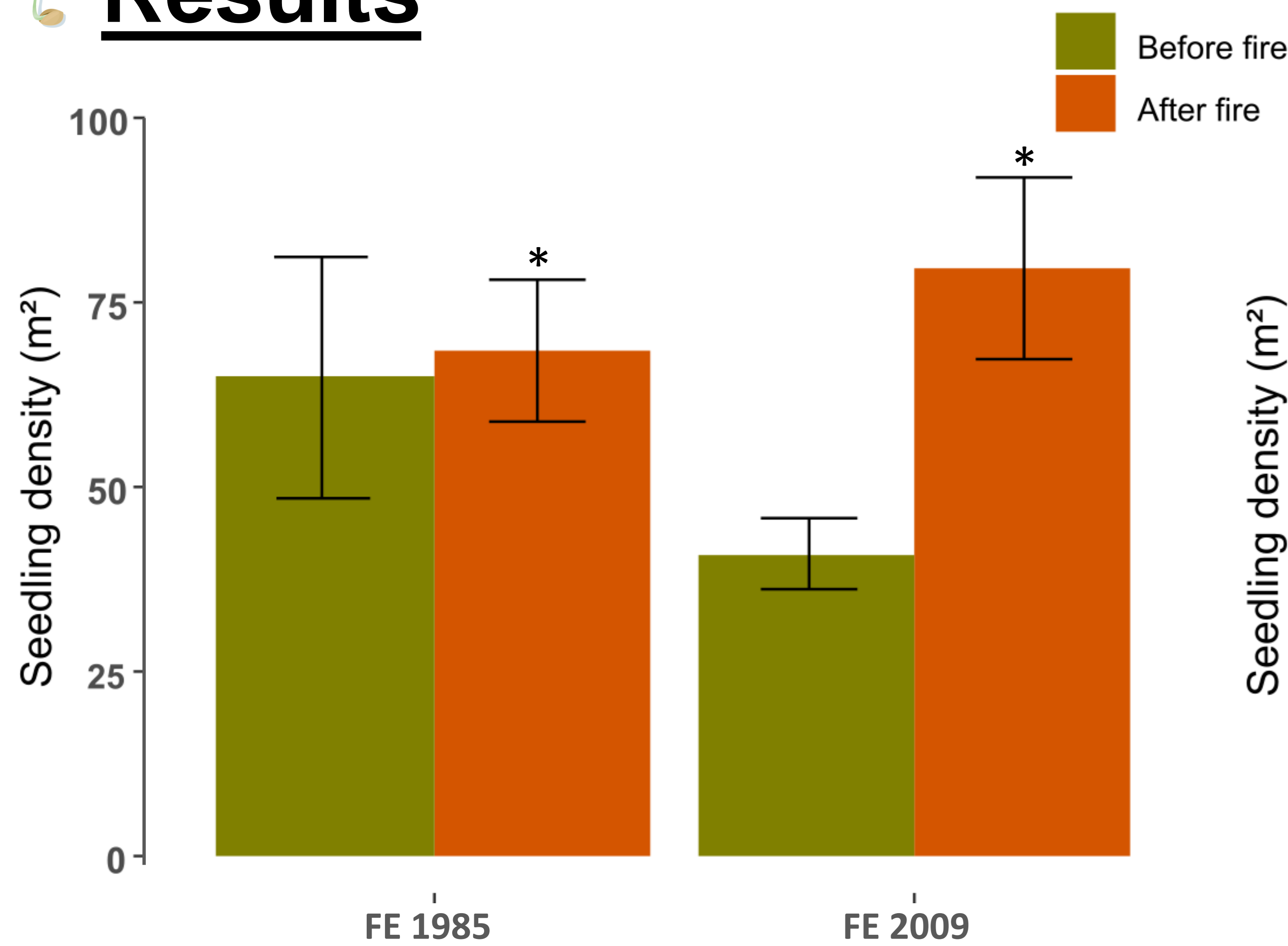
Fire is an important ecological factor influencing diversity, dynamics and structure of vegetation community in savannas. Fire exclusion has been one of the major threats to savannas of the Cerrado and probably to its resilience. Changes in fire regime can lead to changes in post-fire regeneration. **Thus, we aimed to evaluate fire effects on the seed bank to understand if fire history influenced the seed bank as a source of regeneration.**

Methods



- FE1985: 30 years of fire exclusion (1 fire event)
- FE2009: 12 year of fire exclusion (3 fire events)
- Soil samples (0.2 x 0.2 x 0.002 m) before (BF) and after fire (AF, treatments).
- 5 samples/plot (5 samples x 4 plots x 2 treatments x 2 sites = 80 soil samples)
- Seedlings were identified at species level when possible

Results



Conclusion

Long-term fire exclusion affected the seed bank composition, showing a shift in dominance from a grassy (FE2009) to a woody community (FE1985). Moreover, fire affected differently the seed bank according to the fire history. Finally, fire stimulated species to germinate from the seed bank, showing that fire plays a major role also on the germination and consequently, on seedling recruitment of Cerrado species.

- Fire significantly increased the emergence of seedlings at both sites
- FE1985: + 6%; (p<0.001)
- FE2009: + 50%; (p<0.001)

- We observed a change of growth forms in seedling emergence
- FE1985: 48% forbs, 16% shrubs, 16% graminoids;
- FE2009: 88% graminoids, 9% forbs and 3% shrubs