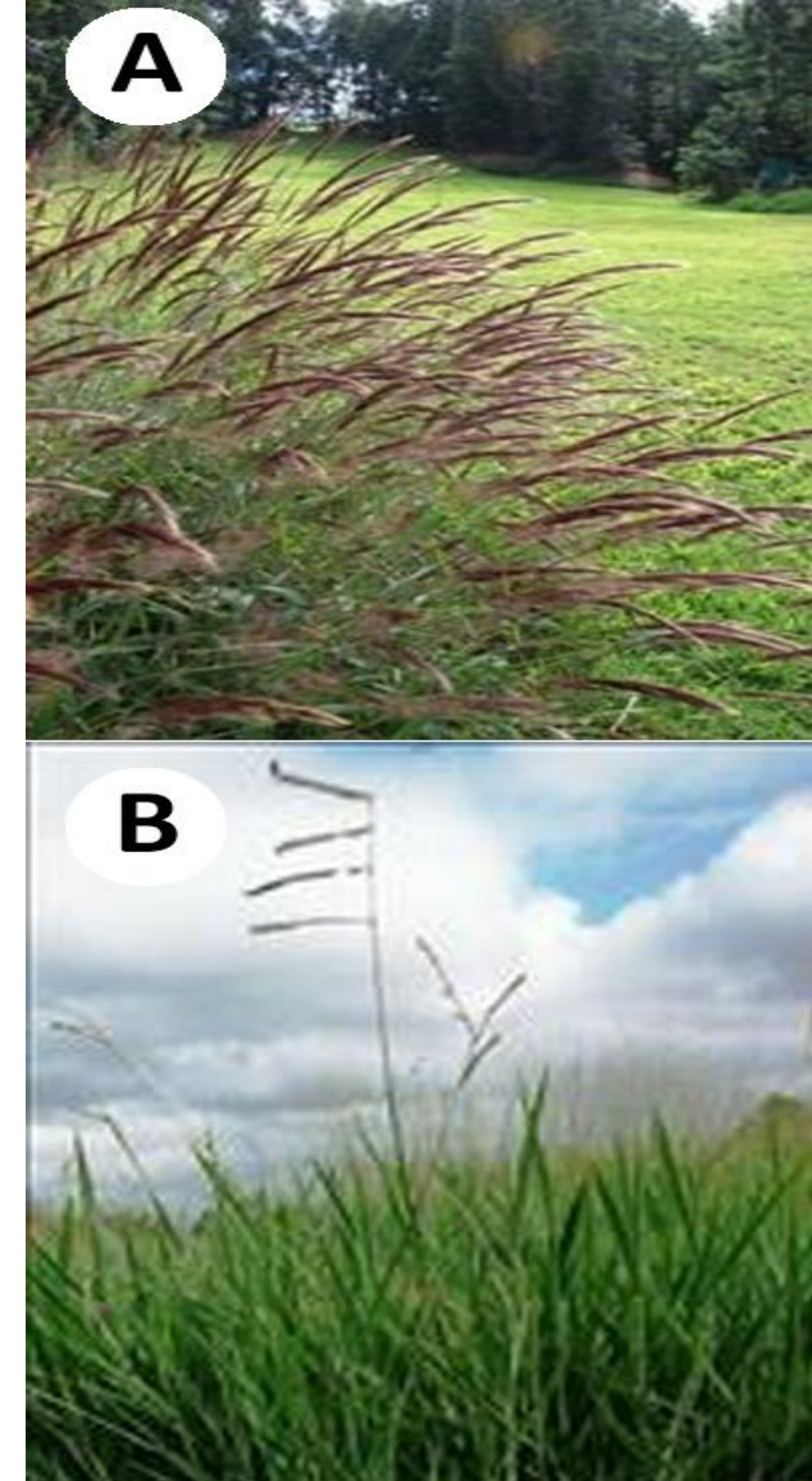


Inter-annual dynamics of Cerrado invaded communities under different fire seasons

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INTRODUCTION



- Invasive grasses can change natural fire regimes in invaded ecosystems¹. This might in turn change both the spatial and temporal structure of tropical savanna communities²;
- We investigated the effects of different fire seasons on the temporal and spatial beta-diversity of the herbaceous community in areas invaded by *Urochloa brizantha* and *Melinis minutiflora*.

Figure 1. The African grasses *Urochloa* spp. (1A) and *Melinis minutiflora* (1B) are the invasive species most widely distributed within protected areas in Cerrado.

METHODS

Database

Collected in **campo sujo** in Cerrado (2014-2016)

With invaded communities divided into diferente fire seasons:

Fire Exclusion

Early-Dry

Mid-Dry

Late-Dry

4 plot per treatment x 2 invaded communities = 32 plots

Compare data from invaded communities

Temporal beta-diversity

Spatial-temporal beta-diversity

RESULTS

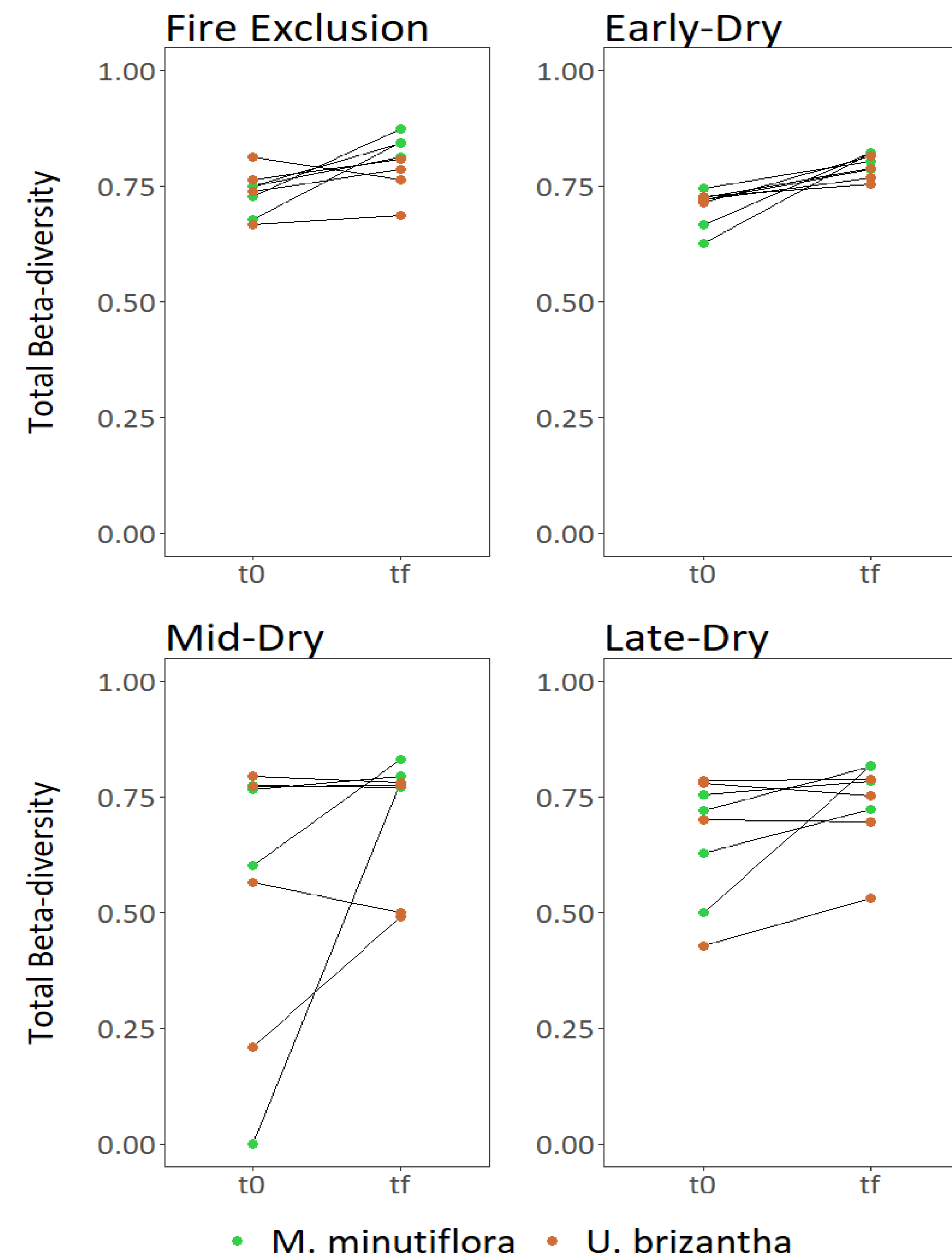


Figure 2. Spatial and temporal variation based on the composition of subplots in initial (t0) and final (tf) samples, per treatment. Beta diversity based on the Sorensen coefficient.

- Linear models indicated that inter-annual temporal beta-diversity, based on larger spatial scale (15 x 15 m plots) before and after treatments, depended on fire season and on the identity of the invasive species ($p = 0.002$; $F = 6.26$; $R^2 = 0.45$);
- Among subplots (1 x 1 m) spatial beta-diversity before and after treatments did not differ among fire seasons or invasive species;

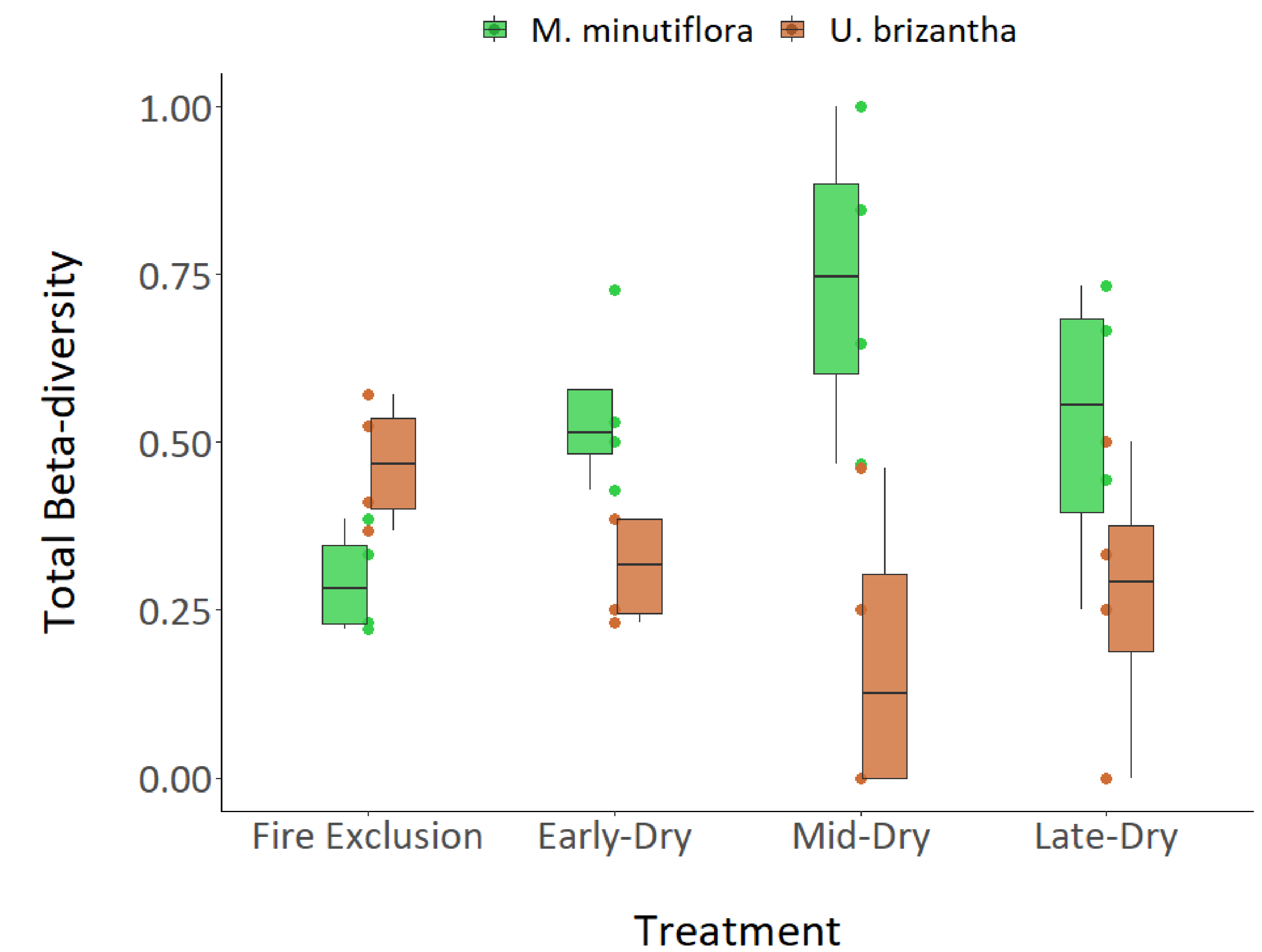


Figure 3. Temporal beta-diversity based on a dissimilarity matrix using the Sørensen coefficient. The values represent a comparison between the initial sample (t0) and last sample (tf). Each point represents the temporal beta diversity between a subplot (ou plot) in t0 and in tf.

KEY FINDINGS

The identity of the invasive species affects the variation in species composition promoted by fire seasons. While communities invaded by *M. minutiflora* tend to vary less temporarily under the influence of fires promoted in Mid-Dry season, the opposite happens when communities are invaded by *Urochloa spp.*

References:

- DAMASCENO, G. *et al.* Impact of invasive grasses on Cerrado under natural regeneration. *Biological Invasions*, v. 20, n. 12, p. 3621–3629, 2018
- DORNELAS, M. *et al.* A balance of winners and losers in the Anthropocene. *Ecology Letters*, v. 22, n. 5, p. 847–854, 2019.