THESIS' TITLE

Jefferson Silvério

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Orientadores: Gisele A. Oda
Verónica Valentinuzzi
Patricia Tachinardi

São Paulo
Setembro de 2020

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Jefferson Silvério

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Prof. Nome Completo do Terceiro Examinador

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*A alguém cujo valor é digno
desta dedicatória.*

Agradecimentos

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Chapter 1

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Chapter 2

R Markdown Basics

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2.1 Lists

2.2 Line breaks

2.3 R chunks

2.4 Inline code

2.5 Including plots

2.6 Loading and exploring data

2.7 Additional resources

Chapter 3

Methods

3.1 Study site

Field work was conducted at one site located approximately 5km away from the village of Anillaco, in the province of La Rioja, northwest of Argentina. The study site (LAT, LONG, ALTITUDE) is a relatively undisturbed natural area surrounded by the Sierra de Velasco moutain range, located within the Monte Desert biome. The Monte Desert is characterized as an open shrubland dominated by Zygophyllaceae (*Larrea cuneifolia* Cav., *Tricomaria usillo*), Fabaceae (*Prosopis torquata*, *Senna aphylla*) and Cactaceae (*Trichocereus* spp, *Tephrocactus* spp) (Abraham et al. 2009; Aranda-Rickert, Diez, and Marazzi 2014; Fracchia et al. 2011). At the study site a non-extensive survey of the plant community divided in three transects showed a dominance of the families Zygophyllaceae (*Larrea cuneifolia*, *Tricomaria usillo*), Poaceae (*Microchloa indica*, *Aristida mendocina*) and Fabaceae (*Zuccagnia punctata*) (see Appendix). The climate is arid with marked seasonality.

- sazonalidade de plantas
- temperature
- rain
- soil
- espécie
- possible predators?

The climate at this locality is arid with mean annual rainfall ranging from 100 to 200 mm and limited almost exclusively to the summer months (December–February) (Abraham et al., 2009). The soil is sandy and largely lacking organic matter, and the predominant vegetation is a shrubby steppe with characteristic Monte Desert flora dominated by species of Zygophyllaceae, Fabaceae and Cactaceae (Abraham et al., 2009; Fracchia et al., 2011).

3.2 Study species

Todos os animais utilizados são indivíduos adultos (>120g) de C aff. knightii capturados em Anillaco, La Rioja, Argentina (26° 48' S; 66° 56' W; 1445 m). Os animais foram capturados em área próxima ao Centro Regional de Pesquisa Cientifica e Transferência Tecnológica de La Rioja (CRILAR). O local de coleta (S28° 47.719' W66° 53.607') possui vegetação nativa, pouca influência antrópica e nenhuma fonte de luz artificial. A região de Anillaco é localizada no Deserto do Monte, de clima semiárido, solo arenoso e com vegetação composta de arbustos, plantas rasteiras e poucas árvores (Fracchia et al, 2011).

3.3 Data collection

3.4 Vectorial Dynamic Body Acceleration

There are multiple ways of deriving behavior and activity from an animal's acceleration record (ref). Here we chose to calculate the Vectorial Dynamic Body Acceleration (VeDBA). To calculate the VeDBA from the raw accelerometer data there are three steps. (i) Calculate the effect of the gravitational force over the device which is dependent on the animal's posture and is also known as static acceleration. The static acceleration can be estimated by calculating a moving average over the raw data. Generally, a 1 or 2-second moving average is used in this step (ref). However, there is not a consensus over the number of points to use in the moving average, which can be dependent on the study species and accelerometer recording frequency (REF??). In the case of the tucos we opted to use a 4-second (40 data points) moving average after following the method proposed by (Shepard et al. 2008) (see Appendix). (ii) Calculate the dynamic acceleration. The dynamic acceleration is the acceleration correspondent to the animal's movement. It can be calculated by subtracting the static acceleration from the raw acceleration for each data point. (iii) Calculate the VeDBA. The VeDBA is calculated by the vector sum of the dynamic acceleration over the device's axis.

$$VeDBA = \sqrt{Xd^2 + Yd^2 + Zd^2}$$

Conclusion

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More info

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Chapter 4

The First Appendix

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References

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