# 1 Methods

All statistical analysis and plotting were performed using R (version 4.0.5, R Core Team 2021) using packages ctmm (version 0.6.1, “Ctmm: Continuous-Time Movement Modeling,” n.d.), ctmmweb (version 0.2.10, Dong 2021), ggplot2 (version , Wickham 2016) ggmap (version , Kahle and Wickham 2013). The furrr package (version 0.2.2, Vaughan and Dancho 2021) was used for parallel computation on Windows machines. All R code can be found in the GitHub repository at <https://github.com/StefanoMezzini/tapirs>.

Outliers were removed if they appeared to have large measurement errors. Specifically, a point was removed if it was far from the main cluster of data and there were no points near it that indicated that the animal had walked outside its usual range, *or if the animal’s estimated speed was unrealistic (none found when I was cleaning the datasets, but many outliers had already been removed)*. User Equivalent Range Error (UERE) was included in the modeling for tapirs in the Cerrado and Pantanal datasets. The best continuous-time movement model for each animal was chosen using the ctmm.select function from the ctmm package. The models were then used to calculate each animal’s average travel speed, home range Autocorrelated Kernel Density Estimate (AKDE), and autocorrelation parameters.

# References

“Ctmm: Continuous-Time Movement Modeling.” n.d. <https://github.com/ctmm-initiative/ctmm, https://groups.google.com/g/ctmm-user>.

Dong, Xianghui. 2021. “Ctmmweb: Web App For Ctmm.” <https://github.com/ctmm-initiative/ctmmweb>.

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R Core Team. 2021. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.

Vaughan, Davis, and Matt Dancho. 2021. “Furrr: Apply Mapping Functions in Parallel Using Futures.” <https://CRAN.R-project.org/package=furrr>.

Wickham, Hadley. 2016. *Ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. <https://ggplot2.tidyverse.org>.