BLT Meeting output (Validation) burnin run v1

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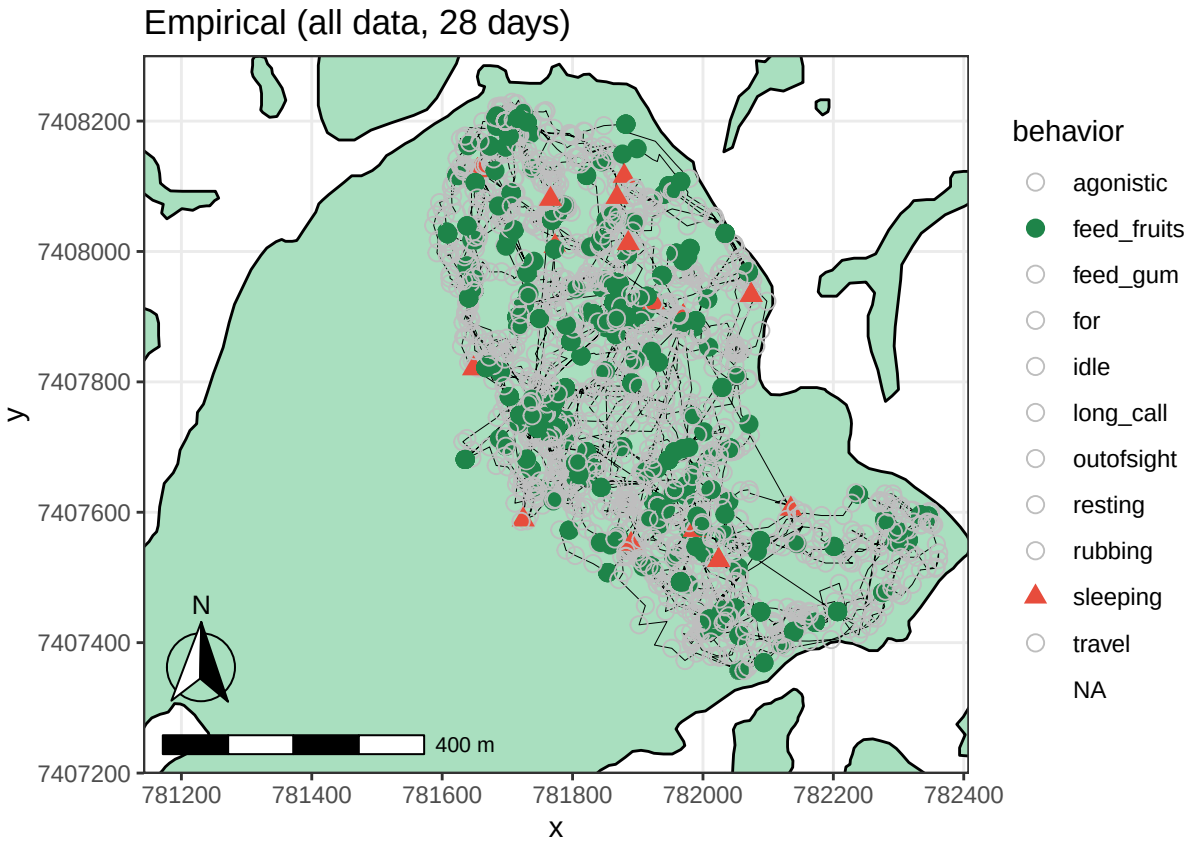
Abstract

This document was produced for the purpose of presentation to Laurence, Eckhard and Ronald on 25/04/2022, the second BLT Model Meeting while in Germany. For documentation reasons, this run was made with the version v1 of the model. Here we analyze the comparison of empirical data with one run (n = 30 days), but we also differentiate between the whole run (30 days) and the 20 last days, because the step_forget paramater in the model seemed to make the tamarin move more after a "burn-in period" of 10 days. The results show that the burn-in period does not make a difference in the v1 version of the model.

Guareí empirical (all data, 28 days) and July (6 days)

```
## Warning: Removed 276 rows containing missing values (geom_point).
```




```
## Warning: Removed 26 rows containing missing values (geom_point).
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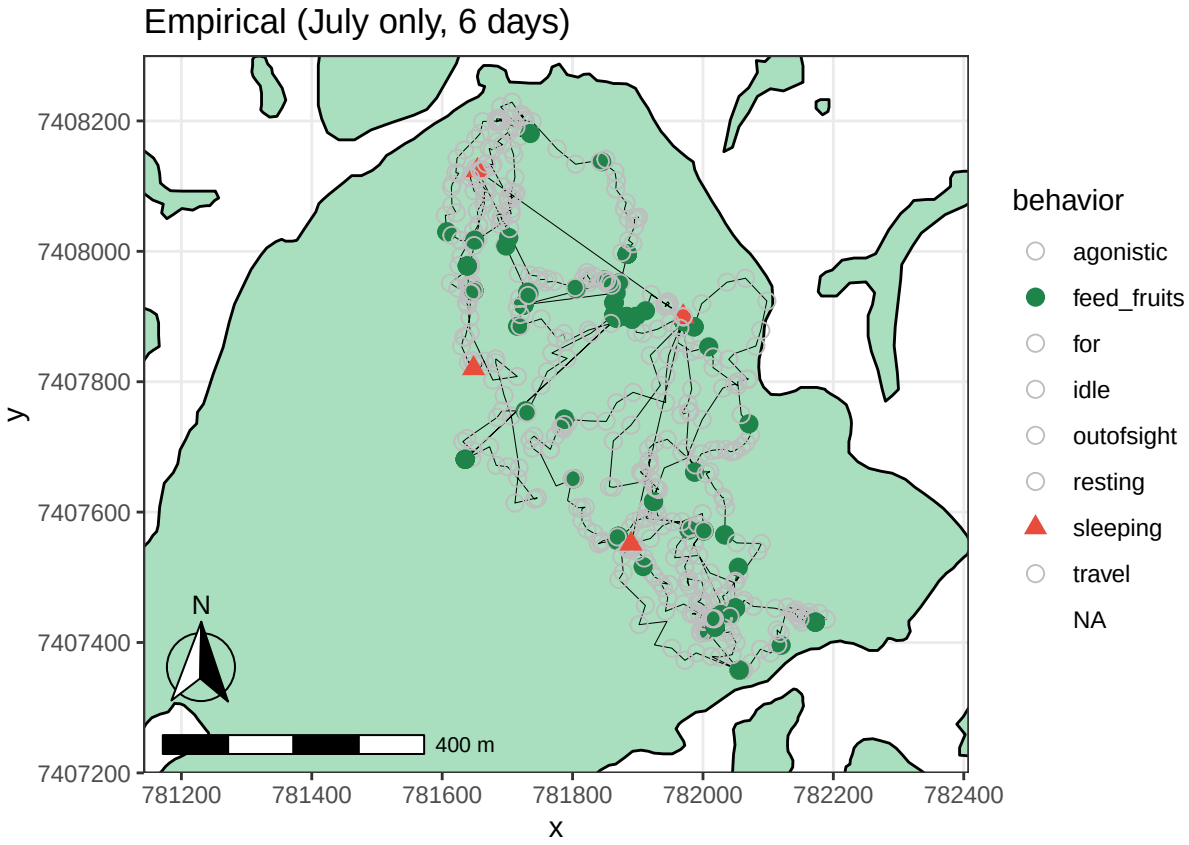
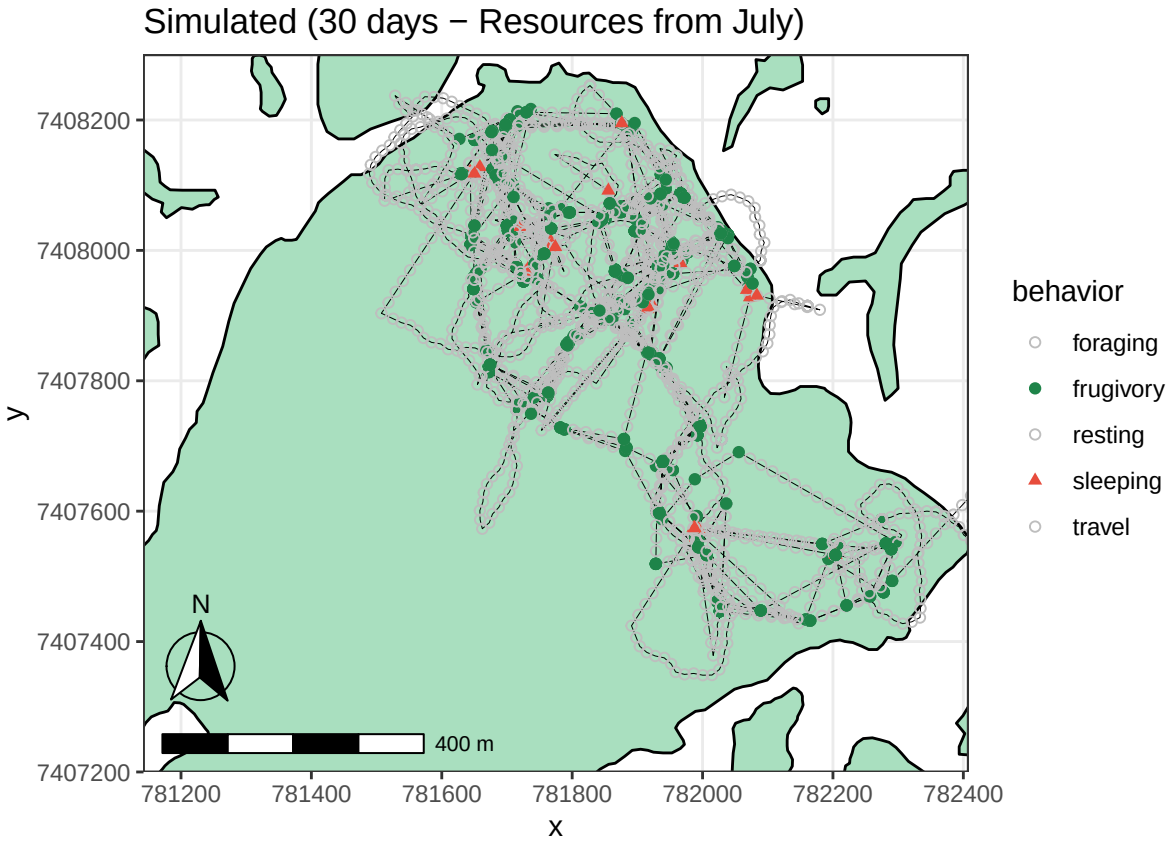
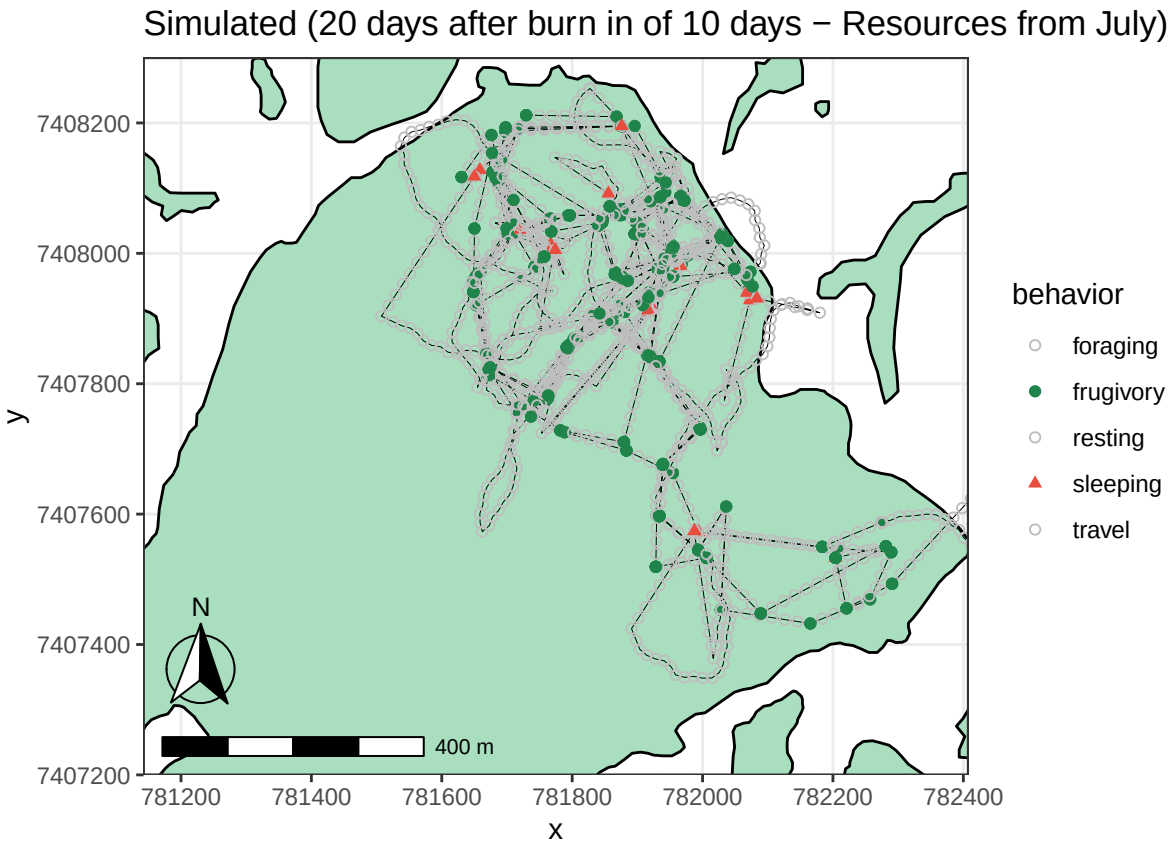

Empirical (July only, 6 days)
7408200
7408000
7407800
7407600
7407400
7407200
y
781200
781400
781600
781800
782000
782200
782400
x
N
400 m
behavior
agonistic
feed_fruits
for
idle
outofsight
resting
sleeping
travel
NA

Guareí simulated



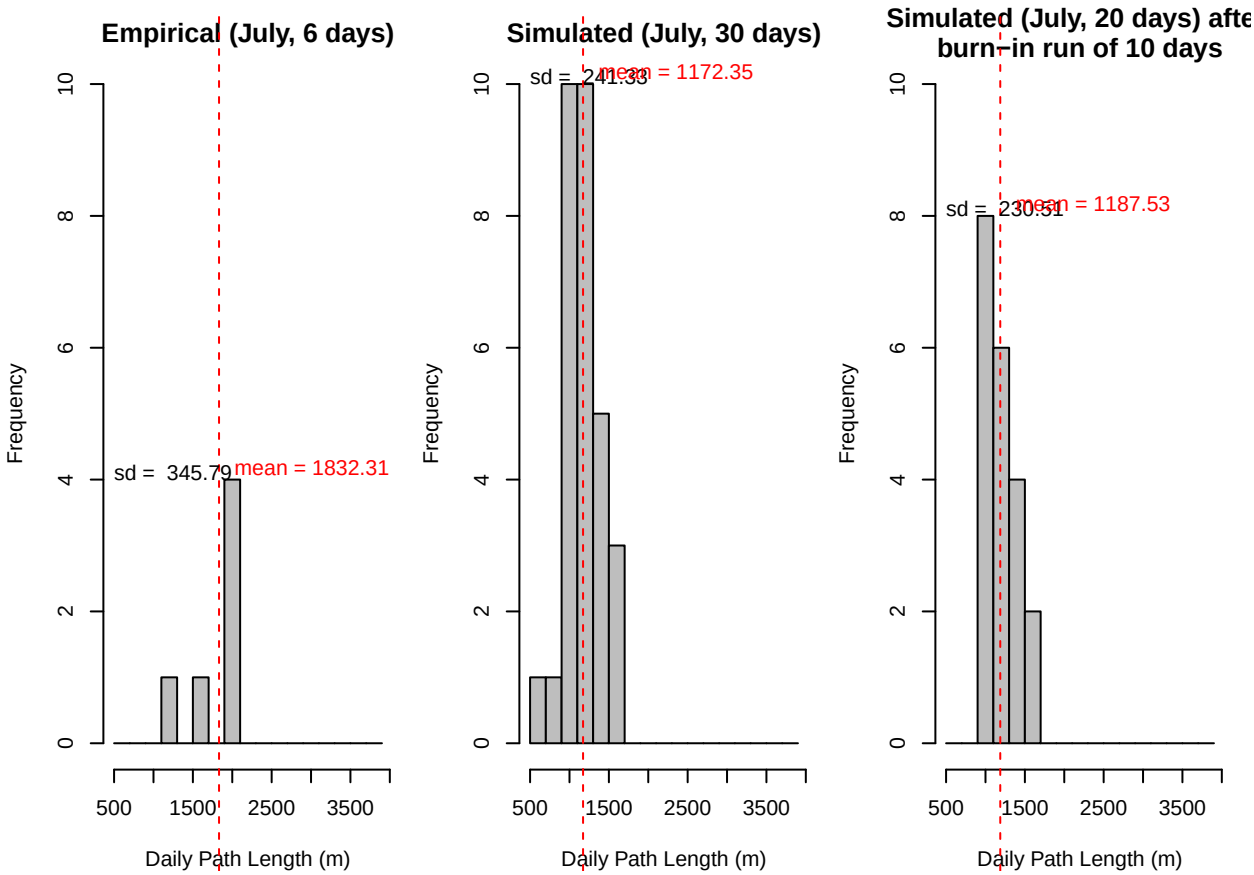


Validation Patterns

We are not checking seed dispersal patterns now, just movement and ranging patterns.

Dayly Path Lenght (DPL)

Calculate and plot DPL



Home Range

Comparison between methods: https://doi.org/10.1111/2041-210X.13786

Turning Angles and Step Lenghts

```
## [1] "Empirical (July, 6 d) Mean Relative Angle (degrees) =  0.06"

## [1] "Simulated (July, 30 d) Mean Relative Angle (degrees) 0.01"

## [1] "Simulated (July, 20 d, after burn-in run of 10 days) Mean Relative Angle (degree

## [1] "Mean Relative Angle (degrees) : 3.60006621892628"

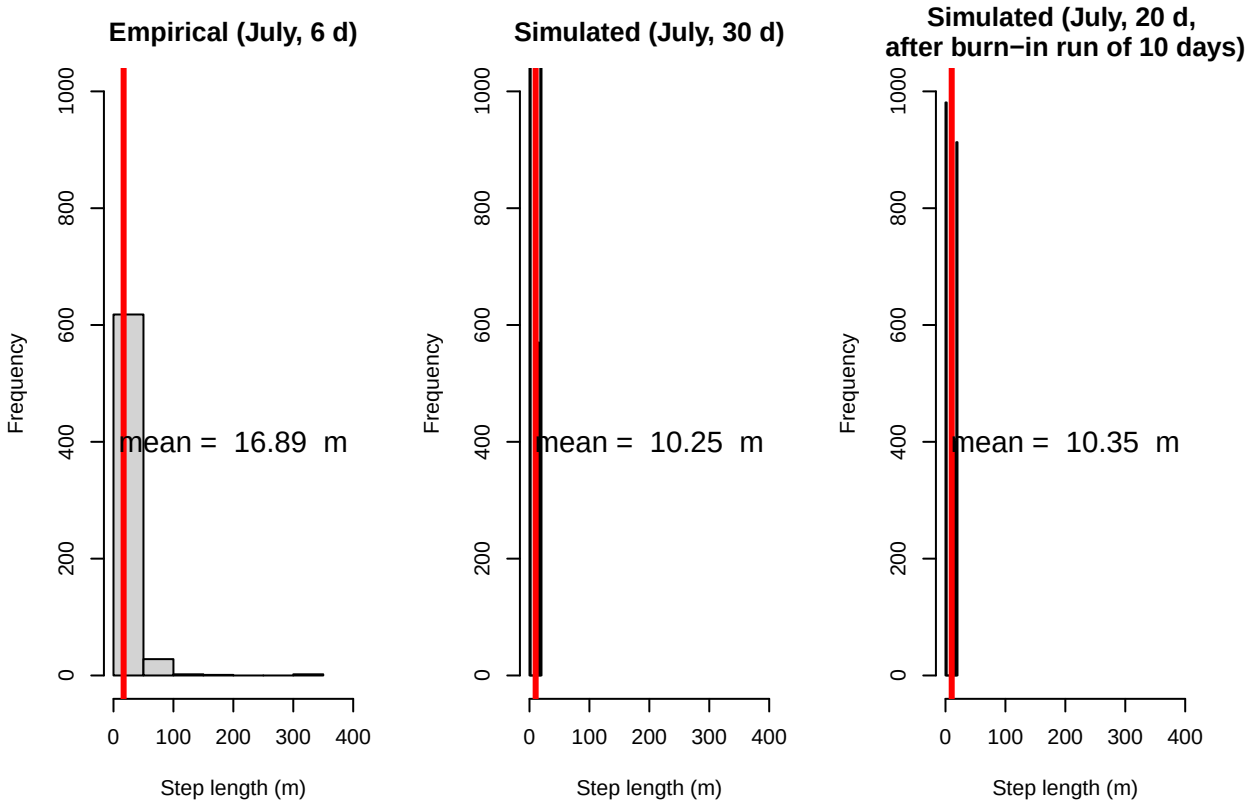
## [1] "Mean Relative Angle (degrees) : 0.386297408087265"

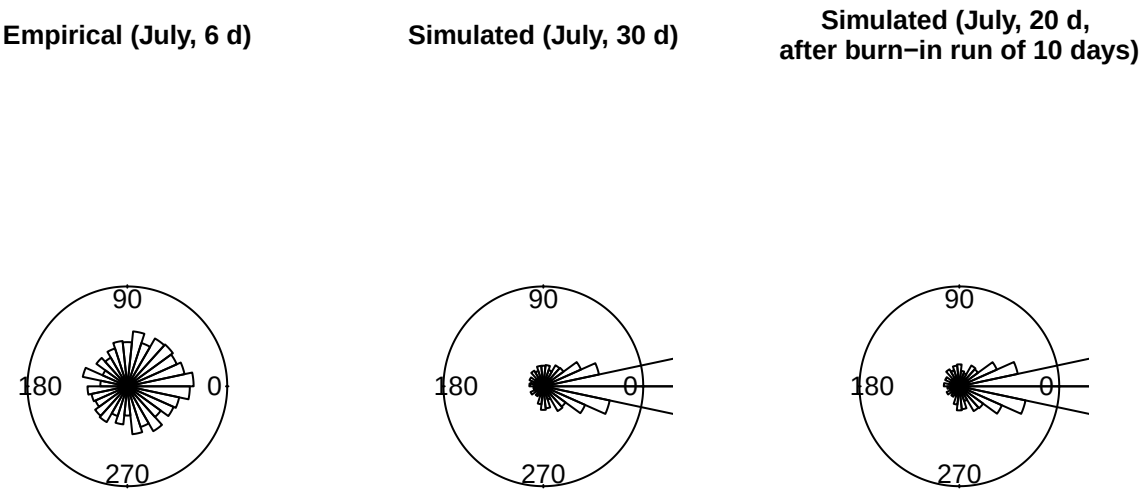
## [1] "Mean Relative Angle (degrees) : -0.119157674256658"

## [1] "Mean Step lenght (meters) : 16.88761495443"
```

```
## [1] "Mean Step lenght (meters) : 10.2508063826726"
```

```
## [1] "Mean Step lenght (meters) : 10.3488574898088"
```





Revisitations (coming soon)

Conclusions

The *four* problems with this model are:

1) After the burnin they spend too much time foraging
2) Tamarins are still not properly bouncing at the border of the fragment (while foraging)
3) Foraging occurs for too long
4) Constant step lenght