

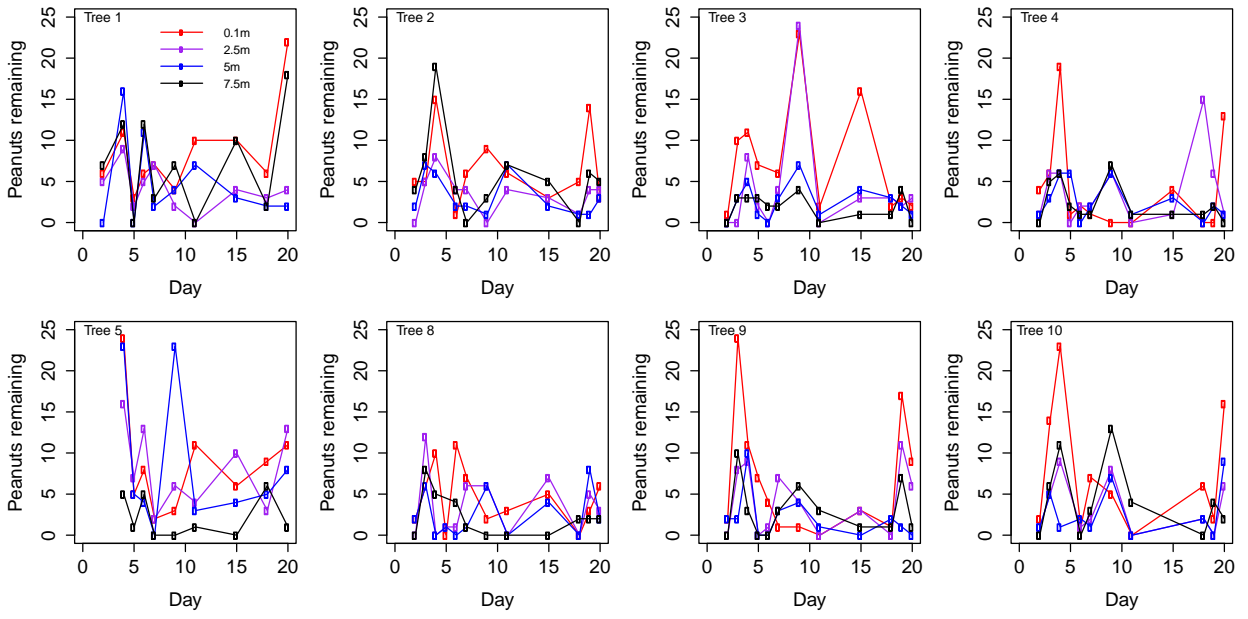
## 1 Supplementary Material

2 **Table S1:** Maximum likelihood parameter estimates for models fit to both sets of group data and  
 3 used for the likelihood ratio tests. Model descriptions that include a Z, F, or V, indicate that  
 4 GUD is affected by basin height, whether the group is followed that day, and the number of  
 5 times the tree had been previously visited, respectively.  $K$  is the number of model parameters  
 6 estimated and  $LL_{\max}$  is the maximum log-likelihood. The seven independent model parameters  
 7 that describe variation among trees,  $w_1$ - $w_7$ , are not presented here. Note that  $w_8 = -\sum_{i=1}^7 w_i$ .  
 8 Fits are presented for both groups. The first set of parameter estimates are for all the data (i.e.  
 9 days followed and not followed), whereas the second set only examines data collected on days  
 10 when a group was followed.

Maximum-likelihood model parameter estimates										
Model	$\beta_0$	$\beta_F$	$\beta_Z$	$\beta_{ZF}$	$\beta_V$	$\beta_{VF}$	$\phi$	$\sigma$	$K$	$LL_{\max}$
<b>Barn Group</b>										
<i>Consider days when the group was followed and days when it was not followed</i>										
M(Z+V)	-1.483	0	-0.079	0	-0.011	0	0.160	0.583	12	-1352.1
M(F+V)	-1.519	-0.720	0	0	-0.007	0.004	0.171	0.455	13	-1359.2
M(F+Z)	-1.185	-1.058	-0.110	0.094	0	0	0.156	0.473	13	-1344.7
M(F+Z+V)	-1.163	-1.021	-0.112	0.096	-0.001	0.000	0.157	0.473	15	-1344.7
<i>Only consider days when the group was followed</i>										
M(V)	-2.235	NA	0	NA	-0.007	NA	0.151	0.203	11	-481.0
M(Z)	-2.261	NA	-0.010	NA	0	NA	0.150	0.208	11	-481.0
M(Z+V)	-2.210	NA	-0.010	NA	-0.005	NA	0.151	0.203	12	-480.9
<b>House Group</b>										
<i>Consider days when the group was followed and days when it was not followed</i>										
M(Z+V)	-0.002	0	-0.103	0	-0.098	0	0.371	0.496	12	-1253.0
M(F+V)	-0.002	-1.169	0	0	-0.108	0.087	0.401	0.297	13	-1256.9
M(F+Z)	-0.387	-0.654	-0.120	0.044	0	0	0.371	0.447	13	-1252.1
M(F+Z+V)	-0.002	-0.852	-0.097	0.017	-0.083	0.058	0.372	0.330	15	-1247.5
<i>Only consider days when the group was followed</i>										
M(V)	-1.224	NA	0	NA	-0.016	NA	0.384	0.065	11	-822.5
M(Z)	-1.055	NA	-0.076	NA	0	NA	0.366	0.079	11	-818.6
M(Z+V)	-0.953	NA	-0.075	NA	-0.016	NA	0.365	0.070	12	-818.2

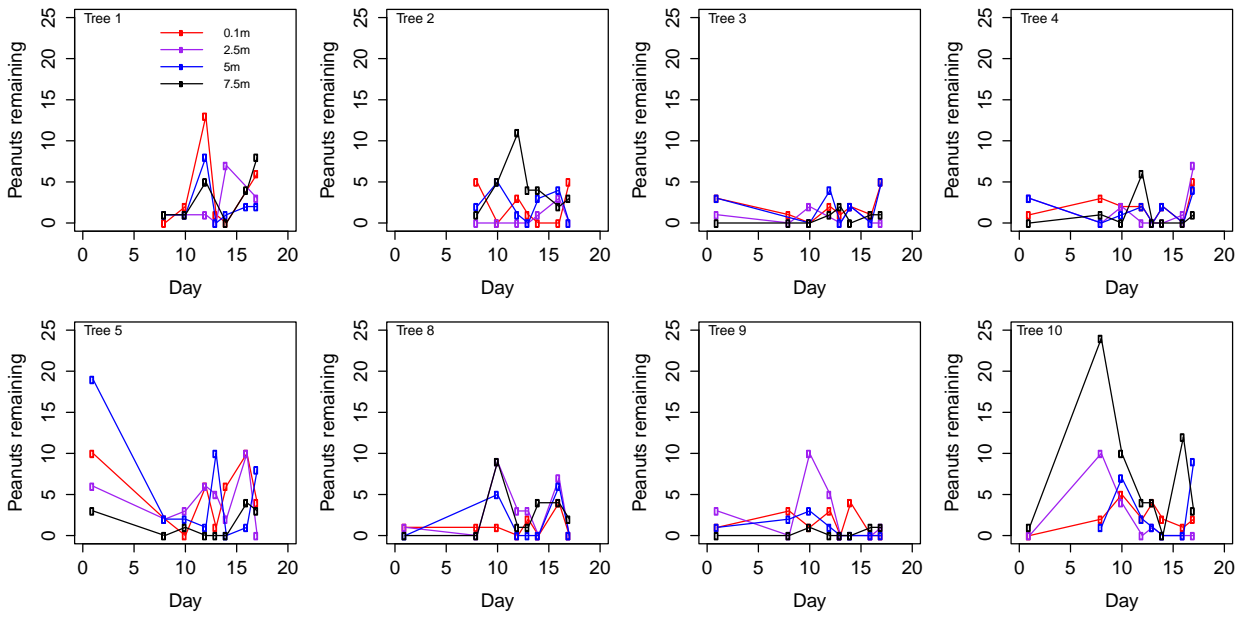
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13 (A) Barn group when not followed



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15 (B) Barn group when followed

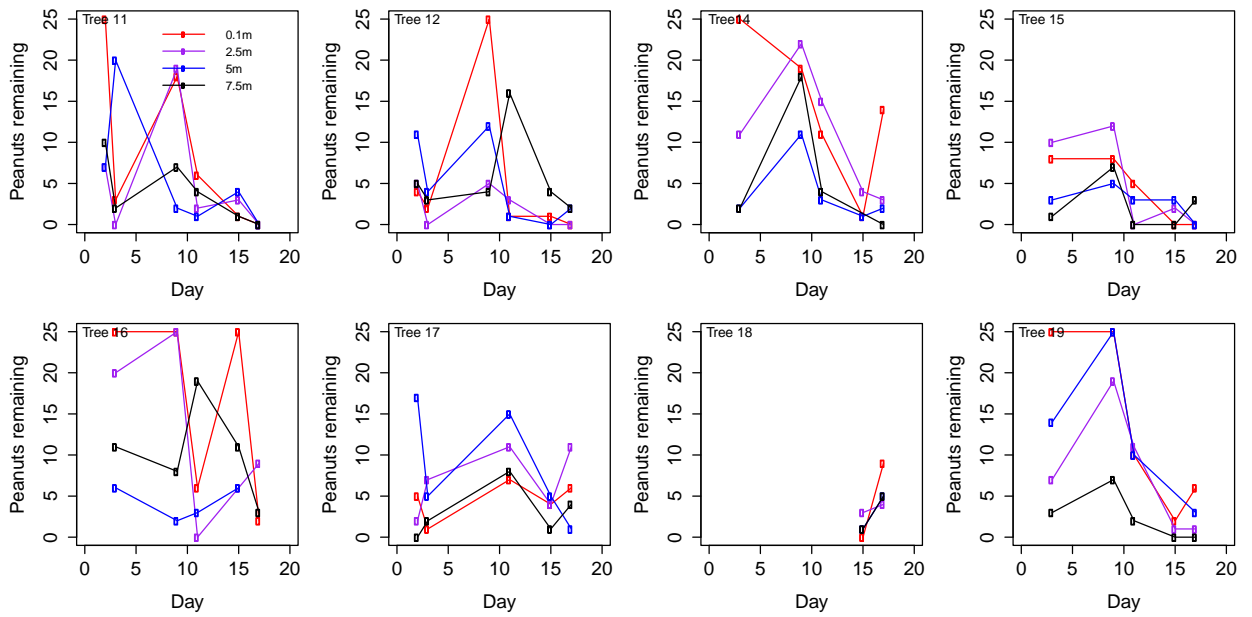


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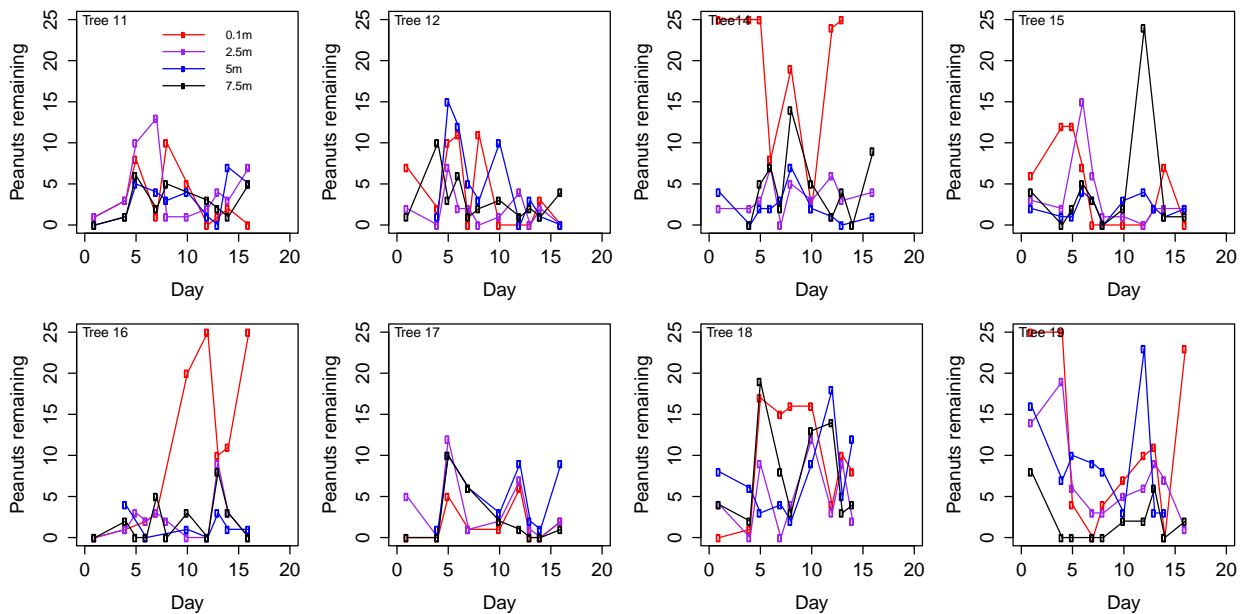
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19 (C) House group when not followed



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21 (D) House group when followed



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23 **Figure S1:** Peanuts remaining in basins for two groups of samango monkeys across 20 sampling  
 24 days. Note that sampling days span a 5-week period. Data are segregated according to whether  
 25 or not the group was followed on the sampling day. Each panel depicts peanuts remaining at a  
 26 specific tree for four basin heights. These data show very high variation in peanut numbers  
 27 across sampling days and even among basins on a given day, supporting our assumption that the  
 28 data are beta-binomial distributed. The data also suggest some degree of between-tree variation,  
 29 which supports our model incorporating tree as a random factor.