

Appendix 1. Supplementary tables of model parameters used in Distance and GAM analyses.

Table A1.1. Tree species occurring in our study site that are reported in the diet or used as nest-sites by mealy parrots (*Amazona guatemalae* and *A. farinosa*)

Family/Plant species	Data sourced	Region	Country	Reference
Apocynaceae				
<i>Aspidosperma megalocarpo</i>	Diet	Central and South America	Guatemala, Peru	Bjork 2004, Lee et al. 2014
Anacardiaceae				
<i>Astronium graveolens</i>	Diet	South America	Peru	Lee et al. 2014
<i>Spondias mombin</i>	Nest-tree	Central America	Guatemala	Bjork 2004
Bombacaceae				
<i>Ochroma pyramidale</i>	Diet	South America	Peru	Lee et al. 2014
Clusiaceae				
<i>Calophyllum brasiliense</i>	Nest-tree and diet	Central America	Guatemala	Bjork 2004
Combretaceae				
<i>Terminalia amazonica</i>	Nest-tree and diet	Central America	Guatemala	Bjork 2004
Fabaceae				
<i>Dialium guienense</i>	Diet	South America	Peru	Lee et al. 2014
<i>Enterolobium cyclocarpum</i>	Nest-tree	Central America	Guatemala	Bjork 2004
<i>Vatairea lundelii</i>	Nest-tree and diet	Central America	Guatemala	Bjork 2004
Elaeocarpaceae				
<i>Sloanea</i> sp.	Diet	South America	Peru	Lee et al. 2014
Moraceae				
<i>Brosimum alicastrum</i>	Nest-tree and diet	Central and South America	Guatemala, Peru	Bjork 2004, Lee et al. 2014
<i>Ficus</i> sp.	Nest-tree and diet	Central and South America	Guatemala, Peru	Bjork 2004, Lee et al. 2014
Sapotaceae				
<i>Manilkara zapota</i>	Nest-tree	Central America	Guatemala	Bjork 2004
<i>Pouteria sapota</i>	Nest-tree	Central America	Guatemala	Bjork 2004

Table A1.2. Multiple-covariates distance sampling models with forest structure covariates for density of Northern Mealy Amazons during the breeding season (March 2014) in tropical moist forest of Los Chimalapas, Mexico. Models are ordered by the lowest Akaike's Information Criterion (AIC), with delta Akaike differences (ΔAIC), and Akaike weights (AIC_{wi}) between models. K = number of parameters; % CV = Coefficient of Variation for each density model.

Model and adjustment terms	Covariates	% CV	K	AIC	ΔAIC	AIC_{wi}
Half-normal cosine	Tree density + mean height	25.6	5	1220.0	0.0	0.26
Half-normal simple polynomial	Tree density + mean height	80.8	5	1221.3	1.3	0.14
Half-normal cosine	Tree density + mean height + mean dbh	25.9	6	1221.7	1.7	0.11
Half-normal cosine	mean height	25.7	4	1222.5	2.5	0.07
Half-normal cosine	mean dbh + mean height	25.9	5	1222.6	2.6	0.07
Half-normal simple polynomial	mean height	63.1	4	1223.3	3.3	0.05
Hazard simple polynomial	mean dbh + mean height	25.8	4	1223.3	3.3	0.05
Hazard cosine	mean dbh + mean height	25.8	4	1223.3	3.3	0.05
Half-normal simple polynomial	mean dbh + mean height	65.6	5	1223.8	3.8	0.04
Hazard simple polynomial	Tree density + mean dbh	31.2	5	1223.9	3.9	0.04
Half-normal cosine	Tree density + mean dbh	25.7	5	1224.5	4.5	0.03
Half-normal cosine	Tree density	25.7	4	1224.6	4.6	0.03
Hazard cosine	Tree density + mean dbh	25.4	4	1225.9	5.9	0.01
Hazard simple polynomial	mean height	90.3	5	1226.1	6.1	0.01
Half-normal simple polynomial	Tree density	79.9	4	1226.3	6.3	0.01
Hazard simple polynomial	Tree density + mean height	25.7	5	1226.6	6.6	0.01
Half-normal simple polynomial	Tree density + mean dbh	80.3	5	1226.7	6.7	0.01
Hazard cosine	Tree density + mean height	25.4	4	1228.1	8.1	0.00
Hazard simple polynomial	Tree density	25.8	4	1228.6	8.6	0.00

Hazard simple polynomial	Tree density + mean height + mean dbh	59	6	1228.7	8.7	0.00
Hazard cosine	Tree density + mean height + mean dbh	60.8	5	1229.3	9.3	0.00
Hazard cosine	Tree density	25.9	4	1230.6	10.6	0.00
Hazard simple polynomial	mean dbh	25.6	4	1231.3	11.3	0.00
Hazard cosine	mean dbh	25.4	3	1231.4	11.4	0.00
Hazard cosine	mean height	25.3	3	1231.4	11.4	0.00
Half-normal cosine	mean dbh	25.5	4	1234.8	14.8	0.00
Half-normal simple polynomial	mean dbh	57.8	4	1236.0	16.0	0.00

Table A1.3. Results of GAMs incorporating three principal components (PC) to predict: a) abundance, and b) presence of Northern Mealy Amazons during the breeding season (March 2014) in a modified landscape of tropical moist forest, Los Chimalapas, Mexico. Models are ordered by the lowest Akaike's Information Criterion (AIC), with delta Akaike differences (Δ AIC), and Akaike weights (AIC w_i) between models. K = total number of parameters.

a) Number of Northern Mealy Amazons at point count

Models	Deviance explained (%)	K	AIC	Δ AIC	AIC w_i
PC1 + PC2 + PC3	73.8	4	508.3	0.0	1.0
PC1 + PC2	57.3	3	543.9	35.6	0.0
PC2 + PC3	50.4	3	576.7	68.4	0.0
PC2	37.6	2	596.8	88.5	0.0
PC1+ PC3	37	3	636.1	127.8	0.0
PC1	26.1	2	674.9	166.6	0.0
PC3	11.6	2	718.9	210.6	0.0

b) Presence of Northern Mealy Amazons within 50 m of point count

Models	Deviance explained (%)	K	AIC	Δ AIC	AIC w_i
PC1 + PC2 + PC3	34.9	4	94.1	0.0	0.53
PC1 + PC2	29.5	3	94.4	0.3	0.45
PC2 + PC3	28.1	3	101.6	7.5	0.01
PC2	20.7	2	103.4	9.3	0.01
PC1 + PC3	12.9	3	106.6	12.5	0.00
PC1	7.5	2	108.1	14	0.00
PC3	3.8	2	112.1	18	0.00