Supplementary Material

Functional trait filtering of aerial insectivorous forest bats in Amazonian cattle-dominated landscapes

This supplementary material contains:

- **Figure A1** Estimates of wing morphology values
- **Figure A2** Environmental variables values
- **Figure A3** Ordination plots
- **Table A1** Trait values
- **Table A2** Model output tables
- Landscape variable calculations

Figure A1. Estimating wing morphology values

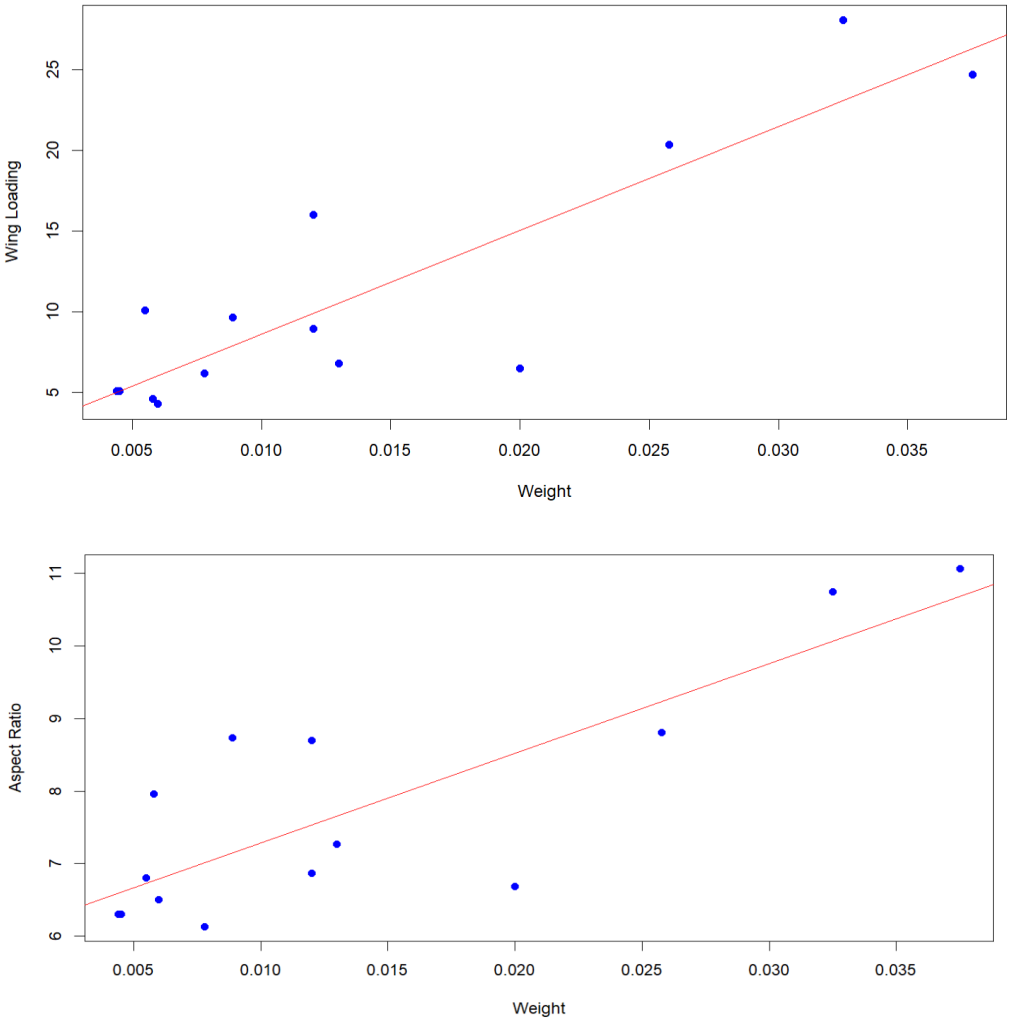

Figure A1. Linear regression demonstrating the relationship between body mass and (a) relative wing loading (rWL) and (b) aspect ratio (AR) of the AIBs included in the analysis. Equations of the regression were used to estimate values of rWL and AR for Noctilio albus, Saccopteryx canescens, and Peropteryx trinitatis. rWL = 642.732*Weight + 2.187, adjusted R^2 = 0.7558; AR = 123.4593*Weight + 6.0485, adjusted R^2 = 0.6503.

Figure A2. Environmental variables values

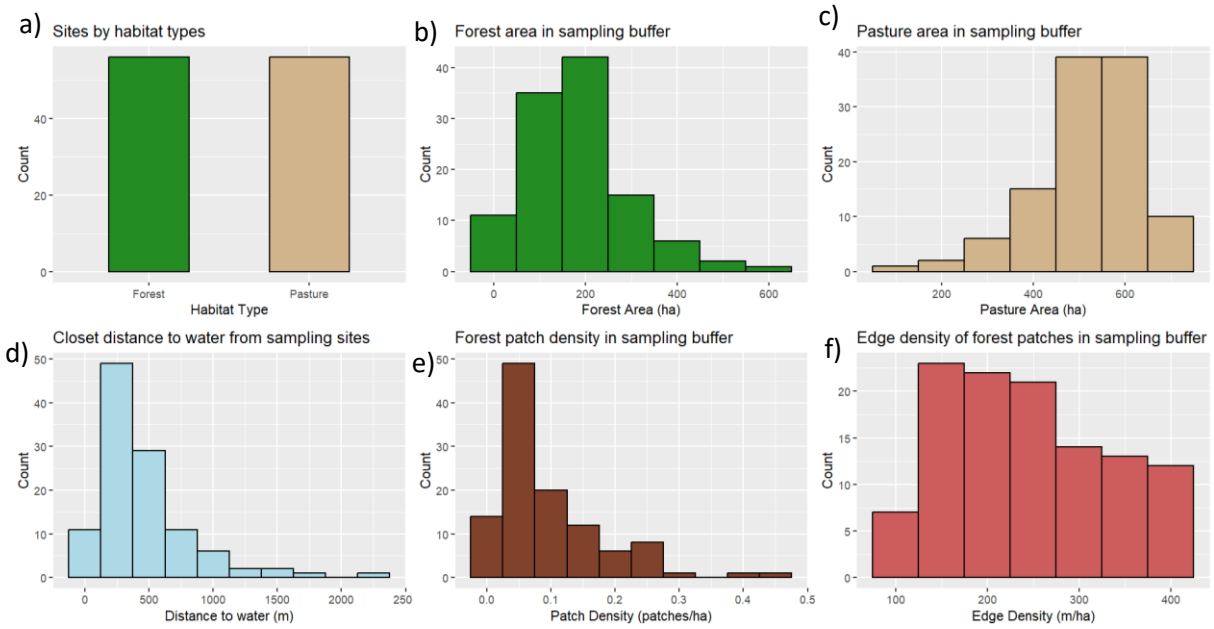

Figure A2. Values of the six environmental variables included in the analysis (a) Habitat type (either forest or pasture), (b) Forest area in the sampling buffer (ha), (c) Pasture area in the sampling buffer (ha), (d) The closest distance to water from each of the sampling sites, (e) the patch density of forest in the sampling buffer, and (f) the edge density of forest patches in the sampling buffer

Figure A3. Ordination plots

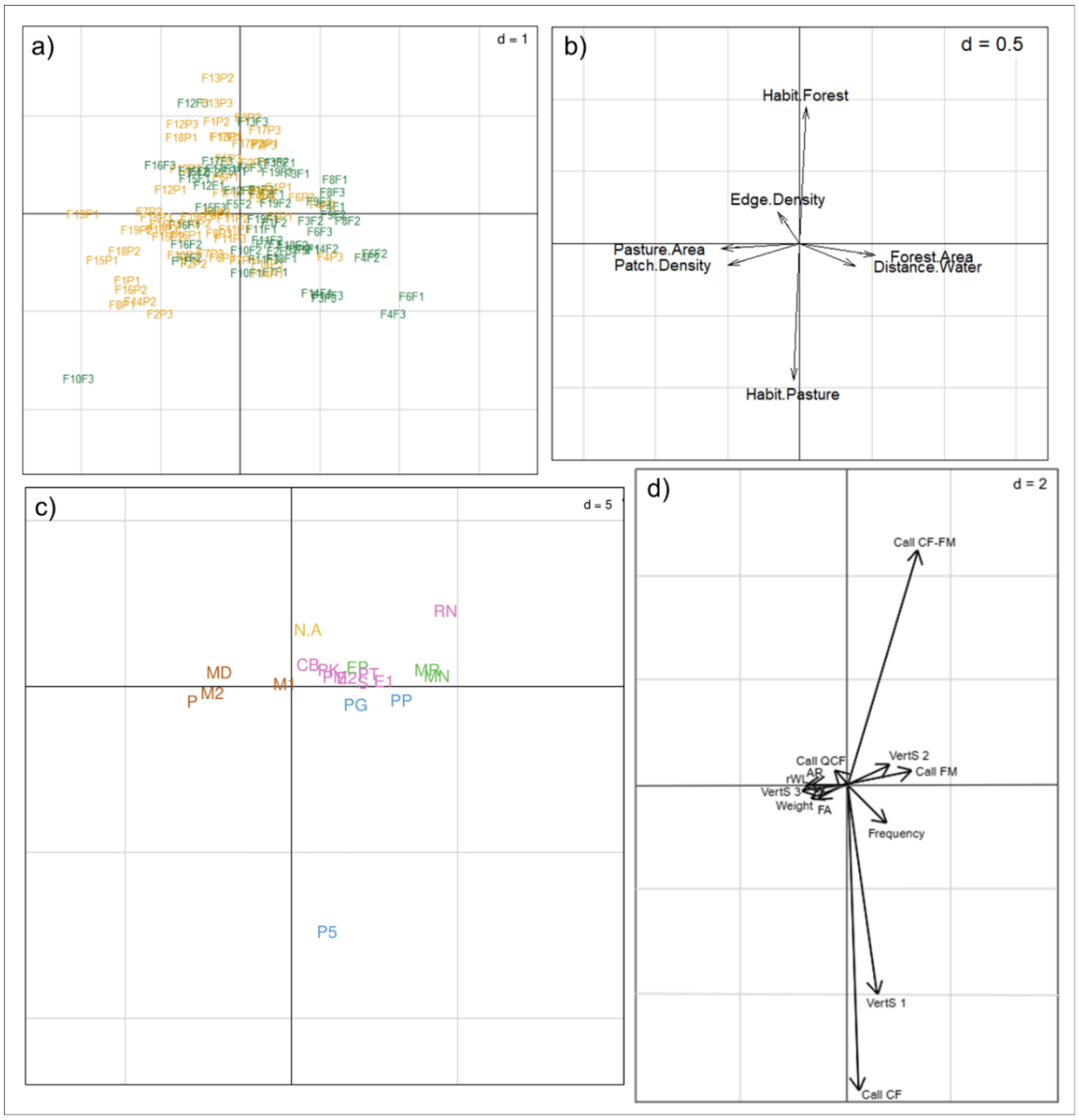

Figure A3: The first two axes from the RLQ analysis showing the distribution in ordination space of (a) Sites: Yellow = Pasture, Green = Forest (b) Environmental variables (c) Sonotypes: Orange = Molossidae, Purple = Emballonuridae, Green = Vespertilionidae, Yellow = Noctilionidae, Blue = Mormoopidae (See Table 1 for sonotype abbreviations) and (d) Traits (see Table 2 for trait abbreviations).

Table A1. Trait values

Table A1. Values of the functional traits for each of the 19 species/sonotypes included in the analysis. Relative wing loading = Wing loading (adult mass multiplied by gravitational acceleration divided by wingspan) divided by mass raised to a third: rWL = (Mg/S)/mass$^{1/3}$; Aspect ratio = The square of the adult wingspan, divided by the area of the wing: AR = B^2/S.

SPS	Species	Frequency	Call_structure	Weight	AR	WL	VertS	FA_smallest*
E2	Centronycteris maximiliani/centralis	40	QCF	5.8	7.9575	4.61	2	41.5
CB	Cormura brevirostris	28	QCF	8.9	8.73	9.66	2	41
EP	Eptesicus brasiliensis	32	FM	12	6.8648	8.94	2	40
M1	Molossus molossus	38.25	QCF	12	8.7	16	3	37
MN	Myotis nigricans	60	FM	4.5	6.3	5.1	2	30
MR	Myotis riparius	50	FM	4.4	6.3	5.1	2	31
PK	Peropteryx kappleri	31	QCF	8.1	7.3268	6.66	2	43
PM	Peropteryx macrotis	38	QCF	5.5	6.8	10.1	2	43
P	Promops sp.	32.25	QCF	37.5	11.0626	24.7	3	48
PG	Pteronotus gymnonotus	55	CF-FM	13	6.4883	6.46	1	50
PG	Pteronotus gymnonotus	55	CF-FM	13	8.0428	7.1	1	50
P5	Pteronotus parnelli 55	55	CF	20	6.68	6.48	1	50
PP	Pteronotus personatus	68.5	CF-FM	7.5	6.7	5.97	1	40
S	Saccopteryx bilineata	43.5	QCF	9.3	4.5373	4.62	2	40.5
S	Saccopteryx bilineata	43.5	QCF	9.3	8.1719	7.66	2	40.5
S	Saccopteryx leptura	51.5	QCF	4.8	5.6774	6.25	2	40.5
MD	Eumops hansae	20	QCF	16.5	8.6961	22.49	3	44.2
MD	Eumops auripendulus	20	QCF	32	10.6799	19.89	3	44.2
MD	Eumops maurus	20	QCF	22	8.4748	13.13	3	44.2
MD	Cynomops sp	20	QCF	32.55	7.3659	25.96	3	44.2
M2	M2	32.5	QCF	32.5	10.0647	22.79	3	41.5
M2	M2	32.5	QCF	32.5	11.0626	38.01	3	41.5
M2	Molossus ater	32.5	QCF	32.5	11.1	23.4	3	41.5
RN	Rhynchonycteris naso	98.88	CF-FM	6	6.5	4.3	2	35
N.A	Noctilio albus	73.06	CF-FM	25.7	9.22	18.71	2	54
E1	Saccopteryx canescens	54	QCF	5	6.67	5.4	2	35
PT	Peropteryx trinitatis	43.63	QCF	6	6.79	6.04	2	36

* Lowest values from the range of FA values were used from Lopez-Baucells et al (2016)

Table A2. Model output tables

Rao's Q				
	Estimate	Std Error	Z value	P-value
Intercept	-1.17013	0.06558	-17.842	<2e-16
Habitat (pasture)	-0.05385	0.07407	-0.727	0.467

Simpson's				
	Estimate	Std Error	Z value	P-value
Intercept	0.81791	0.07955	10.282	<2e-16
Habitat (pasture)	-0.05303	0.08651	-0.613	0.54

Uniqueness				
	Estimate	Std Error	Z value	P-value
Intercept	-0.66581	0.05301	-12.560	<2e-16
Habitat (pasture)	-0.05283	0.05970	-0.885	0.376

Landscape variable calculations

Landscape variables were calculated in QGIS using land-use data from MapBiomass Brazil (Land cover and use, Collection 9).

Forest and pasture cover was calculated as follows:
Land-use cover = Total area of land-use pixel / Buffer area

Forest patch density was calculated as follows:
*Forest patch density (patches per ha) = (number of forest patches / total area of forest in buffer (m^2)) * 10,000*

Edge density was calculated as follows:
*Edge density (meters per ha) = (total length of forest patch edges (m) / buffer area (m^2)) * 10,000*