

MODELING THE POTENTIAL DISTRIBUTION OF *Anamaria heterophylla*

(GIUL. & V.C. SOUZA) V.C. SOUZA (PLANTAGINACEAE) IN THE

CAATINGA

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Supplementary Material 1. *Anamaria heterophylla* (Plantaginaceae). Details of the aquatic habit, heterophily, acrodrome venation and thirsoid inflorescence with ramifications in dicasio. Photos by Siqueira- Filho, J. A. (2009), available in Herbarium of the Universidade Federal do Vale do São Francisco (HVASF) <http://www.hvasf.univasf.edu.br/index.php?page=dados>



Supplementary Material 2. Records of *Anamaria heterophylla* accurate and without influence of spatial autocorrelation bias.

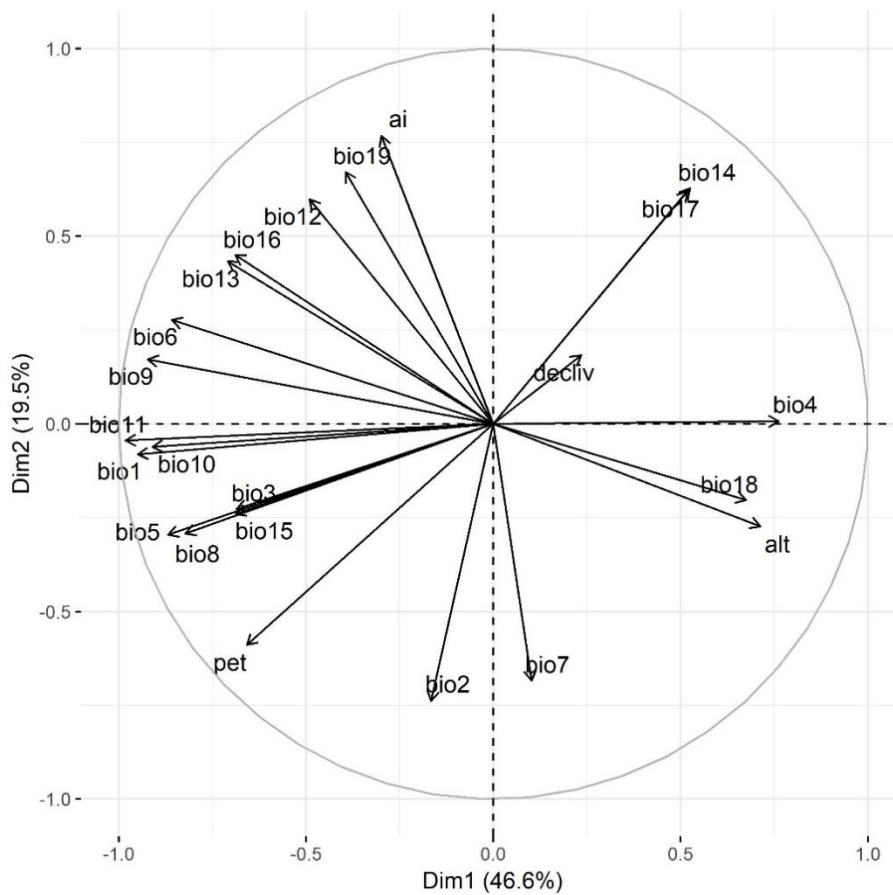
Records	Herbarium	Coordinates in decimal degrees (DD)		City/State
		Longitude	Latitude	
1	BAH	-43,361944	-13,403889	Bom Jesus da Lapa/BA
2	MOBOT_BR	-43,21666	-13,16666	Bom Jesus da Lapa/BA
3	MBM	-42,781398	-14,22329	Guanambi/BA
4	HVASF	-41,344	-4,980055556	Buriti dos Montes/PI
5	HTSA	-41,235833	-9,533611	Casa Nova/BA
6	HUEFS	-41,185833	-9,26	Casa Nova/BA
7	HUEFS	-40,821111	-9,482222	Sobradinho/BA
8	HTSA	-40,603056	-9,285278	Petrolina/PE
9	IAC	-40,577778	-9,531667	Juazeiro/BA
10	HVASF	-40,54963889	-9,331583333	Petrolina/PE
11	ESA	-40,533333	-4,816667	Nova Russas/CE
12	HVASF	-40,447361	-9,207917	Petrolina/PE
13	HVASF	-40,367917	-9,198528	Petrolina/PE
14	NYBG_BR	-40,21	-12,76	Iaçu/BA
15	HTSA	-40,201944	-8,035278	Ouricuri/PE
16	ESA	-40,15	-6,183333	Arneiroz/CE
17	HTSA	-40,115	-9,524722	Juazeiro/BA
18	HVASF	-39,596667	-8,144167	Parnamirim/PE
19	NYBG_BR	-39,3856	-11,8069	Riachão do Jacuípe/BA
20	ESA	-38,2983	-7,99194	Serra Talhada/PE
21	HVASF	-37,78322222	-8,334472222	Custódia/PE
22	HVASF	-37,715306	-8,255694	Custódia/PE
23	HUEFS	-37,561389	-9,699167	Pão de Açúcar/AL
24	EAC	-37,357222	-6,221944	São José do Brejo do Cruz/PB
25	EAC	-37,169444	-6,683333	São João do Sabugi/RN
26	HUEFS	-36,588611	-5,905556	Santana do Matos/RN

Supplementary Material 3. Eigenvalues of the variables for the significant axes of PCA.

Variables		Axis 1	Axis 2	Axis 3	Axis 4
ai	Aridity index	0.0913	0.3626	0.3064	0.1169
alt	Elevation	0.2177	0.1293	0.3108	0.1335
bio1	Annual Mean Temperature	0.2898	0.0384	0.1468	0.0998
bio2	Mean Diurnal Range (Mean of monthly (max temp - min temp	0.0508	0.3488	0.2846	0.2958
bio3	Isothermality (bio2/bio7) (* 100)	0.2093	0.1071	0.0976	0.1842
bio4	Temperature Seasonality (standard deviation *100)	0.2327	0.0032	0.1929	0.2184
bio5	Max Temperature of Warmest Month	0.2651	0.1397	0.0378	0.2566
bio6	Min Temperature of Coldest Month	0.2619	0.1309	0.2456	0.074
bio7	Temperature Annual Range (bio5-bio6)	0.0312	0.3235	0.2676	0.3838
bio8	Mean Temperature of Wettest Quarter	0.2511	0.138	0.1922	0.0983
bio9	Mean Temperature of Driest Quarter	0.2816	0.0813	0.163	0.0401
bio10	Mean Temperature of Warmest Quarter	0.2777	0.029	0.1875	0.154
bio11	Mean Temperature of Coldest Quarter	0.2996	0.0212	0.0682	0.0415
bio12	Annual Precipitation	0.1496	0.283	0.3332	0.1924
bio13	Precipitation of Wettest Month	0.2164	0.2046	0.2966	0.0476
bio14	Precipitation of Driest Month	0.1602	0.2966	0.1224	0.3079
bio15	Precipitation Seasonality (Coefficient of Variation)	0.21	0.1133	0.1575	0.3886
bio16	Precipitation of Wettest Quarter	0.2102	0.2128	0.3219	0.0247
bio17	Precipitation of Driest Quarter	0.1583	0.2934	0.1268	0.3346
bio18	Precipitation of Warmest Quarter	0.2061	0.0961	0.1149	0.1588
bio19	Precipitation of Coldest Quarter	0.1205	0.3172	0.0773	0.1355
decliv	Slope	0.0716	0.0864	0.1765	0.12
pet	Evapotranspiration	0.2008	0.2784	0.1213	0.2802

Bold values show selected variables.

Supplementary Material 4. Correlation circle of the first two axes of the Principal Component Analysis - PCA. Legends: bio1 = Annual Mean Temperature; bio2 = Mean Diurnal Range (Mean of monthly (max temp - min temp)); bio3 = Isothermality (bio2/bio7) (* 100); bio4 = Temperature Seasonality (standard deviation *100); bio5 = Max Temperature of Warmest Month; bio6 = Min Temperature of Coldest Month; bio7 = Temperature Annual Range (bio5-bio6); bio8 = Mean Temperature of Wettest Quarter; bio9 = Mean Temperature of Driest Quarter; bio10 = Mean Temperature of Warmest Quarter; bio11 = Mean Temperature of Coldest Quarter; bio12 = Annual Precipitation; bio13 = Precipitation of Wettest Month; bio14 = Precipitation of Driest Month; bio15 = Precipitation Seasonality (Coefficient of Variation); bio16 = Precipitation of Wettest Quarter; bio17 = Precipitation of Driest Quarter; bio18 = Precipitation of Warmest Quarter; bio19 = Precipitation of Coldest Quarter; ai = aridity index; alt = elevation; decliv = slope; pet = evapotranspiration.



Supplementary Material 5. Values of the contribution of the ten optimization procedures and the final average model.

Replicates	AUC	Threshold (MTP)	TSS	Predicted area (Km²)	Predicted area (%)
Run 1	0.861	0.192	0.564	467,567.267	56.52
Run 2	0.813	0.331	0.784	499,626.673	60.4
Run 3	0.859	0.185	0.510	468,746.351	56.66
Run 4	0.835	0.258	0.597	490,312.444	59.27
Run 5	0.863	0.044	0.520	581,281.997	70.27
Run 6	0.836	0.106	0.594	437,401.439	52.87
Run 7	0.842	0.070	0.545	557,520.504	67.39
Run 8	0.821	0.280	0.659	563,383.770	68.1
Run 9	0.878	0.216	0.509	408,594.381	49.39
Run 10	0.866	0.311	0.550	450,040.631	54.4
Average	0.8474	0.1993	0.5832	492,447.5459	59.53
SD*	0.0212	0.0999	0.0844	57,979.54	7.009

SD* - Standard Deviation