Range expansion of treefrog species after previous declines in Costa Rica

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Table S1. Best-fitted candidate models selected to predict the range of eight species of treefrogs in Costa Rica. For each species we showed the total number of occurrences in raw and cleaned datasets, the candidate model selected, including feature classes (L, H, Q, and LHQ), regularization of multiplier values = 1-4 with increments of 1; the value of average test of the area under the receiver characteristic operator curve (AUC Mean), the lowest omission rate at minimum training presence (orMTP), and the equal training sensitivity and specificity threshold (ETSS) selected to generate our suitable habitat polygons.

Species	Occurrence points		Best-fitted model (AUC; orMTP)	ETSS
	Raw dataset	Cleaned dataset		
Agalychnis annae	332	54	L = 1 (0.82; 0.06)	0.24
Agalychnis lemur	274	26	H = 1 (0.73; 0.15)	0.6
Duellmanohyla uranochroa	253	29	H = 1 (0.56; 0.09)	0.6
Ecnomiohyla sukia	32	26	H = 1 (0.92; 0.07)	0.45
Isthmohyla angustilineata	91	11*	L = 1 (0.80; 0.30)	0.6
Isthmohyla pictipes	230	12*	Q = 2 (0.78; 0.08)	0.6
Isthmohyla pseudopuma	568	80	L = 4 (0.61; 0.12)	0.6
Isthmohyla rivularis	412	30	L = 4 (0.78; 0.09)	0.6

*For datasets with number of occurrences < 25 we used the 'N-1 Jackknife' as method of data partition instead of the 'block' method.

Table S2. Permutation importance (%) of the environmental predictors used to model the range of eight species of treefrogs in Costa Rica. The climatic predictors were BIO 02 = Mean Diurnal Range; BIO 03 = Isothermality; BIO 07 = Temperature Annual Range; BIO 08 = Mean Temperature of Wettest Quarter; BIO13 = Precipitation of Wettest Month; BIO 14 = Precipitation of Driest Month; BIO 18 = Precipitation of Warmest Quarter; BIO 19 = Precipitation of Coldest Quarter; CONT= Continentality; eQ = Emberger's pluviothermic quotient; PETWQ = Mean Monthly Potential Evapotranspiration of Warmest Quarter.

Predictor	Permutation importance (%)							
	Agalychnis annae	*Agalychnis lemur*	*Duellmanohyla uranochroa*	*Ecnomiohyla sukia*	*Isthmohyla angustilineata*	*Isthmohyla pictipes*	*Isthmohyla pseudopuma*	*Isthmohyla rivularis*
BIO 02	0.0	10.0	0.0	0.0	0.8	0.0	0.0	0.0
BIO 03	52.0	15.5	27.0	0.0	0.0	0.0	28.1	0.0
BIO 07	0.0	0.0	0.0	29.8	0.0	0.0	0.0	0.0
BIO 08	0.0	14.8	0.0	0.0	0.0	0.0	0.0	0.0
BIO 13	7.5	5.9	6.1	14.2	5.7	0.0	3.4	0.0
BIO 14	0.1	11.1	17.5	0.0	0.0	75.6	4.6	0.0
BIO 18	6.1	11.7	34.3	26.8	0.0	0.0	0.0	0.0
BIO 19	5.0	5.3	2.1	29.1	64.0	0.0	14.8	6.1
CONT	8.5	14.0	13.1	0.1	26.4	24.4	32.2	92.8
eQ	21.0	2.1	0.0	0	3.2	0.0	16.9	1.1
PETWQ	0.0	9.6	0.0	0	0.0	0.0	0.0	0.0