

Short Note

New records and a revision of the actual and potential distribution of
Discoglossus montalentii to facilitate future conservation assessments

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Supplementary Material

Table S1. An overview of *Discoglossus montalentii* distribution data, including spatial uncertainty, origin.

Locality	Altitude	Year	Y	X	Position accuracy (m)	Source	Used in ecological niche model?
Fountain along the D59 road. ca. 350 m by road W of the Tunnel de Bacino	460	1986	41.6119	9.1669	5	Clarke and Lanza (1990), Bisconti et al. (2013)	yes
Stream crossing the road n. 847 at about 400 m a.s.l. ca. 1 km by air N of Stazzona	400	1983	42.3754	9.3763	5	Clarke and Lanza (1990), Bisconti et al. (2013)	yes
Foresta di Valdu Niellu	1157	2010	42.2753	8.9029	5	G. Bruni	yes
Surroundings of Ravin de Mulinara. Osani	233	2016	42.3373	8.6528	5	G. Bruni	yes
Rau de Tuara. Osani	270	2016	42.3496	8.6649	5	G. Bruni	yes
Ruisseau de Macchiu. Galéria	299	2016	42.3677	8.6720	5	G. Bruni	yes
Penta-Acquatella	379	2016	42.4667	9.3628	5	G. Bruni	yes
Canale. Santa Maria di Lota	406	2016	42.7318	9.4313	5	G. Bruni	yes
Mandriale. Santa Maria di Lota	232	2016	42.7443	9.4212	5	G. Bruni	yes
Barrigioni. Sisco	279	2016	42.8116	9.4291	5	G. Bruni	yes
Lapedina. Pietracorbara	266	2016	42.8500	9.4179	5	G. Bruni	yes
Spergane. Luri	179	2016	42.9046	9.3856	5	G. Bruni	yes
Porto river. Custarella. Ota	80	2012	42.2556	8.7218	5	G. J. Verspui	yes
E of L'Ospédale	720	2018	41.6534	9.2077	5	J. Speybroeck	yes
W of L'Ospédale	1039	2018	41.6549	9.1751	5	J. Speybroeck	yes
W of L'Ospédale	996	2018	41.6571	9.1806	5	J. Speybroeck	yes
NE of Olmeto	257	2018	41.7214	8.9255	5	J. Speybroeck	yes
1.6 km in a straight line SSW of Village de Bavella	1157	2018	41.7820	9.2195	5	J. Speybroeck	yes
2.2 km in a straight line SW of Vizzavona	1112	2018	42.1169	9.1108	5	J. Speybroeck	yes
1 km in a straight line S Vizzavona	1064	2018	42.1189	9.1339	5	J. Speybroeck	yes
Custerella	73	2018	42.2557	8.7209	5	J. Speybroeck	yes
8.6 km in a straight line NE Évisa	1151	2018	42.2744	8.9037	5	J. Speybroeck	yes
Puddle next to bridge 3 km in a straight line E of Busso	874	2015	42.0938	9.1015	5	W. Beukema	yes

Ruisseau de Lucciola. Galéria	337	2010	42.3641	8.6650	10	D. Seglie	yes
Cirque de Bonifatu. piscine dans la Figarella Riviere 500 mt. E de la Maison Forestiere. Calenzana	500	2010	42.4413	8.8599	10	D. Seglie	yes
Forêt de Tetti. Galéria	200	2011	42.3794	8.6938	10	S. Salvidio. D. Seglie	yes
Between Plateu de Stagnu and Bocca della Culaja (Alta Valle dell'Asco)	1650	1972	42.3900	8.9100	3000	Clarke and Lanza (1990)	no
2.4 km in a straight line SE Levie	337	2008-2010	41.6895	9.1462	< 1000	Fleuriau and Bosc (2015)	yes
3.7 km in a straight line N Levie	467	2008-2010	41.7329	9.1084	< 1000	Fleuriau and Bosc (2015)	yes
3.7 km in a straight line N Levie	364	2008-2010	41.7360	9.0936	< 1000	Fleuriau and Bosc (2015)	yes
1.4 km in a straight line NW Quenza	835	2008-2010	41.7736	9.1261	< 1000	Fleuriau and Bosc (2015)	yes
5.6 km in a straight line NE Quenza	790	2008-2010	41.7874	9.2024	< 1000	Fleuriau and Bosc (2015)	yes
2.4 km in a straight line E Fozzaninco	1445	2008-2010	41.8202	9.1360	< 1000	Fleuriau and Bosc (2015)	yes
4.2 km in a straight line NNE Village de Bavella	1376	2008-2010	41.8322	9.2119	< 1000	Fleuriau and Bosc (2015)	yes
Rio Missaio	370	1977	41.6534	9.2077	<1000	Clarke and Lanza (1990)	yes
High valley of the Cavo river	900	1979	NA	NA	NA	Clarke and Lanza (1990)	no
Source de Bavella (= Funtana di u Cannone)	NA	1971	41.7946	9.2280	<1000	Clarke and Lanza (1990)	yes
Col de Vizzavona	NA	various	42.1100	9.1100	<1000	Clarke and Lanza (1990), Bisconti et al. (2013)	yes
Cascade des Anglais and surroundings	1000-1100	various	42.1200	9.1100	<1000	Clarke and Lanza (1990)	yes
Brook flowing into the sea near Piana	NA	1992	42.2450	8.6372	<1000	Vences et al. (1996)	yes
Ortale. 3 km E along the D71 road	NA	1992	42.3208	9.4439	<1000	Vences et al. (1996)	yes
Caldane along the D506. 2 km E along the road of the split with D205	NA	1992	42.4272	9.4246	<1000	Vences et al. (1996)	yes
Bonifatu	NA	1992	42.4500	8.8500	<1000	Vences et al. (1996)	yes
Sartene	300	1878	41.6200	8.9800	NA	Clarke and Lanza	no

Petrapiana	NA	1880	NA	NA	NA	(1990) Clarke and Lanza (1990)	no
Between Asco and Plateau de Stagnu	1200	1974	NA	NA	NA	Clarke and Lanza (1990)	no
Immediately W of Plateau de Stagnu	1450-1600	1972	NA	NA	NA	Clarke and Lanza (1990)	no
Restonica Valley (SW of Corte)	NA	1973	NA	NA	NA	Clarke and Lanza (1990)	no
Aitone forest	NA	1983	NA	NA	NA	Clarke and Lanza (1990)	no
Aleria?	NA	NA	NA	NA	NA	Clarke and Lanza (1990)	no
"Lago d'Argento" (on Monte Rotondo. exact location unknown)	NA	1880	NA	NA	NA	Clarke and Lanza (1990)	no
Rio de Velaco	NA	1975	NA	NA	NA	Clarke and Lanza (1990)	no
Rio Petra Piana	NA	1971	NA	NA	NA	Clarke and Lanza (1990), Bisconti et al. (2013)	no
Rio Artoli	NA	various	NA	NA	NA	Clarke and Lanza (1990)	no
Radici env.	694	1996	41.6443	9.1507	<1000	R. Sindaco	yes
Between l'Ospedale and Cartalavone	913	1997	41.6491	9.1851	<1000	R. Sindaco	yes
L'Ospedale lake surroundings	930	1996	41.6775	9.2020	<1000	R. Sindaco	yes
Foret Domaniale de l'Ospedale	933	1996	41.6856	9.1959	<1000	R. Sindaco	yes
Between Ospedale lake and Bocca d'Illarata	940	1996	41.6912	9.2060	<1000	R. Sindaco	yes
S of Bocca d'Illarata	952	1997	41.6949	9.2118	<1000	R. Sindaco	yes
Zonza	877	1996	41.7360	9.2078	<1000	R. Sindaco	yes
Foret Domaniale de Zonza	790	1997	41.7441	9.1975	<1000	R. Sindaco	yes
Restonica valley	652	1995	42.2755	9.1073	<1000	R. Sindaco	yes
Asco Valley	250	1997	42.4146	8.9444	<1000	R. Sindaco	yes

References

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Figure S1. Graphical summary of the assessed combinations between regularization multiplier values and feature classes (L = linear, LQ = linear and quadratic, LQP = linear, quadratic and product) and the resulting delta AICc value.

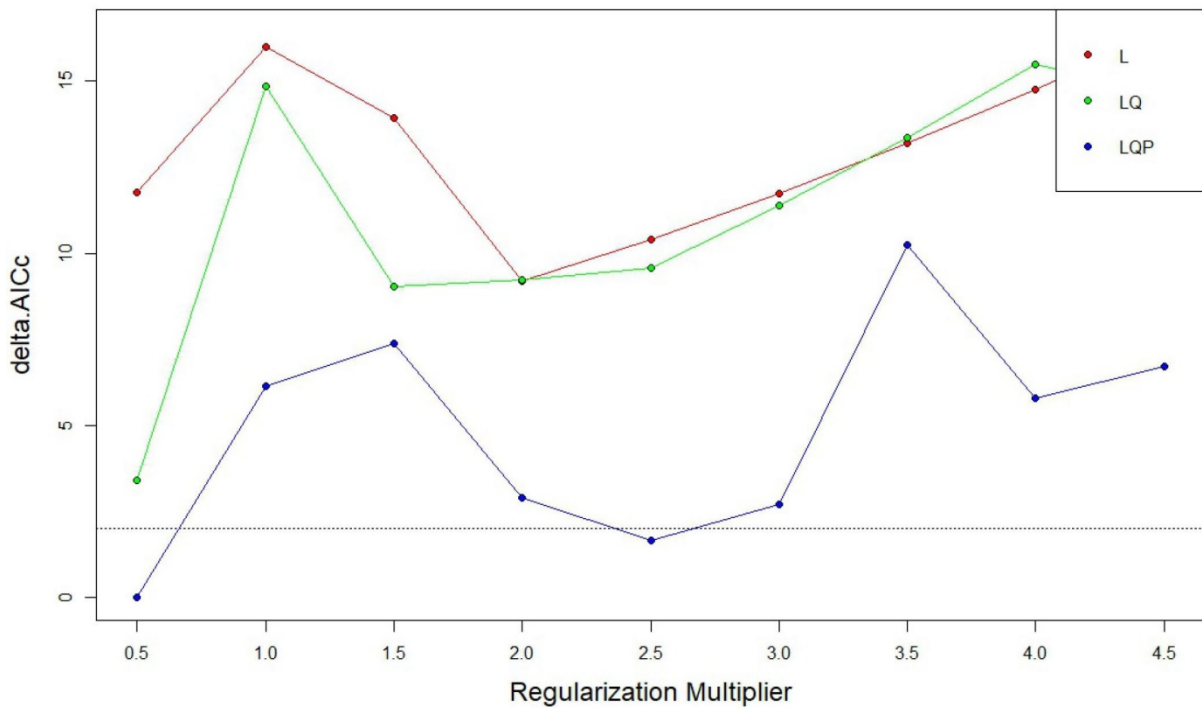


Figure S2. Response curves for each environmental parameter generated by Maxent.

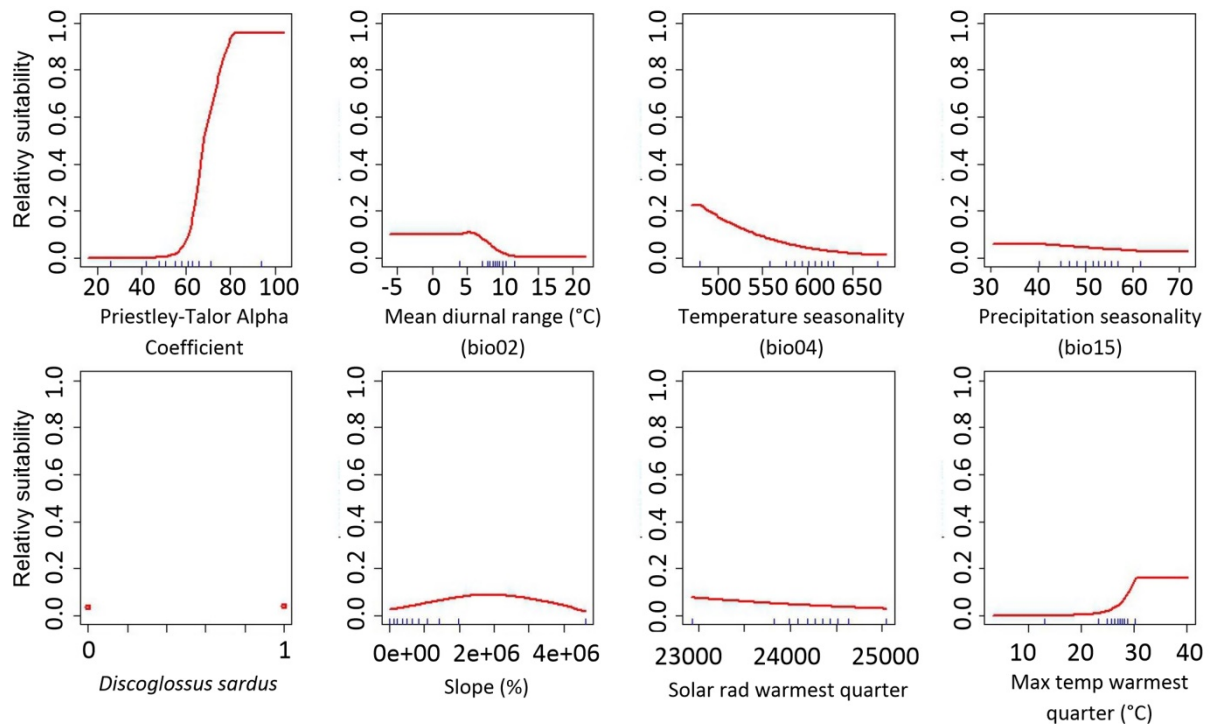


Table S2. Complete overview of validation scores for Maxent models built using different combinations of feature classes (L = linear, LQ = linear and quadratic, LQP = linear, quadratic and product) and regularization multipliers. Abbreviations include Area Under the Curve (AUC) and the Akaike information criterion corrected for small sample sizes (AICc). The model with the lowest AICc score is indicated in **bold**.

Settings	Feature classes	Regularization multiplier	Training AUC	Average testing AUC	AICc	delta AICc
L_0.5	L	0.5	0.8843	0.8632342	812.22	11.77695
LQ_0.5	LQ	0.5	0.9129	0.8748392	803.8524	3.409384
LQP_0.5	LQP	0.5	0.9062	0.8741394	800.443	0
L_1	L	1	0.8835	0.8622509	816.422	15.979002
LQ_1	LQ	1	0.8938	0.8650712	815.2972	14.854151
LQP_1	LQP	1	0.8965	0.8659833	806.5783	6.135312
L_1.5	L	1.5	0.8826	0.8618965	814.3804	13.937339
LQ_1.5	LQ	1.5	0.8888	0.8631569	809.4694	9.026403
LQP_1.5	LQP	1.5	0.8898	0.8635524	807.8242	7.381196
L_2	L	2	0.8825	0.8612851	809.6359	9.192863
LQ_2	LQ	2	0.8864	0.8607011	809.6655	9.222471
LQP_2	LQP	2	0.8869	0.8618274	803.3317	2.88871
L_2.5	L	2.5	0.883	0.8593676	810.8359	10.39287
LQ_2.5	LQ	2.5	0.8848	0.8594412	810.0106	9.567608
LQP_2.5	LQP	2.5	0.8854	0.8602494	802.1047	1.661644
L_3	L	3	0.8833	0.8575283	812.1672	11.724157
LQ_3	LQ	3	0.8848	0.8575794	811.8207	11.37763
LQP_3	LQP	3	0.8849	0.8582531	803.1434	2.700319
L_3.5	L	3.5	0.8838	0.8566903	813.6241	13.181051
LQ_3.5	LQ	3.5	0.8844	0.8557026	813.7971	13.354036
LQP_3.5	LQP	3.5	0.8837	0.8574774	810.6819	10.238871
L_4	L	4	0.8839	0.8554437	815.1909	14.747855
LQ_4	LQ	4	0.8837	0.8552392	815.9206	15.477568
LQP_4	LQP	4	0.8822	0.8563417	806.2427	5.799624
L_4.5	L	4.5	0.8834	0.8541519	816.8645	16.421515
LQ_4.5	LQ	4.5	0.8829	0.854676	815.0939	14.65083
LQP_4.5	LQP	4.5	0.8822	0.8534558	807.1624	6.719327

Table S3. Percent contribution and permutation importance of the seven parameters used to estimate the potential distribution of *Discoglossus montalentii*.

Parameter	% contribution	Permutation importance
Priestley-Talor Alpha Coefficient	26.32	79.30
Mean diurnal range	6.30	8.06
Temperature seasonality	4.79	3.91
Precipitation seasonality	34.45	0.47
<i>Discoglossus sardus</i>	0.12	0.63
Slope	7.76	4.27
Solar radiation of the warmest quarter	4.38	1.50
Maximum temperature of the warmest quarter	15.88	1.87

Figure S3. Ecological niches of *Discoglossus montalentii* (A) and *Discoglossus sardus* (B) in 2D environmental space, composed of the two first axes of a principal component analysis summarizing information of the environmental parameters. The solid and dashed contour lines illustrate 100% and 50% of the background environment. Panels C and D show histograms composed during similarity tests that display null distributions of 100 randomizations (grey bars) in respect to the actual niche overlap ($D = 0.044$; red arrow). *D. montalentii* is compared to *D. sardus* in panel C, vice versa in panel D. Significance of the tests is shown below.

