

**Taxonomic assessment and distribution of common toads (*Bufo bufo* and *B. verrucosissimus*) in Turkey based on morphological and molecular data**

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**Supplementary material**

**Table S1.** Sampling localities: indicating sample sizes for morphological and molecular analyses, and IDs, latitude, longitude, sample ID and species assignment based on mtDNA, locality code in Fig. 2 and GenBank Accession numbers for the sequences used in phylogenetic analyses.

Provinces	Sample size (♂)	Sample size (♀)	Sample size (Molecular)	Latitude	Longitude	Sample ID	Species	Locality code (Fig. 2)	16S	cytb	RAG1	Rpl3	References
Isparta	7	2	3	37.459857	30.904502	Isparta2	<i>B. bufo</i>	1	MN427462	MN432924	MN433030	MN476969	This study
						Isparta3	<i>B. bufo</i>	2	MN427468	MN432925	MN433031	MN476960	This study
						Isparta4	<i>B. bufo</i>	3	MN427463	MN432926	MN433032	MN476961	This study
Denizli	4	1	3	37.766994	28.972456	Denizli1	<i>B. bufo</i>	4	MN427460	MN432921	MN433006	MN476958	This study
						Denizli2	<i>B. bufo</i>	5	MN427461	MN432922	MN433007	MN476967	This study
						Denizli3	<i>B. bufo</i>	6	MN427455	MN432923	MN433008	MN476959	This study
İzmir	6	1	3	37.936607	27.422264	İzmir4	<i>B. bufo</i>	7	MN427494	MN432978	MN433033	MN476992	This study
						İzmir5	<i>B. bufo</i>	8	MN427495	MN432979	MN433034	MN476993	This study
						İzmir6	<i>B. bufo</i>	9	MN427496	MN432980	MN433035	MN477005	This study
Afyonkarahisar	1	4	3	38.506016	31.311516	Afyon1	<i>B. bufo</i>	10	MN427449	MN432913	MN433001	MN476952	This study
						Afyon3	<i>B. bufo</i>	11	MN427450	MN432948	MN433002	MN476953	This study
						Afyon4	<i>B. bufo</i>	12	MN427451	MN432914	MN433018	MN476954	This study
Kütahya	4	4	3	39.864236	29.6401423	Kutahya1	<i>B. bufo</i>	13	MN427519	MN432981	MN433042	MN477010	This study
						Kutahya2	<i>B. bufo</i>	14	MN427520	MN432982	MN433043	MN476987	This study
						Kutahya3	<i>B. bufo</i>	15	MN427521	MN432983	MN433044	MN477011	This study
Çanakkale	1	4	3	40.055243	26.4214873	Canakkale1	<i>B. bufo</i>	16	MN427513	MN432969	MN433023	MN476990	This study
						Canakkale2	<i>B. bufo</i>	17	MN427514	MN432970	MN433024	MN477000	This study
						Canakkale3	<i>B. bufo</i>	18	MN427515	MN432971	MN433025	MN476991	This study
Yalova	5	3	3	40.610907	29.070776	Yalova1	<i>B. bufo</i>	19	MN427510	MN432975	MN433050	MN476982	This study
						Yalova2	<i>B. bufo</i>	20	MN427511	MN432976	MN433051	MN477012	This study

						Yalova3	<i>B. bufo</i>	21	MN427512	MN432977	MN433052	MN477015	This study
Kırklareli	3	4	3	41.929597	27.366404	Kırklareli1	<i>B. bufo</i>	22	MN427500	MN432959	MN433040	MN477009	This study
						Kırklareli2	<i>B. bufo</i>	23	MN427501	MN432960	MN433041	MN476997	This study
						Kırklareli3	<i>B. bufo</i>	24	MN427502	MN432961	MN433057	MN476998	This study
İstanbul	1	2	3	41.22	28.96	İstanbul2	<i>B. bufo</i>	25	MN427486	MN432984	MN433054	MN476976	This study
						İstanbul3	<i>B. bufo</i>	26	MN427487	MN432985	MN433055	MN476977	This study
						İstanbul4	<i>B. bufo</i>	27	MN427488	MN432986	MN433056	MN476978	This study
Kocaeli	2	2	3	40.568289	30.004928	Kocaeli1	<i>B. bufo</i>	28	MN427516	MN432953	MN433013	MN477001	This study
						Kocaeli2	<i>B. bufo</i>	29	MN427517	MN432954	MN433026	MN477002	This study
						Kocaeli3	<i>B. bufo</i>	30	MN427518	MN432955	MN433027	MN477003	This study
Bolu	5	5	3	40.606408	31.2866436	Bolu1	<i>B. bufo</i>	31	MN427452	MN432918	MN433022	MN476957	This study
						Bolu2	<i>B. bufo</i>	32	MN427453	MN432919	MN433004	MN476972	This study
						Bolu6	<i>B. bufo</i>	33	MN427454	MN432920	MN433005	MN476973	This study
Bartın	4	3	3	41.430675	32.557278	Bartın4	<i>B. bufo</i>	34	MN427489	MN432962	MN433053	MN476988	This study
						Bartın5	<i>B. bufo</i>	35	MN427490	MN432956	MN433020	MN476999	This study
						Bartın6	<i>B. bufo</i>	36	MN427491	MN432957	MN433021	MN476989	This study
Karabük	8	-	3	41.426331	33.008059	Karabuk1	<i>B. bufo</i>	37	MN427503	MN432972	MN433038	MN476996	This study
						Karabuk2	<i>B. bufo</i>	38	MN427504	MN432973	MN433039	MN477007	This study
						Karabuk3	<i>B. bufo</i>	39	MN427505	MN432974	MN433017	MN477008	This study
Kastamonu	5	3	3	41.402751	33.697383	Kastamonu1	<i>B. bufo</i>	40	MN427497	MN432963	MN433014	MN476994	This study
						Kastamonu2	<i>B. bufo</i>	41	MN427498	MN432958	MN433036	MN477006	This study
						Kastamonu3	<i>B. bufo</i>	42	MN427499	MN432964	MN433037	MN476995	This study
Sinop	3	3	3	42.0245258	34.9196832	Sinop1	<i>B. bufo</i>	43	MN427507	MN432965	MN433047	MN476983	This study
						Sinop2	<i>B. bufo</i>	44	MN427508	MN432966	MN433048	MN476984	This study
						Sinop3	<i>B. bufo</i>	45	MN427509	MN432967	MN433049	MN476985	This study

Samsun	3	4	3	41.669594	36.035401	Samsun1	<i>B. bufo</i>	46	MN427506	MN432952	MN433059	MN477013	This study
						Samsun2	<i>B. bufo</i>	47	MN427485	MN432951	MN433060	MN477014	This study
						Samsun4	<i>B. bufo</i>	48	MN427522	MN432968	MN433016	MN476981	This study
Ordu	-	9	3	40.75732	37.429212	Ordu1	<i>B. bufo</i>	49	MN427480	MN432938	MN432988	MN476968	This study
						Ordu2	<i>B. bufo</i>	50	MN427481	MN432939	MN432989	MN476950	This study
						Ordu3	<i>B. bufo</i>	51	MN427482	MN432940	MN432990	MN476951	This study
Giresun	7	4	3	40.648342	38.4525183 6	Giresun4	<i>B. bufo</i>	52	MN427475	MN432934	MN432998	MN476947	This study
						Giresun5	<i>B. bufo</i>	53	MN427483	MN432935	MN432994	MN477004	This study
						Giresun6	<i>B. bufo</i>	54	MN427484	MN432936	MN433000	MN476948	This study
Trabzon	5	5	3	40.617968	40.2955634 3	Trabzon1	<i>B. bufo</i>	55	MN427477	MN432941	MN432995	MN476986	This study
						Trabzon3	<i>B. bufo</i>	56	MN427478	MN432942	MN432996	MN476974	This study
						Trabzon7	<i>B. bufo</i>	57	MN427479	MN432943	MN432997	MN476975	This study
Rize	4	11	3	41.027744	41.003802	Rize1	<i>B. bufo</i>	58	MN427476	MN432937	MN433009	MN476949	This study
						Rize2	<i>B. bufo</i>	59	MN427473	MN432932	MN432993	MN476945	This study
						Rize3	<i>B. bufo</i>	60	MN427474	MN432933	MN432994	MN476946	This study
Artvin	8	9	3	41.078664	41.762822	Artvin7	<i>B. verrucosissimus North</i>	61	MN427470	MN432929	MN432991	MN476942	This study
						Artvin8	<i>B. verrucosissimus North</i>	62	MN427471	MN432930	MN432987	MN476943	This study
						Artvin9	<i>B. verrucosissimus North</i>	63	MN427472	MN432931	MN432992	MN476944	This study
Hatay	1	1	2	36.58986	36.28959	Hatay1	<i>B. verrucosissimus South</i>	64	MN427492	MN432949	MN433028	MN476979	This study

						Hatay2	<i>B. verrucosissimus South</i>	65	MN427493	MN432950	MN433029	MN476980	This study
Osmaniye	4	4	3	37.045874	36.428945	Osmaniye1	<i>B. verrucosissimus South</i>	66	MN427457	MN432945	MN433045	MN476965	This study
						Osmaniye2	<i>B. verrucosissimus South</i>	67	MN427465	MN432946	MN433046	MN476971	This study
						Osmaniye3	<i>B. verrucosissimus South</i>	68	MN427466	MN432947	MN433012	MN476970	This study
Mersin	-	3	3	37.090531	34.513493	Mersin1	<i>B. verrucosissimus South</i>	69	MN427456	MN432927	MN433058	MN476962	This study
						Mersin4	<i>B. verrucosissimus South</i>	70	MN427464	MN432944	MN433010	MN476963	This study
						Mersin5	<i>B. verrucosissimus South</i>	71	MN427467	MN432928	MN433011	MN476964	This study
Antalya	6	5	3	36.526043	32.068633	Antalya4	<i>B. verrucosissimus South</i>	72	MN427458	MN432915	MN433019	MN476955	This study
						Antalya5	<i>B. verrucosissimus South</i>	73	MN427469	MN432916	MN433015	MN476956	This study
						Antalya6	<i>B. verrucosissimus South</i>	74	MN427459	MN432917	MN433003	MN476966	This study
Netherlands Elspeet			1				<i>B. bufo</i>		JN647012	JN647248	-	JN647500	Recuero et al. (2012)
							<i>B. bufo</i>		JN647013	JN647249	-	N647501	Recuero et al. (2012)

Wymeswold "C"	1	<i>B. bufo</i>	JN647017	JN647253	-	JN647491	Recuero et al. (2012)
Serbia-Kosovo Novo Brdo-Prekovce	1	<i>B. bufo</i>	JN647036	JN647272	-	JN647494	Recuero et al. (2012)
Sweden Umea – Frederika	1	<i>B. bufo</i>	JN647044	JN647280	-	JN647495	Recuero et al. (2012)
Moscow, Zvenigorod, Russia	1	<i>B. bufo</i>	JN647050	JN647286	-	-	Recuero et al. (2012)
Russia Krasnoyarsk territory, Mirnyi	1	<i>B. bufo</i>	JN647052	JN647288	-	JN647496	Recuero et al. (2012)
Doganella, Italy	1	<i>B. bufo</i>	JN647054	JN647367	-	-	Recuero et al. (2012)
Italy Fiumefreddo Bruzio	1	<i>B. bufo</i>	JN647061	JN647374	-	JN647483	Recuero et al. (2012)
Italy Gambarie	1	<i>B. bufo</i>	JN647068	JN647381	-	JN647485	Recuero et al. (2012)
Italy Monghidoro	1	<i>B. bufo</i>	JN647069	JN647382	-	JN647484	Recuero et al. (2012)
Italy Jenne	1	<i>B. bufo</i>	JN647071	JN647384	-	JN647486	Recuero et al. (2012)
Italy Canale Monterano	1	<i>B. bufo</i>	JN647085	JN647398	-	JN647487	Recuero et al. (2012)
Italy Fiume Irminio	1	<i>B. bufo</i>	JN647089	JN647402	-	JN647488	Recuero et al. (2012)
Italy Fiume Irminio	1	<i>B. bufo</i>	JN647090	JN647403	-	JN647489	Recuero et al. (2012)
Italy Fiume Irminio	1	<i>B. bufo</i>	JN647092	JN647405	-	JN647490	Recuero et al. (2012)

Turkey Belalankoyu – Havza	1	<i>B. bufo</i>	JN647106	JN647290	-	JN647497	Recuero et al. (2012)
Erbaa, Tokat, Turkey	1	<i>B. bufo</i>	JN647107	JN647291	-	-	Recuero et al. (2012)
Russia Orel province, Orlovskiye Zaseki NP	1	<i>B. bufo</i>	JN647110	JN647294	-	JN647498	Recuero et al. (2012)
Russia Arkhangelsk province, Arkhangelsk environs	1	<i>B. bufo</i>	JN647113	JN647297	-	JN647499	Recuero et al. (2012)
Thessalia, Desi, Greece	1	<i>B. bufo</i>	JN647118	JN647302	-	-	Recuero et al. (2012)
Thessalia, Desi, Greece	1	<i>B. bufo</i>	JN647117	JN647301	-	JN647503	Recuero et al. (2012)
Romania Vidraru Reservoir, Fagaras Mts	1	<i>B. bufo</i>	JN647128	JN647312		JN647504	Recuero et al. (2012)
France Erloy, Foret de Regnaval	1	<i>B. bufo</i>	JN647129	JN647313		JN647505	Recuero et al. (2012)
Vorges, Foret de Regnaval, France	1	<i>B. bufo</i>	JN647134	JN647318	-	-	Recuero et al. (2012)
Zutica, Croita	1	<i>B. bufo</i>	JN647137	JN647320	-	-	Recuero et al. (2012)
Hungary Vinye, Bakony Mts.	1	<i>B. bufo</i>	JN647158	JN647344		JN647492	Recuero et al. (2012)
Hungary Erd}obénye, Zemplén Mts.	1	<i>B. bufo</i>	JN647159	JN647345		JN647493	Recuero et al. (2012)
-	1	<i>B. bufo</i>	-	-	KJ544897	-	Arntzen et al. (2014)

Czech Republic	1	<i>B. bufo</i>	-	-	KF666388	-	Liedtke et al. (2017)
China		<i>B. gargarizans</i>	-	-	KF666177	-	Liedtke et al. (2017)
North central sardinia, Italy		<i>B. bufo</i>	-	MG199042	-	-	Cossu et al. (2018)
Bursa, Turkey	1	<i>B. bufo</i>	-	-	DQ158362	-	Pramuk (2006)
Krasnodar territory, Chernorechye, Russia	1	<i>B. verrucosissimus</i>	JN647225	JN647461	-	JN647519	Recuero et al. (2012)
Abkhazia, Bzypi gorge, Malaya Ritza lake, Georgia	1	<i>B. verrucosissimus</i>	JN647227	JN647463	-	JN647521	Recuero et al. (2012)
Adjaria, Charnali gorge, Georgia	1	<i>B. verrucosissimus</i>	JN647228	JN647464	-	JN647522	Recuero et al. (2012)
Georgia Borjomi valley, Bakuriani, Jagoras-Veli	1	<i>B. verrucosissimus</i>	JN647230	JN647466	-	-	Recuero et al. (2012)
Borjomi valley, Akhaldaba riv., Georgia	1	<i>B. verrucosissimus</i>	JN647231	JN647467	-	JN647523	Recuero et al. (2012)
Borjomi, Georgia	1	<i>B. verrucosissimus</i>	-	-	KY555719	-	Liedtke et al. (2017)
Stavropol terr., Shpakovskiy, Strizhament mt., Russia	1	<i>B. verrucosissimus</i>	JN647226	JN647462	-	JN647520	Recuero et al. (2012)
Karagol, Turkey	1	<i>B. verrucosissimus</i>	JN647232	JN647467	-	JN647525	Recuero et al. (2012)
Russia Stavropol territory, Shpakovskiy	1	<i>B. verrucosissimus</i>	JN647234	JN647470	-	-	Recuero et al. (2012)



district,Novoyekat erinovskaya environ									
Russia Krasnodar territory, Sochi district, Agura environs	1	<i>B. verrucosissimus</i>	JN647235	JN647471	-	JN647524	Recuero et al. (2012)		
Russia Krasnodar territory, Gelenjik, environs of Vozrozhdeniye,Zh ene gorge	1	<i>B. verrucosissimus</i>	JN647236	JN647472	-	-	Recuero et al. (2012)		
Russia Krasnodar territory, Gelenjik, Dzhankot environs	1	<i>B. verrucosissimus</i>	JN647237	JN647473	-	-	Recuero et al. (2012)		
Borcka, Turkey	1	<i>B. verrucosissimus</i>	AY840247	-	-	-	Kutrup et al. (2006)		
Mersin, Turkey	1	<i>B. verrucosissimus</i>	AY840239	-	-	-	Kutrup et al. (2006)		
Mersin, Turkey	1	<i>B. verrucosissimus</i>	AY840240	-	-	-	Kutrup et al. (2006)		
Mersin, Turkey	1	<i>B. verrucosissimus</i>	AY840241	-	-	-	Kutrup et al. (2006)		
Camlihemsin, Turkey	1	<i>B. verrucosissimus</i>	AY840245	-	-	-	Kutrup et al. (2006)		
Erenkoy, Turkey	1	<i>B. verrucosissimus</i>	AY555023	-	-	-	Kutrup et al. (2006)		
Findikli, Turkey	1	<i>B. verrucosissimus</i>	AY555024	-	-	-	Kutrup et al. (2006)		
-	1	<i>B. verrucosissimus</i>	FJ882807	-	-	-	Van Bocxlaer et al. (2009)		

Krasnodar terr., Gelenjik distr., Aderbiyevka, Russia	1	<i>B. verrucosissimus</i>	JN647233	JN647469	-	-	Recuero et al. (2012)
Portugal Portalegre	1	<i>B. spinosus</i>	JN647199	JN647440	-	JN647515	Recuero et al. (2012)
Tunisia Beni M'Tir (loc. 2)	1	<i>B. spinosus</i>	JN647200	JN647441	-	JN647516	Recuero et al. (2012)
Laguna Grande de Gredos, Spain	1	<i>B. spinosus</i>	JN647223	JN647424	-	JN647514	Recuero et al. (2012)
Beni M'Tir, Tunisia	1	<i>B. spinosus</i>	JN647201	JN647442	-	JN647517	Recuero et al. (2012)
France Embrun	1	<i>B. spinosus</i>	JN647213	JN647427	-	JN647509	Recuero et al. (2012)
France La Manouesse	1	<i>B. spinosus</i>	JN647214	JN647428	-	JN647510	Recuero et al. (2012)
Morocco Ifrane	1	<i>B. spinosus</i>	JN647215	JN647429	-	JN647511	Recuero et al. (2012)
Morocco Ifrane	1	<i>B. spinosus</i>	JN647216	JN647430	-	JN647512	Recuero et al. (2012)
Spain 35 km NE Capileira	1	<i>B. spinosus</i>	JN647218	JN647425	-	JN647506	Recuero et al. (2012)
France Beauzelle	1	<i>B. spinosus</i>	JN647219	JN647420	-	JN647507	Recuero et al. (2012)
Spain A Pobra do Caramiña	1	<i>B. spinosus</i>	JN647221	JN647422	-	JN647508	Recuero et al. (2012)
Spain Sadernes	1	<i>B. spinosus</i>	JN647222	JN647423	-	JN647513	Recuero et al. (2012)
Buçaco, Portugal	1	<i>B. spinosus</i>	-	-	KJ544907	-	Arntzen et al. (2014)
Ermidas do Sado, Portugal	1	<i>B. spinosus</i>	-	-	KJ544890	-	Arntzen et al. (2014)

Astara district, Kizhaba env., Talysh mts., Azerbaijan	1	<i>B. eichwaldi</i>	JN647240	JN647476	-	-	Recuero et al. (2012)
Lerik distr, Agoshapeshta env., Talysh mts., Azerbaijan	1	<i>B. eichwaldi</i>	JN647239	JN647475	-	JN647518	Recuero et al. (2012)
Tokyo city, Sendagi, Japan	1	<i>B. japonicus</i>	JN653293	JN653298	-	-	Recuero et al. (2012)
Taiwan, Taipei environs, China	1	<i>B. bankorensis</i>	JN653290	JN653295	-	-	Recuero et al. (2012)
Sichuan, Shimian, China	1	<i>B. gargarizans</i>	-	-	DQ158353	-	Pramuk (2006)
Jewish reg., Bastak. Russia	1	<i>B. gargarizans</i>	JN647244	JN647480	-	JN653318	Recuero et al. (2012)
China Jilin province, SongJiangHe river, 50 kmW from BaiTouShan (PekTuSan) volcano	1	<i>B. gargarizans</i>	JN647245	JN647481		JN653319	Recuero et al. (2012)
-	1	<i>B. gargarizans</i>	-	-		KX208727	Feng et al. (2017)

**Table S2.** Classification matrix for discriminant analysis results based on genetically identified groups. The table indicates the number of individuals correctly assigned to groups in the original (OC) and cross-validated (CV) grouped cases.

Observed group	Predicted group			Total
	<i>Bufo bufo</i>	<i>B. verrucosissimus</i>		
		North	South	
<b>Females (OC)</b>				
<i>Bufo bufo</i>	73 (98.6%)	0	1 (1.4%)	74
<i>B. verrucosissimus</i>				
North	1 (11.9%)	8 (88.9%)	0	9
<i>B. verrucosissimus</i>				
South	0	0	13 (100%)	13
<b>Females (CV)</b>				
<i>Bufo bufo</i>	68 (91.9%)	1 (1.4%)	5 (6.8%)	74
<i>B. verrucosissimus</i>				
North	2 (22.2%)	7 (77.8%)	0	9
<i>B. verrucosissimus</i>				
South	5 (38.5%)	0	8 (61.5%)	13
<b>Males (OC)</b>				
<i>Bufo bufo</i>	77 (98.7%)	0	1 (1.3%)	78
<i>B. verrucosissimus</i>				
North	0	8 (100%)	0	8

<i>B. verrucosissimus</i>				
South	1 (9.1%)	0	10 (90.9%)	11
Males (CV)				
<i>Bufo bufo</i>	70 (89.7%)	4 (5.1%)	4 (5.1%)	78
<i>B. verrucosissimus</i>				
North	4 (50.0%)	4 (50.0%)	0	8
<i>B. verrucosissimus</i>				
South	5 (45.5%)	1 (9.1%)	5 (45.5%)	11

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