

**Chasing the phantom: biogeography and conservation of *Vipera*  
*latastei-monticola* in the Maghreb (North Africa)**

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**Supplementary material**

**Table S1.** List of samples used in genetic analyses, depicting species, collection / source, code, latitude (Lat), longitude (Long), mitochondrial lineage membership, mitochondrial (cytb / ND4) and nuclear (B-fib / NT3 / PRLR) haplotypes and GeneBank accession numbers for each sequenced marker.

Species	Collection/source	Code	Lat	Long	Locality (Country)	mt lineage	mt haplotypes	n haplotypes	cytb	ND4	B-fib	NT3	PRLR
<i>V. latastei-monticola</i>	MNHN	A004	36.8	2.97	Argel (ALG)	Algeria	11 / -	- / - / -	MG875541	MG875554			
<i>V. latastei-monticola</i>	CIBIO; Velo-Antón et al., 2012	P184	36.63	4.63	Azazga (ALG)	Algeria	12 / 10	1,6 / 1,8 / 1	MG875546	JX649598	MG875529	MG875574	MG875582
<i>V. latastei-monticola</i>	CIBIO; Velo-Antón et al., 2012	P186	36.49	4.27	Djurdjura N.P. (ALG)	Algeria	13 / 11	- / - / -	MG875547	JX649599			
<i>V. latastei-monticola</i>	CIBIO; Velo-Antón et al., 2012	11VM002	31.76	-6.29	Jebel Azourki (MOR)	Rif - E Atlas	4 / 2	- / - / -	MG875535	JX649603			
<i>V. latastei-monticola</i>	CIBIO; Velo-Antón et al., 2012	M017	35.35	-5.58	Jebel Aalam (MOR)	Rif - E Atlas	1 / -	- / - / -	MG875543	JX649600			
<i>V. latastei-monticola</i>	CIBIO; Velo-Antón et al., 2012	P168	34.85	-4.6	Jebel Tighighine (MOR)	Rif - E Atlas	- / 5	- / - / -	JX649668	JX649601			
<i>V. latastei-monticola</i>	CIBIO; Velo-Antón et al., 2012	P182	33.09	-4.96	Sidi Ali Aguelmane (MOR)	Rif - E Atlas	5 / 3	- / - / -	MG875545	JX649602			
<i>V. latastei-monticola</i>	CIBIO	13VL021	31.76	-6.29	Jebel Azourki (MOR)	Rif - E Atlas	- / -	- / 1 / 1				MG875577	MG875591
<i>V. latastei-monticola</i>	CIBIO	13VL018	34.99	-5.2	Jebel Taria (MOR)	Rif - E Atlas	2 / 4	2 / 1,5 / -	MG875537	MG875555	MG875525	MG875565	
<i>V. latastei-monticola</i>	CEFE-CNRS	BEV11978	32.2	-5.64	Lac Tislit (MOR)	Rif - E Atlas	3 / 1	1 / - / 1	MG875542	MG875556	MG875527		MG875581
<i>V. latastei-monticola</i>	CIBIO; Velo-Antón et al., 2012	M195	31.22	-7.84	Jebel Oukaimeden (MOR)	C High Atlas	8 / 8	- / - / -	MG875544	JX649604			
<i>V. latastei-monticola</i>	CIBIO; Velo-Antón et al., 2012	11VM003	31.08	-7.93	Jebel Toubkal (MOR)	C High Atlas	7 / -	3 / 1,4 / 1	MG875536	JX649605	MG875524	MG875564	MG875578
<i>V. latastei-monticola</i>	CIBIO	14VM016	31.3	-7.4	Tizi n'Tichka (MOR)	C High Atlas	6 / 6	1,8 / 1 / 1	MG875538	MG875557	MG875526	MG875568	MG875583
<i>V. latastei-monticola</i>	CIBIO	16VM003	30.71	-7.62	Jebel Sirwa (MOR)	C High Atlas	9 / 7	- / 1,4 / 3	MG875548	MG875558		MG875571	MG875580
<i>V. latastei-monticola</i>	CIBIO	15VM073	30.9	-8.62	Tichka plateau (MOR)	W High Atlas	10 / 9	- / - / -	MG875539	MG875559			
<i>V. latastei-monticola</i>	CIBIO	15VM074	30.9	-8.62	Tichka plateau (MOR)	W High Atlas	10 / 9	1,7 / 1 / 1	MG875540	MG875560	MG875528	MG875570	MG875579
<i>V. latastei-monticola</i>	CIBIO; Velo-Antón et al., 2012	P180	37.26	-8.7	Portimão (PT)	Iberia W - CNSW	14 / 12	4 / 1 / 2,5	MG875550	JX649556	MG875533	MG875573	MG875585
<i>V. latastei-monticola</i>	CIBIO	14VL020	39.22	-6.06	Zarza de Montánchez (SP)	Iberia W - CWS	15 / 13	4 / 1,2 / 1	MG875549	MG875561	MG875530	MG875567	MG875584
<i>V. latastei-monticola</i>	CIBIO	15VL015	42.16	0.47	Sierra del Castillo (SP)	Iberia E - NSC	16 / 14	1 / 7 / 1,5	MG875552	MG875562	MG875534	MG875569	MG875587
<i>V. latastei-monticola</i>	CIBIO; Velo-Antón et al., 2012	E040	38.45	-3.51	Despeñaperros N.P. (SP)	Iberia E - Sou	- / 15	1 / 2,3 / 6,7	MG875553	JX649576	MG875531	MG875572	MG875588
<i>V. latastei-monticola</i>	CIBIO	14VL019	36.28	-5.53	Alcornocales N.P. (SP)	Iberia South	17 / 16	5 / 1,9 / 1,4	MG875551	MG875563	MG875532	MG875566	MG875586
<i>V. aspis zinnikeri</i>	CIBIO	15VA090	42.85	-0.39	Lauruns (FR)	zinnikeri	- / -	- / 1,6 / -				MG875576	
<i>V. aspis aspis</i>	CEFE-CNRS	BEV11036	44.09	5.67	Contadour (FR)	aspis	- / -	- / - / 8,9					MG875590
<i>V. seoanei</i>	CIBIO; Martínez-Freiría et al., 2015	12VS028	43.25	-4.76	Cabrales (SP)		- / -	9,10 / - / 10			MG875523		MG875589
<i>V. seoanei</i>	CIBIO; Martínez-Freiría et al., 2015	12VS022	43.13	-3.45	Valle de Mena (SP)		- / -	- / 1,6 / -				MG875575	

Acronyms of countries: ALG – Algeria; FR – France; MOR – Morocco; PT – Portugal; SP – Spain. Acronyms of collections/sources: CIBIO (Centro de Investigação em Biodiversidade e Recursos Genéticos da Universidade do Porto, Portugal), MNHN (Museum Nationale d’Histoire Naturelle, France) and CEFE-CNRS (Centre d’Ecologie Fonctionnelle et Evolutive – CNRS, Université Montpellier, France). References: Martínez-Freiría, F., Velo-Antón, G., Brito, J.C. (2015): Trapped by climate: interglacial refuge and recent population expansion in the endemic Iberian adder *Vipera seoanei*. *Divers. Distributions*. **21**: 331-344; Velo-Antón, G., Godinho, R., Harris, D.J., Santos, X., Martínez-Freiría, F., Fahd, S., Larbes, S., Pleguezuelos, J.M., Brito, J.C. (2012): Deep evolutionary lineages in a Western Mediterranean snake (*Vipera latastei/monticola* group) and high genetic structuring in Southern Iberian populations. *Mol. Phylogenet. Evol.* **65**: 965-973.

**Table S2.** Observations of *V. latastei-monticola* gathered in this work and considered to construct ecological models. Locality, region, country, latitude, longitude, year (or period), and observer and source of the observation are included. N/A in year means not available.

Locality	Region	Country	Latitude	Longitude	Year	Observer / source
Mountain Edough	Annaba	Algeria	36.92	7.7	1891, 1920	NHM-London; Boulenger, 1891; Saint-Girons, 1977
Ain Benian	Tipaza	Algeria	36.8	2.97	1887	Marés / MNHN-Paris; Brito et al., 2011a,b
col of Thirourda	Tizi Ouzou	Algeria	36.5	4.35	1871	Letourneux, 1871
Tikjda	Tizi Ouzou	Algeria	36.45	4.12	2004	S. Larbes / Brito et al., 2011b
Darna to Tizi N'Kouilal	Tizi Ouzou	Algeria	36.49	4.26	2004	S. Larbes / Velo-Antón et al., 2012
Ait Ouabane	Tizi Ouzou	Algeria	36.48	4.31	2005	S. Larbes / Brito et al., 2011
Djebel Heidzer	Tizi Ouzou	Algeria	36.47	4.02	2005	S. Larbes / Brito et al., 2011b
Darna	Tizi Ouzou	Algeria	36.5	4.27	2005	S. Larbes / Brito et al., 2011b
Akfadou	Tizi Ouzou	Algeria	36.67	4.61	2006	S. Larbes / Velo-Antón et al., 2012
Henguedh	Tizi Ouzou	Algeria	36.65	4.66	2005	B. Allegrini, O. Peyre / unpublished
Tikjda station	Tizi Ouzou	Algeria	36.44	4.11	2006	O. Peyre / unpublished
Ait Aïssi	Tizi Ouzou	Algeria	36.78	4.43	2012	B. Kanoune / unpublished
Yakouren - Zekri	Tizi Ouzou	Algeria	36.74	4.49	2014	M. Beddek / unpublished
Sebdou	Tlemcen	Algeria	34.67	-1.33	1986	J. Peña, C. Rodríguez and E. Calero / unpublished
Beni Bahdel	Tlemcen	Algeria	34.71	-1.51	1990	A. de la Torre, J. Peña and P. Sánchez / unpublished
Iferd-n-Magouss, NW Jebel Sirwa	Agadir	Morocco	30.72	-7.64	1994	Slimani et al., 1996; Bons and Geniez, 1996
Jebel Sirwa	Agadir	Morocco	30.71	-7.62	2016	L. García-Cardenete, S. Fahd / Martinez-Freiria et al., 2017
Jebel Tighighine	Al hoceima	Morocco	34.85	-4.6	2005	X. Santos / Fahd et al., 2005; Brito et al., 2011a,b
cedar forest near to Dahar el Milat	Al hoceima	Morocco	34.86	-4.33	2011	Donaire et al., 2017
near Tabannt	Azilal	Morocco	31.63	-6.43	1989	F. Cuzin / Bons and Geniez, 1996
near to lac d'Izoughar	Azilal	Morocco	31.71	-6.26	1990	F. Cuzin / Bons and Geniez, 1996
Jebel Waougoulzat, M'Goun	Azilal	Morocco	31.68	-6.29	1992	Bons and Geniez, 1996
Jebel Waougoulzat, M'Goun	Azilal	Morocco	31.61	-6.36	1992	Pillet, 1994
Jebel Waougoulzat, M'Goun	Azilal	Morocco	31.65	-6.31	1992	Pillet, 1994
Tizi Yallaz (Jebel Azourki)	Azilal	Morocco	31.76	-6.26	1992	Pillet, 1994

**Table S2. Continued.**

Locality	Region	Country	Latitude	Longitude	Year	Observer / source
North to Jebel Azourki	Azilal	Morocco	31.76	-6.29	2011	F. Martínez-Freiría / Velo-Antón et al., 2012
North to Jebel Azourki	Azilal	Morocco	31.76	-6.29	2013	F. Martínez-Freiría / unpublished
near to Tabant	Azilal	Morocco	31.65	-6.38	N/A	Bons and Geniez, 1996
near to Tabant	Azilal	Morocco	31.67	-6.35	N/A	Bons and Geniez, 1996
Mgoun Massif	Azilal	Morocco	31.72	-6.19	N/A	Bons and Geniez, 1996
Mgoun Massif	Azilal	Morocco	31.76	-6.2	N/A	Bons and Geniez, 1996
Mgoun Massif	Azilal	Morocco	31.8	-6.21	N/A	Bons and Geniez, 1996
south to Ait Tous	Azilal	Morocco	31.84	-5.96	N/A	Bons and Geniez, 1996
near to Amane Melloul	Azilal	Morocco	31.88	-6.34	N/A	Bons and Geniez, 1996
Azilal region	Azilal	Morocco	32.02	-5.93	N/A	Bons and Geniez, 1996
Bouadil	Beni Mellal	Morocco	32.42	-5.48	1977	Guillaume and Bons, 1982
Beni Melal - Tamejjit	Beni Mellal	Morocco	32.31	-6.31	N/A	Bons and Geniez, 1996
Tasau	Chefchaouen	Morocco	35.28	-5.15	1976	Bons and Geniez, 1996
Jbel Bouhalla	Chefchaouen	Morocco	35.1	-5.12	1987	Bons and Geniez, 1996
Ain Rami, near Chefchaouen	Chefchaouen	Morocco	35.13	-5.27	1990	Bons and Geniez, 1996
Talassemtane	Chefchaouen	Morocco	35.13	-5.13	1990	Bons and Geniez, 1996
Chefchaouen	Chefchaouen	Morocco	35.17	-5.27	1990	Bons and Geniez, 1996
Ain Rami	Chefchaouen	Morocco	35.18	-5.25	1990	S. Fahd / Bons and Geniez, 1996
Khandak Lanasser, W Issaguïne	Chefchaouen	Morocco	34.99	-4.8	1992	Fahd and Pleguezuelos, 2001
Bou Slimane, Talassemtane	Chefchaouen	Morocco	35.11	-5.14	1992	Fahd and Pleguezuelos, 2001
Ain Rami, Alonzar South to Chefchaouen	Chefchaouen	Morocco	35.14	-5.26	1992	Fahd and Pleguezuelos, 2001
Chaouen	Chefchaouen	Morocco	35.17	-5.26	1992	Fahd and Pleguezuelos, 2001
Asstouf	Chefchaouen	Morocco	35.01	-4.91	1992	S. Fahd / Brito et al., 2011a,b
Béni M'Hamed, Talassentame	Chefchaouen	Morocco	35.16	-5.12	2005	S. Fahd / Brito et al., 2011a,b
Jebel el-Khizana	Chefchaouen	Morocco	35.02	-5.21	2008	J. García Porta / Brito et al., 2011a,b
Jbel Taria	Chefchaouen	Morocco	35	-5.2	2013	F. Martínez-Freiría, L. García-Cardenete, M. Lorenzo / unpublished

**Table S2. Continued.**

Locality	Region	Country	Latitude	Longitude	Year	Observer / source
Talassemtane	Chefchaouen	Morocco	35.11	-5.11	N/A	Bons and Geniez, 1996
S Talassemtane	Chefchaouen	Morocco	35.13	-5.2	N/A	Bons and Geniez, 1996
Aoudal	Chefchaouen	Morocco	35.13	-5.35	N/A	Bons and Geniez, 1996
Bouachem	Chefchaouen	Morocco	35.19	-5.35	N/A	Bons and Geniez, 1996
Talassemtane	Chefchaouen	Morocco	35.22	-5.15	N/A	Bons and Geniez, 1996
Izrafene	Chefchaouen	Morocco	35.22	-5.15	> 2000s	M. Mediani / Mediani et al., 2015
Plateau d'Azeramma	Fes	Morocco	33.84	-4.45	1960	P. Pruja / MNHN-Paris / Bons and Geniez, 1996
Lac de Tislit	Ksar es Souk	Morocco	32.2	-5.64	2012	P. Geniez, A Miralles / CEFÉ-CNRS collection
S to Imilchil	Ksar es Souk	Morocco	32.04	-5.62	N/A	Bons and Geniez, 1996
Azib Taounoute, 2800-3000 m	Marrakech	Morocco	31.08	-7.92	1931	Werner, 1931
Timichi	Marrakech	Morocco	31.11	-7.64	1931	Werner, 1931
Aremd	Marrakech	Morocco	31.13	-7.92	1931	Werner, 1931
Tachedirt	Marrakech	Morocco	31.17	-7.85	1931	Werner, 1931
Asni	Marrakech	Morocco	31.24	-7.98	1931	Werner, 1931
Tisselde´	Marrakech	Morocco	31.07	-7.86	1947	J. de Lépiney / Bons and Geniez, 1996
Azib Aghous	Marrakech	Morocco	31.22	-7.61	1947	J. de Lépiney / Bons and Geniez, 1996
Assif n'A't Mizane	Marrakech	Morocco	31.09	-7.92	1953	Saint Girons, 1953; Bons and Geniez, 1996
North to Toubkal, Aguelzim	Marrakech	Morocco	31.1	-7.91	1973	Werner, 1931; Saint Girons, 1973
Tichka plateau, N'Fiss source	Marrakech	Morocco	30.9	-8.61	1980	R. Philippe / Bons and Geniez, 1996
Oued Reiara	Marrakech	Morocco	31.15	-7.93	1986	Beerli et al., 1986
High Reraia river, SW of Sidi Chamharouch	Marrakech	Morocco	31.09	-7.92	1986	Bons & Geniez, 1996; Brito et al., 2011a
Toubkal	Marrakech	Morocco	31.05	-7.92	1986	R. Philippe / Bons and Geniez, 1996
Oukaïmeden	Marrakech	Morocco	31.21	-7.86	1989	Bons and Geniez, 1996
Lac d'Ifni	Marrakech	Morocco	31.03	-7.93	1993	F. Cuzin / Bons and Geniez, 1996
Tizi-n-Eddi	Marrakech	Morocco	31.17	-7.85	1993	T. Slimani / Bons and Geniez, 1996; Slimani et al., 1996
Oukaïmeden	Marrakech	Morocco	31.22	-7.87	1995	P. Geniez / Bons and Geniez, 1996; Brito et al., 2011a

**Table S2. Continued.**

Locality	Region	Country	Latitude	Longitude	Year	Observer / source
Tizi-n-Ouagan, E Jbel Ouanoukrim	Marrakech	Morocco	31.04	-7.94	1996	Slimani et al., 1996
High Reraia river	Marrakech	Morocco	31.08	-7.92	2007	A. Westerström / Beerli et al., 1986; Brito et al., 2011a
Oukaïmeden	Marrakech	Morocco	31.22	-7.84	2007	J. Caro / Brito et al., 2011a; Velo-Antón et al., 2012
Oukaïmeden	Marrakech	Morocco	31.23	-7.88	2009	R. León / Brito et al., 2011a
near to Sidi Chamharouch	Marrakech	Morocco	31.08	-7.93	2011	F. Martínez-Freiria / Velo-Antón et al., 2012
Tizi n'Tichka	Marrakech	Morocco	31.3	-7.4	2014	F. Martínez-Freiria, G. Velo-Anton, L. García-Cardenete, F. Jiménez Cazalla / unpublished
plateau du Tichka	Marrakech	Morocco	30.9	-8.62	2015	I. Freitas, A. Pimenta, F. Martínez-Freiria / unpublished
Jbel Aguelzim	Marrakech	Morocco	31.09	-7.93	> 2000	A. Westerström / Westerstrom, 2010
Imlil	Marrakech	Morocco	31.14	-7.92	> 2000	A. Westerström / Westerstrom, 2010
Ait Yassine	Marrakech	Morocco	30.94	-8.14	N/A	Bons and Geniez, 1996
Lac Ifni	Marrakech	Morocco	31.03	-7.84	N/A	Bons and Geniez, 1996
Lac Ifni	Marrakech	Morocco	31.03	-7.92	N/A	Bons and Geniez, 1996
Toubkal	Marrakech	Morocco	31.06	-7.93	N/A	Bons and Geniez, 1996
SE Toubkal	Marrakech	Morocco	31.09	-7.79	N/A	Bons and Geniez, 1996
SE Toubkal	Marrakech	Morocco	31.09	-7.85	N/A	Bons and Geniez, 1996
E Toubkal	Marrakech	Morocco	31.1	-7.68	N/A	Bons and Geniez, 1996
Toubkal Mts	Marrakech	Morocco	31.14	-7.86	N/A	Bons and Geniez, 1996
E Toubkal	Marrakech	Morocco	31.14	-7.8	N/A	Bons and Geniez, 1996
E Toubkal	Marrakech	Morocco	31.19	-7.67	N/A	Bons and Geniez, 1996
High Reraia river	Marrakech	Morocco	31.19	-7.93	N/A	Bons and Geniez, 1996
Ourika valley	Marrakech	Morocco	31.29	-7.66	N/A	Bons and Geniez, 1996
High Reraia river	Marrakech	Morocco	31.14	-7.89	> 1950	H. Saint-Girons / Saint-Girons, 1973
High Reraia river	Marrakech	Morocco	31.05	-7.9	> 1950	MHN-Marrakech / Brito et al., 2011a
Jebel Tichka	Marrakech	Morocco	31.31	-7.37	> 1950	MHN-Marrakech / Brito et al., 2011a
Tachedirt	Marrakech	Morocco	31.16	-7.82	< 1950	Wettstein, 1933; Bons and Geniez, 1996
surroundings of Ifrane	Meknes	Morocco	33.42	-5.49	1926	Dollfus & Beaureux, 1928

**Table S2. Continued.**

Locality	Region	Country	Latitude	Longitude	Year	Observer / source
Azrou	Meknes	Morocco	33.44	-5.22	1956	Bons, 1959; Bons and Geniez, 1996
Tioumliline	Meknes	Morocco	33.43	-5.2	1958	Bons, 1959
Transect Ifrane - Timahdite	Meknes	Morocco	33.29	-5.08	1974	Bons and Geniez, 1996
Sidi Ali Aguelmane	Meknes	Morocco	33.09	-4.96	2006	X. Santos / Fahd et al., 2007; Brito et al., 2011a,b
Aguelmane Sidi Ali	Meknes	Morocco	33.09	-5.02	N/A	Bons and Geniez, 1996
Col du Zad	Meknes	Morocco	33.01	-5.07	> 1950	Stemmler, 1965
Zeluan plateau	Nador	Morocco	35.07	-2.95	1986	Ramos & Hernandez, 1986 / Bons and Geniez, 1996
Beni Bu Ifrur Mountains	Nador	Morocco	35.08	-3.01	1986	Ramos & Hernandez, 1986 / Bons and Geniez, 1996
Gurugù Mountains	Nador	Morocco	35.23	-2.98	1986	Ramos & Hernandez, 1986 / Bons and Geniez, 1996
Trois Fourches Peninsula, oued Kert	Nador	Morocco	35.23	-3.2	1986	Ramos & Hernandez, 1986 / Bons and Geniez, 1996
Ain Zora, Ain Arhbel	Nador	Morocco	34.62	-3.55	1992	Fahd and Pleguezuelos, 2001
Cap de Trois Fourches	Nador	Morocco	35.4	-2.99	N/A	Bons and Geniez, 1996
Ras El-Ma	Nador	Morocco	35.15	-2.42	> 1950	MNCN-Madrid / Bons & Geniez, 1996; Brito et al., 2011a,b
Mgoun	Ouarzazate	Morocco	31.51	-6.45	1931	Werner, 1931
Ourika	Ouarzazate	Morocco	31.32	-7.07	1947	Dresch / Bons and Geniez, 1996
Tamda'n'Oughmar	Ouarzazate	Morocco	31.32	-7	1992	F. Cuzin / Bons and Geniez, 1996
Tilibit Tarkedit, North Mgoun	Ouarzazate	Morocco	31.53	-6.4	1993	F. Cuzin / Bons and Geniez, 1996
dunes near to Saidia	Oujda	Morocco	35.08	-2.22	1956	A. Brosset / Bons and Geniez, 1996
Salé	Rabat	Morocco	34.03	-6.81	1963	Bons, 1963
Tanger W	Tangier	Morocco	35.78	-5.75	1982	Bons and Geniez, 1996
N to Loukkos, near Larache	Tangier	Morocco	35.27	-6.08	1984	Bons and Geniez, 1996
Jbel Haouch Ben Kreaa, NW to Dar Chaoui	Tangier	Morocco	35.57	-5.78	2009	M. Mediani / Mediani et al., 2009
Tangier	Tangier	Morocco	35.79	-5.83	N/A	Bons and Geniez, 1996
E to Tangier	Tangier	Morocco	35.82	-5.72	N/A	Bons and Geniez, 1996
Oued Laou, near to Duar Ifartanne	Tetouan	Morocco	35.24	-5.32	1990	F. J. Martínez / Brito et al., 2011a,b
Jbel El Alem	Tetouan	Morocco	35.2	-5.66	2000	S. Fahd / Brito et al., 2011b



**Table S2. Continued.**

Locality	Region	Country	Latitude	Longitude	Year	Observer / source
Jbel Kelti	Tetouan	Morocco	35.36	-5.29	2005	S. Fahd / unpublished
Jebel Aalam	Tetouan	Morocco	35.35	-5.58	2005	S. Fahd / Velo-Antón et al., 2012
Fej Jerih	Tetouan	Morocco	35.43	-5.62	2016	S. Fahd / unpublished
R.P. Bouhachem	Tetouan	Morocco	35.24	-5.42	> 2000	M. Mediani / Mediani et al., 2015
Ain Soltane	Jendouba	Tunisia	36.53	8.33	1953	Chpakowsky and Chnéour, 1953
Aïn Draham	Jendouba	Tunisia	36.76	8.65	1953	Chpakowsky and Chnéour, 1953
Bulla Regia	Jendouba	Tunisia	36.55	8.75	1953	Chpakowsky and Chnéour, 1953

Acronyms of collections: CEFE-CNRS (Centre d'Ecologie Fonctionnelle et Evolutive – CNRS, Université Montpellier, France), MNCN-Madrid (Museo Nacional de Ciencias Naturales – CSIC, Spain), MNHN-Paris (Museum Nationale d'Histoire Naturelle, France), NHM-London (Natural History Museum, UK) and MHN-Marrakech (Muséum d'Histoire Naturelle de Marrakech, Morocco). Complete references are provided in List S1.

**Table S3** Eco-geographical factors used to model the distribution of *Vipera latastei-monticola* in the Maghreb. Codes, names, ranges and units are depicted.

Code	Name	Range and units
Slope	Slope	0 - 18 %
Bio 2	Mean diurnal range	5.8 - 17.5 °C
Bio 3	Isothermality	2.6 - 5.3 °C
Bio 6	Min temp of coldest month	-12.4 - 10.4 °C
Bio 8	Mean temp of wettest quarter	-3.6 - 25.4 °C
Bio 9	Mean temp of driest quarter	8.7 - 35.1 °C
Bio 12	Annual precipitation	22 - 1401 mm
Bio 15	Precipitation seasonality	19 - 114 mm
Bio 17	Precipitation of driest quarter	0 - 85 mm



**Table S5.** Percentage of suitable area for *V. latastei-monticola* (VLA-MO) and the four mtDNA lineages (C H Atlas, W H Atlas, Rif – E Atlas and Algeria) located inside eight types of protected areas, given the reclassification of ecological models with two thresholds (MTP and MaxSS). Total percentage of suitable area included inside all protected areas is depicted below.

Protected area type	VLA-MO		C H Atlas		W Atlas		Rif - E Atlas		Algeria	
	MTP [2075]	MaxSS [608]	MTP [179]	MaxSS [59]	MTP [105]	MaxSS [34]	MTP [911]	MaxSS [343]	MTP [608]	MaxSS [133]
Biological and Ecological Interest site (SIBE)	0.34 (7)	0.65 (4)	0.56 (1)	0	0	0	0.66 (6)	1.16 (4)	0	0
Biological reserve	0.05 (1)	0	0	0	0	0	0.11 (1)	0	0	0
National Park	3.83 (80)	7.83 (48)	2.79 (5)	8.47 (5)	0	0	5.90 (54)	10.17 (35)	3.40 (21)	5.84 (8)
Natural park	0.62 (13)	0	0	0	0	0	1.09 (10)	0	0	0
Nature reserve	0.19 (4)	0.33 (2)	0	0	0	0	0.44 (4)	0.58 (2)	0	0
Ramsar site, Wetland of International Importance	0.05 (1)	0.16 (1)	0.56 (1)	0	0.95 (1)	0	0	0	0	0
Specially protected areas of Mediterranean importance	0.05 (1)	0	0	0	0	0	0.11 (1)	0	0	0
UNESCO-MAB Biosphere reserve	2.15 (45)	22.84 (139)	30.17 (54)	37.29 (22)	31.43 (33)	35.29 (12)	13.99 (127)	27.91 (96)	0	0
Total	7.30 (152)	31.81 (193)	34.08 (61)	45.76 (27)	32.38 (34)	35.29 (12)	22.30 (203)	39.83 (137)	3.40 (21)	5.84 (8)

**Text S1.** References consulted to obtain records for *V. latastei-monticola* in the Maghreb.

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## Text S2. Primers and laboratory protocols.

PCR primers used to amplify and sequencing PRLR and NT3 were PRLR-F1 and PRLR-R3 (Townsend et al., 2008) and NT3-F1 and NT3-R4 (Noonan & Chippindale, 2006). Reactions were performed using the following conditions: initial denaturation of 95°C for 15 min, followed by 40 cycles of denaturation at 95°C for 30s, annealing at 56°C for 30s, extension at 72°C for 45s and a final elongation step of 10 min at 60°C.

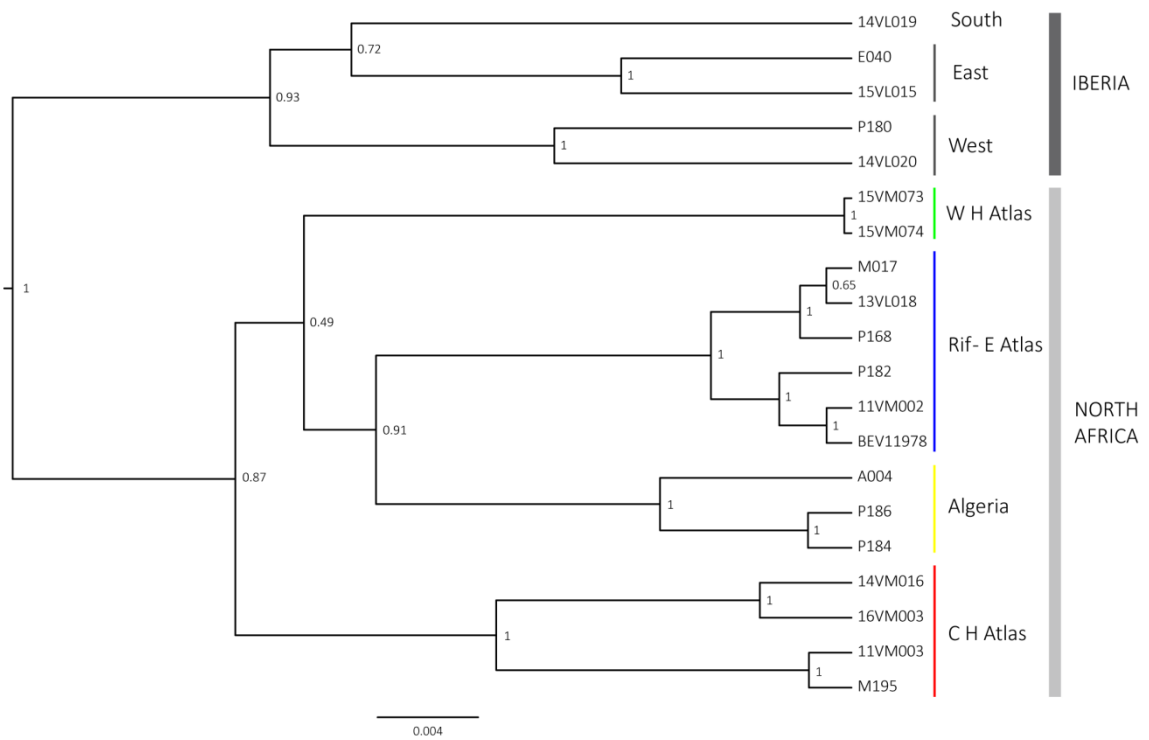
To amplify  $\beta$ -fib we used a nested PCR with two pairs of primers: FIBX7 and FIBX8 (Sequeira et al., 2006) for the first PCR and BFXF and BFXR (Sequeira et al., 2006) for the second. Amplifications were performed following protocols outlined in Sequeira et al. (2006).

PCR primers used to amplify Cytb were Cytb viper F (5' - CAACCTGAT GAAATTTTGG - 3') and Cytb viper R (5' - GTGGTAYGGGTGAAATGG - 3'). Samples were amplified for 5 cycles at annealing temperature 53°C (with - 0.5°C of touchdown) and 35 cycles at 51°C.

For the ND4 gene and the three adjacent tRNAs, amplifications were performed using two pairs of primers: ND4 viper F2 (5' - TCCTCAYTATTCAACTGATGC - 3') and Leu (Arevalo et al., 1994) and ND4 viper F (5' - TRA AACTAGGCGGYTACG - 3') and ND4 viper R3 (5' - GGTTGGSCC TATYTGTGT - 3'). Samples were amplified for 11 cycles at annealing temperature 60°C (with - 1°C of touchdown) and 29 cycles at 50°C, for the first pair of primers, and for 40 cycles at 56°C, for the second pair. For all genes, PCR's were performed as 10  $\mu$ l reactions using the Qiagen PCR MasterMix and manufacturer-recommended concentrations of primers.

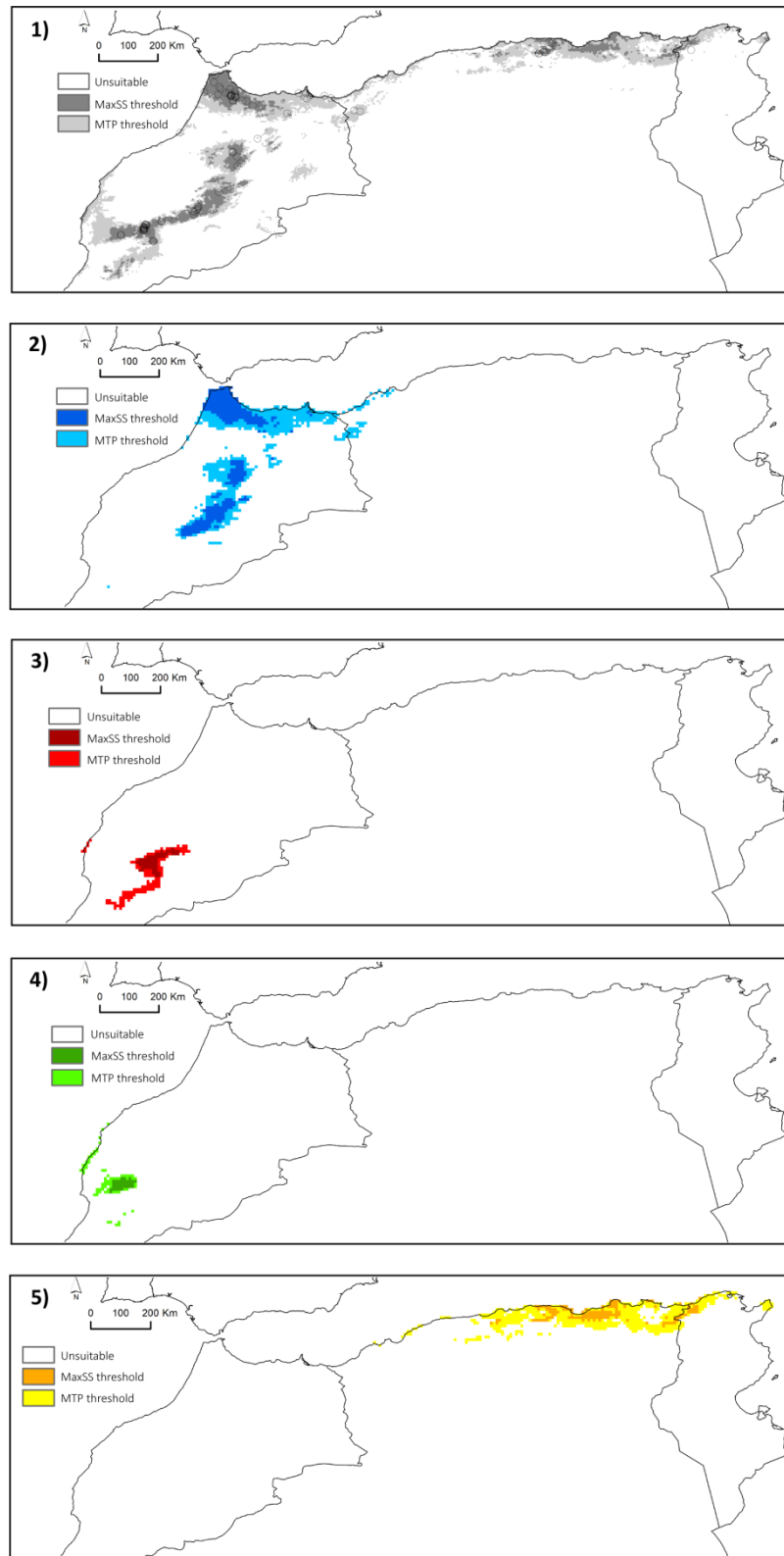
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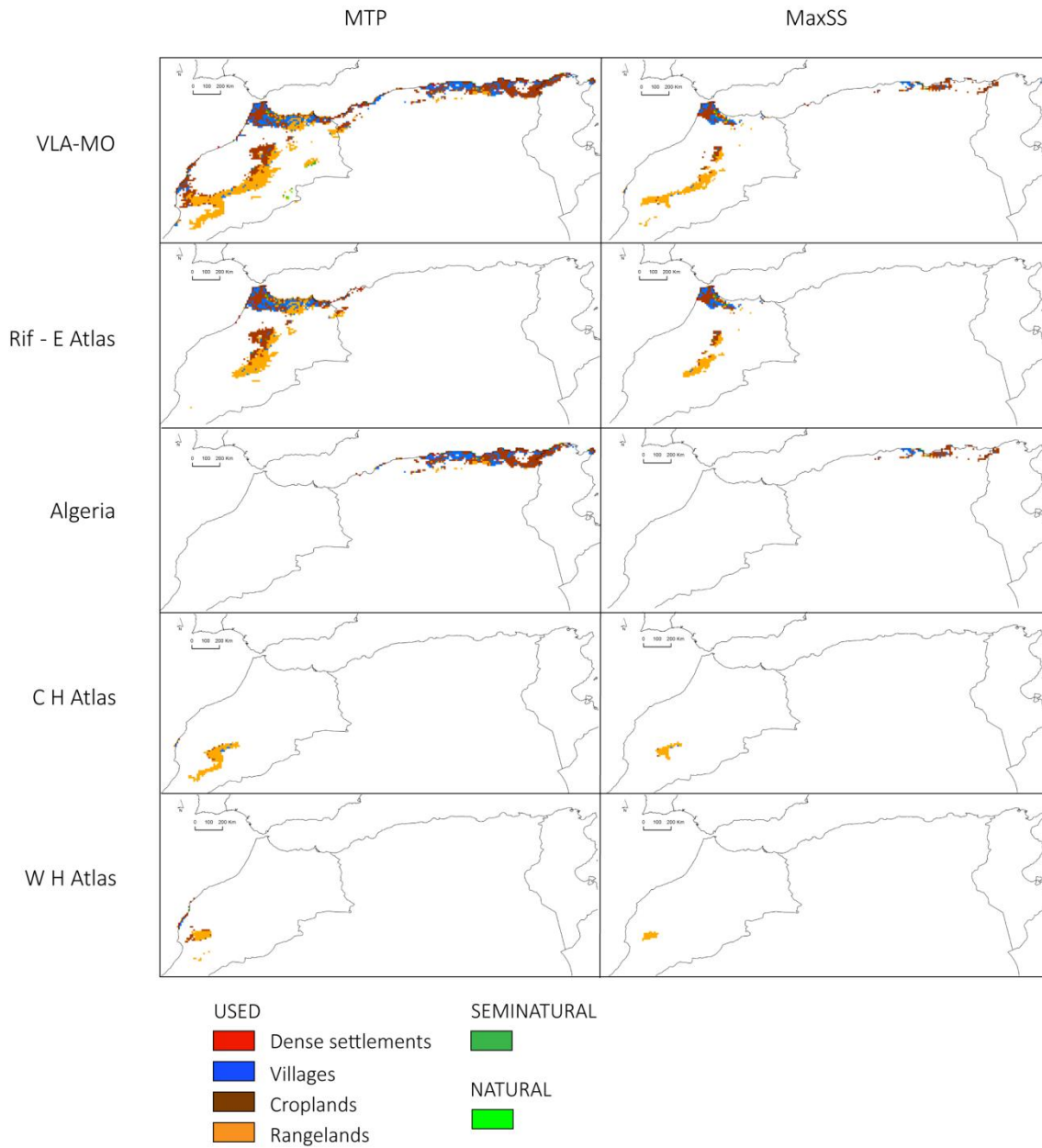


**Fig. S1.** Bayesian phylogenetic tree based on the combined mtDNA dataset (Cytb and ND4) for North African and Iberian populations of *Vipera latastei-monticola*. Only five samples of each main lineage were used as representative of Iberian populations. Bayesian posterior probabilities are shown at nodes. Scale bar represents 0.4% of sequence divergence.





**Fig. S2.** Predicted suitable areas for the occurrence of *Vipera latastei-monticola* in North Africa (1) and each mitochondrial lineage, i.e. Rif-E Atlas (2), C-H Atlas (3), W-H Atlas (4) and Algeria (5), given by two thresholds of species presence (MaxSS and MTP). Colours on each map correspond to the colours of mitochondrial lineages in Fig. 2. Records used to build the species distribution model (SDM) are depicted with circles in 1).



**Fig. S3.** Extent of anthropogenic transformation of suitable habitats for North African *V. latastei-monticola* and each mtDNA lineage presence, given by the reclassification of ecological models with two thresholds (MTP and MaxSS). Colours represent the six main categories of Anthromes: Natural, Seminatural and four categories of Used habitats (Dense settlements, Villages, Croplands and Rangelands).