

Supplementary data

Balkan chamois (*Rupicapra rupicapra balcanica*) avoids roads, settlements and hunting zones: an ecological overview from Timfi Mountain, Greece.

Vassiliki Kati ^{1*}, Christina Kassara ¹, Dimitrios Vassilakis ², Haritakis Papaioannou ^{1,3}

¹ University of Ioannina, Department of Biological Applications & Technology, University Campus, Ioannina, 45500 Greece; vkati@uoi.gr, cristina.kassara@gmail.com, agriogido@hotmail.com

² Hellenic Republic, Decentralized Administration of Macedonia–Thrace, Forestry Service of Soufli, Ermou 6, 68400 Soufli, Greece; divasilakis@hotmail.com

³ Pindos Perivallontiki Non-Profit Organization. Metsovou 12, Ioannina 4522; pinper@otenet.gr

* Correspondence: vkati@uoi.gr Tel: +30-2651007439 (VK)

Table S1: Classification of the 25 habitat types of the study area into six broad habitat types¹. For each habitat type, we present its area (ha) and the respective cover (%) of the study area, as well as the habitat area (ha) that falls within chamois annual range and core area. The habitat typology follows the Habitats Directive (92/43/EC), noting priority habitat types of Annex I (*). Rivers & lakes considered in the broadleaved wood category; settlements considered under the agriculture category.

Code		Habitat type	Study area		Range	Core
			ha	%	(ha)	(ha)
Grasslands			11919	46.03	2375	888,6
4090	Endemic oro-Mediterranean heaths with gorse		11860	45.80	2348	866
6230	*Species-rich nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)		59	0.23	27	22,6
Pine forests			3908	15.09	1892	1120
9530	* (Sub-) Mediterranean forests with endemic black pines (<i>Pinus nigra</i>)		3370	13.01	1447	990
9540	Mediterranean pine forests with endemic Mesogean pines (<i>Pinus heldreichii</i>)		538	2.08	445	130
Broadleaved woods			3742	14.45	873	357
9110	Luzulo-Fagetum beech forests		21	0.08	21	10,6
9130	Asperulo-Fagetum beech forests		540	2.09	120	0
9250	Quercus trojana woods		46	0.18	25	0
9270	Hellenic beech forests with Abies borisii-regis		1400	5.41	333	191
9280	Quercus frainetto woods		24	0.09	0	0
91EO	* Alluvial forests with Alnus glutinosa and Fraxinus exelsior (Alno-Padion, Alnion incanae, Salicion albae)		16	0.06	11	6,9
924A	Thermophilus oak woods of E, Mediterranean and Balkans		332	1.28	41	1,1
925A	Ostrya, Carpinus and mixed thermophilus forests		1060	4.10	271	114
92CO	Platanus orientalis and Liquidambar orientalis woods (Platanion orientalis)		104	0.40	16	11
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp		187	0.72	34	22
3290	Intermittently flowing Mediterranean rivers of Paspalo- Agrostidion		10	0.04	1	0
Rocks and screes			2380	9.19	1459	494
8140	Eastern Mediterranean screes		1699	6.56	1250	328
8220	Siliceous rocky slopes with chasmophytic vegetation		681	2.63	209	166
Scrubs			3754	14.50	0	0
5210	Arborescent matorral with Juniperus spp		93	0.36	0	0
5340	Garrigues of Eastern Mediterranean		458	1.77	0	0
5350	Pseudomaquis		1633	6.30	0	0
9560	* Endemic forests with Juniperus spp		323	1.25	0	0
934A	Greek Quercus coccifera woods		1247	4.82	0	0
Agriculture			194	0.75	0	0
1020	Cultivations		12	0.05	0	0
1021	Abandon cultivations		133	0.52	0	0
1050	Settlements		48	0.19	0	0
Total			25896	100	6599	2859

¹: The cover of habitat types is considered unchanged for the period of chamois surveys (2002-2017). There is no land use change in the study area, considering the Corine Land Cover database for the years 2002-2018 (<https://land.copernicus.eu/pan-europe/corine-land-cover>).

Table S2: Number of observations by type collected in Timfi Mt in the field surveys: 2002¹, 2014, 2017.

	Season	2002				2014	2017	Total
		winter	spring	summer	autumn	autumn	autumn	
Type	Animals	28	33	80	191	154	92	578
	Droppings	114	103	120	98	-	-	435
	Tracks	69	29	16	41	-	-	155
	Total	211	165	216	330	154	92	1168

¹Winter survey started in 2001 (December)

Table S3: The scores of the marginality axis and the eigenvalue of the first axis of specialization of the ENFA models for the seasonal surveys of the 2002 (all observations) and for 2014 and 2017 (direct observations only).

Year	Season	Marginality	Specialization
2002*	Winter	6.951	50.312
2002	Spring	7.681	56.977
2002	Summer	9.040	74.629
2002	Autumn	8.459	73.204
2014	Autumn	7.388	98.372
2017	Autumn	12.480	12587.820

¹Winter survey started in 2001 (December)

Table S4: Coefficients of the explanatory environmental variables in the 2D environmental space formed by the marginality axis (M) and the first specialization axis (S) of the ENFA across the six surveys. The top five variables with the highest marginality scores and the variable with the highest specialization score are shaded. Abbreviations as in Table 3.

Year		2002		2002		2002		2001		2014		2017	
Explanatory variables		winter		spring		summer		autumn		autumn		autumn	
		M	S	M	S	M	S	M	S	M	S	M	S
Topography	el	0.01	-0.02	0.18	-0.18	0.39	-0.10	0.34	-0.07	0.45	-0.11	0.33	0.00
	sl	0.26	-0.06	0.27	-0.03	0.19	-0.06	0.21	-0.03	0.14	-0.04	0.18	0.00
	c	0.09	-0.01	0.18	0.01	0.17	-0.01	0.15	0.01	0.11	-0.01	0.07	0.00
	asp.N	0.26	-0.01	0.47	-0.07	0.12	-0.04	0.29	-0.06	0.13	-0.10	0.59	0.00
	asp.E	0.15	-0.09	-0.05	0.01	0.34	-0.05	0.18	-0.13	0.13	-0.02	-0.06	0.00
	asp.S	-0.30	0.09	-0.27	0.08	-0.26	0.13	-0.31	0.21	-0.31	0.09	-0.24	0.00
	asp.W	0.09	-0.02	0.13	-0.05	-0.02	-0.07	0.08	-0.08	0.15	-0.04	0.09	0.00
Habitat cover	a	-0.04	-0.17	-0.04	-0.18	-0.03	-0.19	-0.03	-0.20	-0.04	-0.19	-0.03	-0.98
	b	-0.13	0.24	-0.09	0.10	-0.12	0.19	-0.12	0.17	-0.16	0.50	-0.10	-0.01
	g	-0.16	0.18	-0.16	0.29	-0.11	0.27	0.05	0.28	0.15	0.15	0.02	0.00
	p	0.52	0.21	0.37	0.14	0.13	0.17	0.04	0.20	-0.06	0.08	-0.08	0.00
	r	-0.02	0.10	0.12	0.21	0.36	0.16	0.20	0.16	0.20	0.09	0.34	0.00
	s	-0.16	-0.75	-0.15	-0.79	-0.14	-0.83	-0.15	-0.85	-0.16	-0.81	-0.12	0.22
Human disturbance	Ds	0.47	-0.41	0.44	-0.33	0.46	-0.26	0.45	-0.20	0.38	0.01	0.33	0.00
	Dr	0.30	0.26	0.29	0.18	0.35	0.12	0.46	0.01	0.54	-0.04	0.35	0.00
	Hunt	-0.29	0.10	-0.23	0.02	-0.21	0.02	-0.34	0.07	-0.25	0.02	-0.25	0.00

Figure S1: Balkan chamois seasonal ranges (Fixed Kernel Density Estimator: 95% probability of occurrence) and seasonal core areas respectively in Timfi Mt in 2002. The upper right corner presents the method of defining the probability of occurrence in the core areas (80% in winter, 85% in spring, 70% in summer, and 75% in autumn).

