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Diversity of Terrestrial Gastropods (Molluscsa, Gastropoda) in the Prespa National Park, Albania

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Abstract: In total, 51 terrestrial gastropod taxa are recorded from the Prespa National Park, Albania. Seven species are local endemics for the region of Lake Prespa and adjacent mountains, eight are West-Balkan endemics and seven are Balkan endemics. There are no species considered threatened according to the IUCN categories and only one species, *Orcula wagneri*, is in the category Near Threatened. Of the habitats studied, limestone rocks and rocky grasslands are the most important for the diversity of the gastropods in the region.

Key words: Albania, Prespa National Park, terrestrial gastropod fauna, distribution

Introduction

The Prespa National Park is included in the network of protected territories in Albania and is an integral component of the planned large trans-boundary conservation area occupying the Lake Prespa drainage basin situated in Albania, Greece and the Republic of Macedonia. These states have declared their willingness and commitment to unite their efforts in order to protect the unique natural values of the two lakes, Great Prespa Lake and Small Prespa Lake, and the surrounding mountainous ecosystems on Mali i Thatë (Galichica), Suva Gora and Pelister Mountains (Hristovski et al. 2014). Comprehensive information on the diversity and the conservation status of the terrestrial invertebrate fauna in this region is lacking. It has been predicted that the invertebrate fauna of the Prespa National Park in Albania is diverse, with some species being important from the conservation point of view, including many endemic and relict taxa (Hristovski et al. 2014).

Previous studies have recorded 13 terrestrial gastropod species and subspecies from the the territory of the Prespa National Park and its vicinity: *Helix schlaefflii*, *Lindholmiola corcyrensis*, *Lindholmiola lens* (A. Ferrusac, 1832), *Monacha frequens*, *Montenegrina dofleini dofleini*, *M. d. prespaensis*, *M. d. wagneri*, *M. hiltrudae costulata, M. h. desaretica*, *M. h. fusca*, *M. h. sattmanni*, *Zebrina detrita* and *Wladislawia thateensis* (Dhora & Welter-Schultes 1996, Welter-Schultes 1996, Fehér & Drimmer 2004, Erőss et al. 2006, Nordsieck 2008, Subai 2012, Neubert 2014, Fehér & Szekeres 2016).

The aim of the present article is to provide a survey of the diversity of the terrestrial gastropods of the Prespa National Park (Albania) by sampling and identification of new collections and summarising published data, to estimate the conservation value of the malacofauna in the region and to identify the most important habitats for terrestrial molluscs.

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Materials and Methods

The materials were collected at 41 localities (Table 1, Fig. 1) between 2007 and 2016 in the course of various field trips. Hand-collecting and the soil-sifting methods were used. The gastropods were preserved in 70% ethanol or kept as dry shells in the collections of the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Sofia (IBER-BAS), the Hungarian Natural History Museum, Budapest (HNHM) and the Natural History Museum, Vienna (NHMW). The morphological and anatomical examinations were carried out using stereomicroscope.

Results

The present study adds 39 species newly recorded for the territory of the Prespa National Park (Albania) and, with the present publications, 51 mollusks taxa are known for the region (Table 2). One species (*Lindholmiola lens*) was not confirmed.
Several species of high importance for biodiversity conservation were found. Seven gastropods are local endemics for the region of Lake Prespa and adjacent mountains, eight are West-Balkan endemics and seven are Balkan endemics. Only one species, *Orcula wagneri*, is included in IUCN categories for threatened species as Near Threatened.

Out of the species recorded, 19 were collected nearby Lake Prespa only from altitudes between 850 and 900 m (*Oxyloma elegans*, *Lauria cylindracea*, *Pyramidula cephalonica, P. pusilla, Truncatellina claustralis, T. cylindrica*, *T. rothi*, *Jaminia quadridens, Cecilioides acicula, Montenegrina dofleini prespaensis, M. hiltrudae desaretica, Mediterranea inopinata, Tandonia* sp., *Oligolimax* sp., aff. *Semilimacella*, *Limacus flavus*, *Limax* cf. *conemenosi*, *L. cf. corcyrensis* and *Cernuella virgata*). Twenty-one species occurred in the vicinity between the lake and the rocks and rocky pastures above the forest zone of the mountains at altitudes 850 – above 2200 m (*Chondrina arcadica, Chondrula macedonica, C. microtragus, Merdigera obscura, Zebrina detrita, Alinda biplicata distincta, Montenegrina hiltrudae costulata, M. h. sattmanni, Strigilodelima conspersa, Vitrea* cf. *botterii, Mediterranea* sp., *Morlina glabra, Vitrina* sp., *Lehmannia* cf. *brunneri*, *Lindholmiola corcyrensis*, *Candidula rhabdotoides, Monacha frequens, Xerolenta obvia, Helix lucorum, H. philibinensis* and *H. schlaeflii*). Nine further species were typical for the highest limestone areas of the mountains (900 – above 2200 m a.s.l.) and did not occur near the lake (*Cochlostoma* sp., *Orcula wagneri, Montenegrina dofleini dofleini, M. d. wagneri, M. hiltrudae fusca, Tandonia macedonica, Limax* cf. *graecus, L.* cf. *maximus* and *Wladislawia thateensis*).

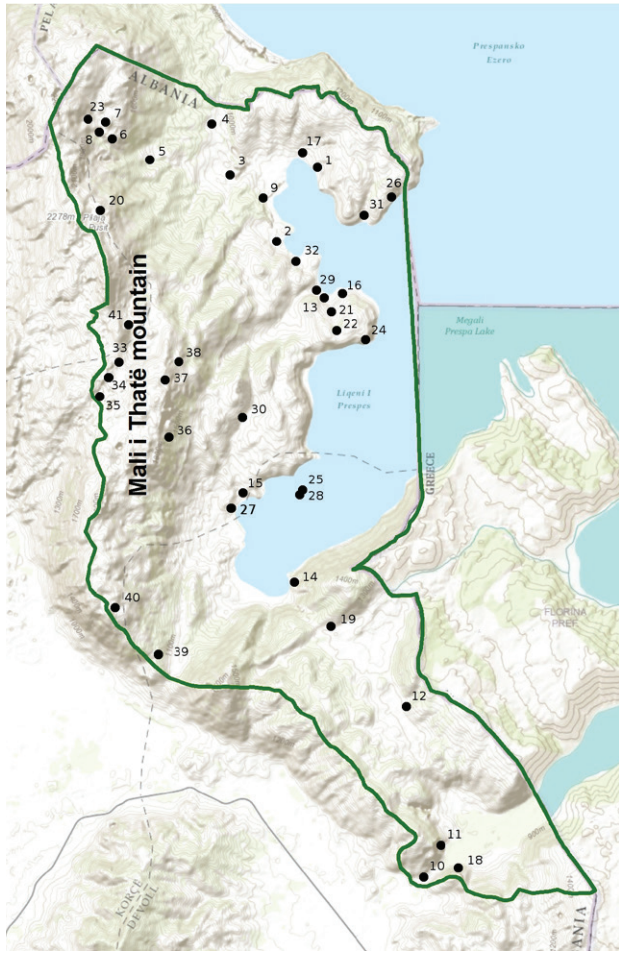

Fig. 1. Sampling localities in the Prespa National Park, Albania. Numbers correspond to those in Table 1.

Although the forest in the Prespa National Park is growing on limestone, it has not been proved as a habitat especially rich in terrestrial gastropod species by the present study. Only three species were found in such habitats and one of them (*Lauria cylindracea*) occurred also in *Buxus sempervirens* shrublands and highly degraded and modified Querco-Carpinetum orientalis forest around Lake Prespa (Table 3).

Discussion

The biodiversity value of the terrestrial gastropod fauna of the Prespa National Park (Albania) is high, though its relatively small territory (277.5 km^2): 51 terrestrial gastropods have been found up to now, including a high number of endemics – 22 species or 43% (Table 2). According to our results, limestone rocks and rocky grasslands are the most im-

Table 1. Localities (Prespa National Park), Abbreviation: Coll. No. – catalog number of the collection of Institute of Biodiversity and General Research, Bulgarian Academy of Sciences (IBER, BAS); HNHM – collection of the Hungarian National History Museum; NHMW – collection of the Natural History Museum, Vienna.

№	Coll.No	Localities	Coordinates N/E	Altitude (m)	Habitats
1	20412	Korcë District, at Liqeni i Prespës (= Great Prespa Lake shore), vill. Kallamas (= vill. Tuminec), 24 V 2013, leg. Dedov; 17 X 2014, leg. Fehér, Haring, Jaksch, Sattmann; 29 VI 2015, leg. Erőss, Fehér, Grego	40.8919° 20.9395°	850-856	limestone rocks with bushes (Pruno webbii–Juniperetum excelsae)
2	20413	Korcë District, at Liqeni i Prespës (=Great Prespa Lake shore), 24 V 2013, leg. Dedov	40.8720° 20.9260°	855	limestone rocks with bushes
3	20414	Korçë District, vill. Gorica e Madhe (= vill. Gorna Gorica), near church, 24 V 2013, leg. Dedov	40.8934° 20.9017°	921	open terrain
4	20415 20416	Mali i Thatë (= Suva Gora Mts.), near the Macedonian border, S of the border-crossing „Subotino“, 25 V 2013, 24 VI 2013, leg. Dedov	40.9098° 20.8950°	975	rocky limestone meadow between forests of *Quercus frainetto* and *Quercus cerris*
5	20417 20418	Mali i Thatë (= Suva Gora Mts.), 25 V 2013, 24 VI 2013, leg. Dedov	40.8980° 20.8647°	1311	Festuco heterophyllae-Fagetum, under log
6	20419 20420	Mali i Thatë (= Suva Gora Mts.), “Pikina Voda” area, 25 V 2013, 24 VI 2013, leg. Dedov	40.9055° 20.8541°	1565	limestone meadow with scattered bushes and trees
7	20421	Mali i Thatë (= Suva Gora Mts.), “The tower of the war” area, 25 V 2013, leg. Dedov	40.9122° 20.8498°	1736	alpine rocky limestone meadow
8	20422	Mali i Thatë (= Suva Gora Mts.), 25 V 2013, leg. Dedov	40.9106° 20.8477°	1731	*Fagus* forest
9	20423	Korcë District, at Liqeni i Prespës (= Great Prespa Lake shore), yard of the Administration of Prespa National Park, 26 V 2013, leg. Dedov	40.8818° 20.9207°	866	meadow
10	20424	Korcë District, at Liqeni i Prespës së Vogël (= Lesser Prespa Lake), vill. Tren, in front of the cave „Shpela e Trenit“, 26 V 2013, leg. Dedov	40.6722° 20.9868°	856	limestone rocks
11	20425 20426	Korcë District, at Liqeni i Prespës së Vogël (= Lesser Prespa Lake), between vill. Shuec and vill. Tren, bank of the lake, 26 V 2013, 24 VI 2013, leg. Dedov; 13 V 2016, leg. Paparisto	40.6847° 20.9984°	863-930	*Buxus sempervirens* on limestone rock-base
12	20427	Korcë District, at Liqeni i Prespës së Vogël (=Lesser Prespa Lake), „Rakcko“ area, 26 V 2013, leg. Dedov	40.7245° 20.9768°	1109	limestone pasture with scattered bushes
13	20428 20429	Korcë District, at Liqeni i Prespës (= Great Prespa Lake shore), vill. Gllobоçeni (= vill. Globocheni), 26 V 2013, 23-25 VI 2013, leg. Dedov	40.8574° 20.9429°	865	limestone rocks
14	20430	Korcë District, at Liqeni i Prespës (=Great Prespa Lake shore), near vill. Zaroshkë (= vill. Zrnosko), Ralnik area, 27 V 2013, leg. Dedov	40.7668° 20.9277°	868	*Buxus sempervirens* shrubland (highly degraded and modified Querco-Carpinetum orientalis forest) on limestone rocks
15	20431	Korcë District, at Liqeni i Prespës (= Great Prespa Lake shore), near the church of St. Tanas, NE of vill. Liqenas (= vill. Pustec), 27 V 2013, leg. Dedov; 1 km NE of vill. Liqenas (=v ill. Pustec), Sv. Atanas and Antoni Veliki church, at Liqeni i Prespes, 02 VII 2003, leg. Erőss, Fehér, Kontschán, Murányi; 29 VI 2013, leg. Erőss, Fehér, Grego	40.7918° 20.9134°	850-870	*Morus* spec. tree, limestone rocks
16	20432	Korcë District, at Liqeni i Prespës (= Great Prespa Lake shore), vill. Gllobоçeni (= vill. Globocheni), boat harbor, 23 VI 2013, leg. I. Dedov; 30 VI 2015 leg. Erőss, Fehér, Grego	40.8593° 20.9492°	850-855	limestone rocks
17	20433	Korcë District, at Liqeni i Prespës (= Great Prespa Lake shore), vill. Kallamas (= vill. Tuminec), 23 VI 2013, leg. Dedov	40.8942° 20.9373°	857	meadows

Table 1. Continuation.

№	Coll.No	Localities	Coordinates N/E	Altitude (m)	Habitats
18	20434	Korcë District, at at Liqeni i Prespës së Vogël (= Lesser Prespa Lake), near vill. Buzëliqen (= vill Zagradets), 24 VI 2013, leg., Dedov	40.6767° 21.0038°	866	limestone rocks, *Buxus sempervirens*
19	20435	Mali i Thatë (= Suva Gora Mts.), near Cerje (= vill. Cerje), 24 VI 2013, leg. Dedov	40.7523° 20.9434°	1126	rocky limestone meadows, *Quercus trojana*
20	20436 20437	Mali i Thatë (= Suva Gora Mts.), Pllaja e Pusit peak, 25 VI 2013, leg. Dedov	40.8798° 20.8418°	2 2 0 4 - 2269	limestone rocks near patch of snow
21	20438	Mali i Thatë (=Suva Gora Mts.), up to vill. Glloboçeni (= vill. Globocheni), 23 IX 2013, leg. Dedov	40.8523° 20.9471°	918	Querco troyanae-Carpinethum orientalae, on limestone rock base
22	20439	Mali i Thatë (=Suva Gora Mts.), up to vill. Glloboçeni (= vill. Globocheni), 23 IX 2013, leg. Dedov	40.8456° 20.9492°	1035	rocky limestone meadows
23	20440 20441	Mali i Thatë (=Suva Gora Mts.), "The tower of the war" area, 24 IX 2013, leg. Dedov	40.9138° 20.8433°	1 8 1 4 - 1830	alpine meadow on limestone and rocky slopes
24	20442	Korcë District, at Liqeni i Prespës (= Great Prespa Lake shore), rock church near Mostets, 25 IX 2013, leg. Dedov; Korçë District, cave temple ca. 4 km S of vill. Glloboçeni (= vill. Globocheni), at Liqeni i Prespës, 30 VI 2015, leg. Erőss, Fehér, Grego	40.8419° 20.9615°	850-870	limestone rocks
25	20443	Korcë District, at Liqeni i Prespës (= Great Prespa Lake shore), Ishulli Maligrad (= island "Mal Grad"), 25 IX 2013, leg. Dedov	40.7915° 20.9331°	859	limestone rocks, bushes
26	20444	Korcë District, at Liqeni i Prespës (= Great Prespa Lake shore), rock church "St. Marena", near Dlaboko, ca. 4 km E of vill. Kallamas, 25 IX 2013, leg. Dedov; 29 VI 2015, leg. Erőss, Fehér, Grego,	40.8869° 20.9727°	850-853	limestone rocks
27	HNHM	Korcë District, vill. Liqenas (= vill. Pustec), by the shore of Liqeni i Prespes (= Great Prespa Lake), 18 IX 1992, leg. Fehér; 02 VII 2003, leg. Erőss, Fehér, Kontschán, Murányi	40.7897° 20.9087°	844-860	lacustrine drift material, degraded ruderal vegetation and limestone rocks
28	HNHM	Korcë District, E of vill. Liqenas (= vill. Pustec), Ishull i Vogël, shore of Liqeni i Prespes (= Great Prespa Lake), 17 VIII 2007, leg. Fehér, Tamás	40.7915° 20.9324°	860	limestone rocks
29	NHMW	Korçë District, vill. Glloboçeni (= vill. Globocheni), N side, 17 X 2014, leg. Fehér, Haring, Jaksch, Sattmann	40.858° 20.9426°	860	limestone rocks
30	NHMW	Korçë District, between vill. Glloboçeni (= vill. Globocheni) and vill. Liqenas (= vill. Pustec), 1 km N of the Dielas junction, 17 X 2014, leg. Fehér, Haring, Jaksch, Sattmann	40.8122° 20.9045°	1040	rocky grassland
31	NHMW	Korçë District, 2 km SE of Kallamas, at Liqeni i Prespës (=Great Prespa Lake), 29 VI 2015, leg. Erőss, Fehér, Grego	40.8809° 20.9590°	850	limestone rocks
32	NHMW	Korçë District, sinkhole cave 1 km S of Goricë e Vogël, 29 VI 2015, leg. Erőss, Fehér, Grego	40.8699° 20.9295°	850	among boulders at the opening of the cave
33	HNHM	Korçë District, Mali i Thatë (= Suva Gora Mts.), ca. 4.3 km E of the vill. Podgorije, ca. 1.3 km E of the peak "Bregu i Stanit", 20 V 2007, leg. Barina, Pifkó, Németh	40.8255° 20.8528°	1825	limestone rocks
34	HNHM	Korcë District, Mali i Thatë (= Suva Gora Mts.), ca. 3.9 km E of the vill. Podgorije, between the peaks "Bregu i Stanit" and "Meza", 20 V 2007, leg. Barina, Pifkó, Németh	40.8179° 20.8494°	1858	limestone rocks

Table 1. Continuation.

№	Coll.No	Localities	Coordinates N/E	Altitude (m)	Habitats
35	HNHM	Korcë District, Mali i Thatë (= Suva Gora Mts.), ca. 3.2 km E of the vill. Podgorije, ca. 1.0 km NW of Mount "Meza" and 1.5 km S of Mount "Stani", 20 V 2007, leg. Barina, Pifkó, Németh	40.8143° 20.8402°	1863	limestone boulders on grassland
36	HNHM	Korcë District, Mali i Thatë (= Suva Gora Mts.), ca. 2.9 km NW of the vill. Liqenas (= vill. Pustec), ca. 2.2 km E/NE of the peak "Buz e Korutes", 22 V 2007, leg. Barina, Pifkó	40.8024° 20.8741°	1746	karstic shrubland
37	HNHM	Korcë District, Mali i Thatë (= Suva Gora Mts.), ca. 4.3 km NW of the vill. Liqenas (= vill. Pustec), ca. 700 m S of a peak, 22 V 2007, leg. Barina, Pifkó	40.8183° 20.8728°	1913	limestone rocks on a scree slope
38	HNHM	Korcë district, Mali i Thatë (= Suva Gora Mts.), ca. 4.3 km NW of vill. Liqenas (= vill. Pustec), ca. 400 m E/SE of a peak, 22 V 2007, leg. Barina, Pifkó	40.8220° 20.8789°	2035	limestone rocks on a scree slope
39	HNHM	Korcë District, Mali i Thatë (= Suva Gora Mts.), ca. 1.7 km N of the vill. Zvezdë, on Mount Zvezda, 2.1 km SE of the peak, 25 V 2007, leg. Barina, Pifkó, Németh	40.7419° 20.8635°	1179	limestone rocks on grassland
40	HNHM	Korcë District, Mali i Thatë (= Suva Gora Mts.), ca. 2.7 km N/NW of the vill. Zvezdë, on Mount Zvezda, ca. 500 m SW of the peak, 25 V 2007, leg. Barina, Pifkó, Németh	40.7565° 20.8495°	1718	limestone rocks
41	HNHM	Mali i Thatë (=Suva Gora Mts.), path from Goricë to the ridge, 2008, leg. Barina, Pifkó, Németh	40.8485° 20.8624°	1765	limestone rocks

portant habitats for the diversity of the gastropods in the region. Because of total clearing of forests in the border areas of Albania in the near past, in most cases the forests are young and degraded and not rich in species (Table 2). In some small old patches of the deciduous forest in the park, some forest species could be expected, which are present in the Macedonian part of the mountains. These are *Acanthinula aculeata* (Müller, 1774), *Aegopinella minor* (Stabile, 1864), *Cochlodina laminata* (Montagu, 1803), *Dinarica serbica* (Rossmässler, 1836), *Punctum pygmaeum* (Draparnaud, 1801) and *Triloba thaumasia* (Sturany, 1907). In Albania, very close to the border of the park, the endemic species *Chilostoma* (*Josephinella*) *byshekensis* (Knipper, 1941) has been found and perhaps it occurs in the protected territory, too.

According Dhora & Welter-Schultes (1996), *Lindholmiola lens* occurs in the region. However, the present study does not confirm this information. As far as Goricë i Madhe is the only known locality of this species in Albania and this site has been examined by us at several occasions in the course of the present survey, we suggest to remove *L. lens* from the Albanian checklist of terrestrial gastropods.

Fehér & Szekeres (2016) have identified the population of *Montenegrina* from St. Marena church as *M. dofleini prespaensis* but newly collected data show that it is actually *M. hiltrudae desaretica*; however, some individuals show transitive conchological features, which might be a sign of hybridization between the two species.

With the present study, the number of the known terrestrial gastropod species from the region is almost tripled. Nevertheless, many questions still remain. In some of the localities, the specimens of *Chondrula macedonica* are much more slender and without basal plica. The phenomenon of reduction of apertural structures generally is observed at higher altitudes and represents a local variation of the species but remains without a clear and well-supported explanation. Such forms with reduced plicae are known in the family Clausiliidae as "oreinos-forms" (Nordsieck 2008) but in the family Enidae the phenomenon is still weekly studied. From subjective personal observation, we think that many potential predators (e.g. Diptera: Sciomyzidae; Coleoptera: Elateridae, Drilini) of snails with mouth plicae do not go as high up as the snail species does. The plicae are generally thought to prevent predators from entering the snail shell through the apertural opening. If there is no or only very little pressure by these predators, eventually there is no reason anymore for developing such plicae.

Table.2. List of the gastropods in Prespa National Park (Albania). The numbers of localities correspond to those in the first column of the Table 1. Abbreviation: ID – Registration number of mollusks in collection of Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences; HNHM – Hungarian Natural History Museum, Budapest; NHMW – collection of the Natural History Museum, Vienna; MSS - milieu soubterrain superficiel; BL – Balkan endemics, WBL – Western Balkan endemics, LE – Local endemics (endemic for the region around the lake Prespa, including adjacent mountains); IUCN – included in "The IUCN Red List of Threatened Species" (Europe) as LC – least concern, NT – Near Threatened

No	SPECIES	SAMPLES	Main habitat in the park	Altitude range in the park	Endemics	Protected
	Cochlostomatidae					
1	*Cochlostoma* (*Turritus*) sp.	HNHM: 40	Limestone rocks (petrophilous)	1718	--	--
	Succineidae					
2	*Oxyloma* (*Oxyloma*) *elegans* (Risso, 1826)	HNHM: 27	Wetland	850	--	--
	Lauriidae					
3	*Lauria cylindracea* (da Costa, 1778)	ID: 20430, 20432, 20443; NHMW: 24	Degraded deciduous forest	855-868	--	--
	Orculidae					
4	*Orcula* cf. *wagneri* Sturany, 1914	ID: 20437, 20440, 20441; HNHM: 33	Limestone rocks and rocky grasslands	1814-2269	WBL	NT
	Pyramidulidae					
5	*Pyramidula cephalonica* (Westerlund, 1898)	ID: 20432	Limestone rocks (petrophilous)	855	WBL	--
6	*Pyramidula pusilla* Gittenberger & Bank, 1996	ID: 20430, 20432, 20443; NHMW: 24; HNHM: 28	Limestone rocks (petrophilous)	855-868	--	--
	Chondrinidae					
7	*Chondrina arcadica* (Reinhardt, 1881)	ID: 20412, 20413, 20430 (cf.), 20432; HNHM: 15, 33, 34, 39, 40; NHMW: 24	Rocks (limestones, petrophilous)	850-1858	--	LC
	Vertiginidae					
8	*Truncatellina claustralis* (Gredler, 1856)	HNHM: 28	Limestone rocks and rocky grasslands	860	--	--
9	*Truncatellina cylindrica* (Ferussac, 1807)	ID: 20430, 20432; NHMW: 24	Limestone rocks and rocky grasslands	855-868	--	LC
10	*Truncatellina rothi* (Reinhardt, 1916)	ID: 20430, 20432; NHMW: 24	Limestone rocks and rocky grasslands	855-868	--	LC
	Enidae					
11	*Chondrula macedonica* Wagner, 1914	ID: 20412 (cf.), 20421, 20425, 20427, 20440, 20441, 20442 (cf.), 20443 (cf.), 20444 (cf.); HNHM: 15, 28, 35, 40; NHMW: 1	Limestone rocks and rocky grasslands	850-1863	BL	LC
12	*Chondrula microtragus* (Rossmassler, 1839)	ID: 20412, 20413, 20420, 20425, 20427, 20430, 20434, 20439, 20442 (cf.), 20443, 20444 (cf.); HNHM: 15, 27, 28; NHMW: 1, 26	Limestone rocks and rocky grasslands	850-1565	BL	LC
13	*Jaminia quadridens* (Müller, 1774)	ID: 20413, 20432	Limestone rocks and rocky grasslands	855	--	LC
14	*Merdigera obscura* (Müller, 1774)	ID: 20418, 20429	Degraded deciduous forest	865-1311	--	LC
14	*Zebrina detrita* (Müller, 1774)	ID: 20412, 20419, 20420, 20425, 20427, 20430, 20431, 20439, 20442, 20443, 20444; HNHM: 15, 27, 28; NHMW: 1	Limestone rocks and rocky grasslands	850-1565	--	--
	Ferussaciidae					
16	*Cecilioides* (*Cecilioides*) *acicul*a (Müller, 1774)	ID: 20430, 20443; HNHM: 28	MSS	859-868	--	--

Table 2. Continuation.

No	SPECIES	SAMPLES	Main habitat in the park	Altitude range in the park	Endemics	Protected
	Clausiliidae					
17	*Alinda biplicata distincta* (Sturany, 1894)	ID: 20412, 20413, 20421, 20424, 20430, 20431, 20432, 20434, 20442, 20443, 20444; HNHM: 15, 28, 40; NHMW: 1	Limestone rocks and rocky grasslands (also degraded deciduous forests, bushes)	850-1736	WBL	--
18	*Montenegrina dofleini dofleini* (A.J. Wagner, 1928)	HNHM: 36	Limestone rocks (petrophilous)	1746	WBL	--
19	*Montenegrina dofleini prespaensis* Nordsieck, 1988	ID: 20412; NHMW: 1, 31	Limestone rocks (petrophilous)	850-856	LE	--
20	*Montenegrina dofleini wagneri* Szekeres, 2006	ID: 20421, 20436, 20440, 20441; HNHM: 33, 37, 38, 41	Limestone rocks (petrophilous)	1736-2204	LE	--
21	*Montenegrina hiltrudae costulata* Erőss & Szekeres, 2006	ID: 20430; HNHM: 40	Limestone rocks (petrophilous)	868-1718	LE	--
22	*Montenegrina hiltrudae desaretica* Fehér & Szekeres, 2016	ID: 20431, 20442, 20443, 20444; HNHM: 15, 27, 28; NHMW: 24, 26	Limestone rocks (petrophilous)	850-870	LE	--
23	*Montenegrina hiltrudae fusca* Feher & Szekeres, 2006	ID: 20440, 20441	Limestone rocks (petrophilous)	900-1830	LE	--
24	*Montenegrina hiltrudae sattmanni* Nordsieck, 1988	ID: 20424, 20425, 20426, 20427, 20428, 20429, 20432, 20434, 20435, 20438; HNHM: 39; NHMW: 11, 16, 29	Limestone rocks (petrophilous)	850-1179	LE	--
25	*Strigilodelima conspersa* (L. Pfeiffer, 1848)	ID: 20430, 20431; NHMW: 30	Limestone rocks and rocky grasslands (also degraded deciduous forests, bushes)	868-1040	WBL	--
	Pristilomatidae					
26	*Vitrea* cf. *botterii* (L. Pfeiffer, 1853)	ID: 20421, 20430; HNHM: 28; NHMW: 24	Limestone rocks and rocky grasslands	860-1736	--	--
27	*Vitrea* sp.	ID: 20432	--	855-1030	--	--
	Oxychilidae					
28	*Mediterranea inopinata* (Ulicny, 1887)	HNHM: 28	Subterranean	860	--	--
29	*Mediterranea* sp.	ID: 20436, 20443	Subterranean?	859-2204	--	--
30	*Morlina glabra* (Rossmassler, 1835)	ID: 20412 (cf.), 20413 (cf.), 20424 (antomy), 20429 (cf.), 20430 (cf.), 20443 (cf.); HNHM: 15 (cf.), 28 (cf.); NHMW: 32 (cf.)	Limestone rocks and rocky grasslands (also degraded deciduous forests, bushes)	850-1030	--	--
	Milacidae					
31	*Tandonia macedonica* (Rähle, 1974)	ID: 20421 (antomy), 20422 (cf.)	Rocks	1731-1736	--	--
32	*Tandonia* sp.	ID: 20423	--	866	--	--
	Vitrinidae					
33	*Oligolimax* sp.	ID: 20432	Limestone rocks and rocky grasslands	855	--	--
34	Vitrinidae, af. *Semilimacella* sp.	ID: 20430	--	868	--	--

Table 2. Continuation.

No	SPECIES	SAMPLES	Main habitat in the park	Altitude range in the park	Endemics	Protected
35	Vitrinidae, af. *Vitrina* sp.	ID: 20420, 20421, 20432, 20436, 20437, 20441, 20443	--	855-2269	--	--
	Limacidae					
36	*Lehmannia* cf. *brunneri* (Wagner, 1931)	ID: 20417, 20428, 20429	Rocks	865-1311	BL	--
37	*Limacus flavus* (Linnaeus, 1758)	ID: 20429	Synanthrope	865	BL	--
38	*Limax* cf. *conemenosi* Böttger, 1882	ID: 20428	Synanthrope	865	--	--
39	*Limax* cf. *corcyrensis* (Simroth, 1905) sensu Rähle 1981	ID: 20429	Rocks	865	WBL	--
40	*Limax* cf. *graecus* Simroth, 1889	ID: 20421	Limestone rocks and rocky grasslands	1736	BL	--
41	*Limax* cf. *maximus* Linnaeus, 1758	ID: 20422	Degraded deciduous forest	1731	--	--
	Agriolimacidae					
42	*Deroceras* sp. (Müller, 1774)	ID: 20421	--	1736	--	--
	Helicodontidae					
43	*Lindholmiola corcyrensis* (Deshayes, 1839)	ID: 20415, 20416, 20419, 20421, 20425, 20427, 20430, 20434, 20435, 20438, 20440, 20441; HNHM: 15; NHMW: 1, 30	Limestone rocks and rocky grasslands (also degraded deciduous forests, bushes)	863-1830	WBL	LC
	Hygromiidae					
44	*Candidula rhabdotoides* (Wagner, 1928)	ID: 20412, 20421, 20425, 20427, 20430, 20434, 20440, 20442, 20443, 20444; HNHM: 28	Limestone rocks and rocky grasslands (also degraded deciduous forests, bushes)	853-1814	BL	--
45	*Cernuella* cf. *virgata* (da Costa, 1778)	ID: 20430	Limestone rocks and rocky grasslands (also degraded deciduous forests, bushes)	868	--	LC
46	*Monacha* cf. *frequens* (Mousson, 1859)	ID: 20421, 20433, 20438, 20441; HNHM: 27	Limestone rocks and rocky grasslands (also degraded deciduous forests, bushes, ruderal vegetation)	850-1830	--	LC
47	*Xerolenta obvia* (Menke, 1828)	ID: 20412, 20415, 20416, 20419, 20433, 20436	Limestone rocks and rocky grasslands (also degraded deciduous forests, bushes)	856-2204	--	LC
	Helicidae					
48	*Helix lucorum* Linnaeus, 1758	ID: 20413, 20414, 20415, 20419, 20423, 20424, 20425, 20426, 20427, 20428, 20439; HNHM: 15, 27	Eurybiont	850-1565	--	LC
49	*Helix philibinensis* Rossmässler, 1839	ID: 20412, 20413, 20419, 20425, 20426, 20430, 20431; HNHM: 15, 27; NHMW: 1, 29	Limestone rocks and rocky grasslands (also degraded deciduous forests, bushes)	850-1565	BL	LC
50	*Helix schlaeflii* Mousson, 1859	ID: 20421, 20436, 20441	Limestone rocks and rocky grasslands	866-2204	WBL	LC
51	*Wladislawia thateensis* Subai, 2012	HNHM: 33, 34	Limestone rocks (petrophilous)	1825-1858	LE	--
No	**SPECIES**	**LOCALITIES**	**Main habitat in the park**	**Altitude range**	**Endemics**	**Protected**
					LE-7 BL-7 WBL-8	**NT-1 LC-14**

Some species have been found as empty shells only and their determination needs additional studies and anatomical verification. These are *Cochlostoma* (*Turritus*) sp., Vitrinidae aff. *Semilimacella* sp., aff. *Vitrina* sp. and *Oligolimax* sp. When juveniles and (or) few specimens only have been found as well when variation of characters is substantial, taxa have been identified at the generic level only (*Mediterranea*, *Vitrea*). Therefore, additional species in the examined area can be expected.

According Sturany & Wagner (1915), the subspecies *Orcula wagneri ljubetenensis* Sturany, 1914 has a wider diameter than the nominotypical subspecies and has only a single columellar fold. It differs from *Orcula schmidtii schmidtii* (Küster, 1843) by the fewer number but faster growing whorls and the very narrow umbilicus. These characters could vary in different populations and Harl et al. (2014) considered *O. schmidtii* and *O. wagneri* as possible synonyms. Our specimens are bigger than *O. w. ljubetenensis* and resemble *O. schmidtii* (in some specimens the number of whorls is 9) but, in view of their narrow umbilicus, this might be only a variation of *O. w. wagneri.*

Such problems exist also with the identification of species of the genus *Pyramidula*. Despite recent molecular studies (Kirchner et al. 2015, Razkin et al. 2016), it is still not clear where are the morphological species limits between *P. cephalonica* and *P. pusilla*. Therefore, we identify *Pyramidula* spp. on conchological basis only: the population comprising of wider and lower-shelled specimens are identified as *P. cephalonica* whereas those with higher shell spira and swollen body-whorls are assigned to *P. pusilla*.

Limax sp. is probably identical with *L. corcyrensis* Simroth, 1904 sensu Rähle (1981). It seems, however, our sample from the Lake Prespa area does not fit to the concept of this species as presented by Wiktor (2001) and recognising *L. corcyrensis* as a synonym of *Limax cephalonicus* Simroth, 1886. Similar specimens to those identified here as "*Limax* sp." have been collected from Macedonia and Bulgaria (Dedov, unpublished data). In our opinion, the *Limax graecus* species-group from the Balkans, southern Italy and Turkey needs an entire taxonomic revision.

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