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Important Bat Underground Habitats (IBUH) in Bulgaria

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Abstract: Number of bats and number of species are used as criteria to identify the Important Bat Underground Habitats (IBUH) in Bulgaria. There are 92 underground habitats identified as IBUH: 89 (97%) - natural caves and 3 (3%) - artificial galleries. Fifty-two of them are assessed as IBUHs of national and international importance, and proposed for a basis of the National Schedule for Monitoring of Cave-Dwelling Bat Species and Underground Habitats.

Key words: Chiroptera**,** conservation, monitoring, bat caves

Introduction

The importance of caves in Bulgaria as roosts of numerous bat colonies was revealed by Buresh (1925). He mentioned just a few localities, but stressed upon the fact that such roosts are already very rare in Western Europe because of the high anthropogenic disturbance. Later Beron (1964) published a list of 27 "big bat caves in Bulgaria" with a brief description of the species inhabiting them. In the period 1988-1990 the Ministry of Environment initiated a project for assessment of the bat caves in the country and Beshkov (1998) summarized the results and listed 48 "significant bat caves" with data on species diversity and size of colonies. Further research followed with focus on localities and karstic areas (Pandurska 1993, 1999, 2000, 2003, Beshkov *et al.* 1994, Pandurska, Beshkov 1998a, 1998b, Pandurska *et al*. 1999, Ivanova 2001). All known data concerning species distribution in Bulgaria and number of colonies are recently summarized in the monograph of Benda *et al.* (2003).

At the same time the Agreement on the Conservation of Populations of European Bats (EUROBATS/UNEP) initiated a process for assessment of the important bat underground habitats on European level. For this purpose the development of national schemes is required as a first step (Doc. EUROBATS. MoP4. Resolution No. 4.3., Doc. EUROBATS. AC5.9).

The aim of the present work is to provide scientifically based system for assessment of the underground bat habitats in Bulgaria and on the basis of the recent data to provide a list of the Important Bat Underground Habitats (IBUH).

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Methodological Approach

According to the modern conservation approach the bat habitats could be functionally divided into tree categories:

Roosts: habitats where bats are resting (day roosts, hibernacula, etc.) and where mating, birth and care for juveniles takes place;

Foraging habitats: habitats where bats are foraging (hunting on insects, etc.)**;**

Flyways: habitats through which bats are flying to reach from the roosts to the foraging habitats (**commuting flyways/fly paths**) or/and to reach from one roost to another during the seasonal movements (**migratory flyways**).

Regarding their roost preferences bat species in Bulgaria could be assigned to two main groups (see Table 1): **cave-dwelling species** - inhabiting underground roosts during the whole year (obligatory) or breeding mostly in underground roosts (but sometimes also in different roost types, as buildings) (facultative) and **non cave-dwelling species.** For the last category it is typical to change roost types during the year.

The assessment is based only on data concerning the cave-dwelling bat species in Bulgaria (10 species, see Table 1): *Rhinolophus ferrumequinum*, *Rh. hipposideros*, *Rh. euryale, Rh. mehelyi, Rh. blasii, Myotis myotis, M. blythii, M. capaccinii, M. emarginatus* and *Miniopterus schreibersii.*

It is well known that at least 11 more species are hibernating in Bulgarian caves and often using them as temporary roosts. Those species were not included in the analyses because of the lack of detailed quantitative data.

For the conservation purposes ***underground bat habitats*** are defined as underground roosts where bats are resting, mating, nursing or/and hibernating. They could be of different origin (natural or man-made) and structure, but all are characterized by specific microclimate. The underground microclimate is characterized by absence of light and photoperiod, constant air temperature and high relative humidity. Underground habitats include: natural caves of karstic, volcanic and marine origin; artificial galleries - mines, bunkers, tunnels (road, rail, service, canal, etc.) , and buildings or parts of them, as cellars, wells, shafts, fortifications, etc.

According to their functional role in the life of bats, underground roosts are defined as summer roosts, nursery/maternity roosts, hibernacula and temporary or transitory roosts.

Results

For identifying the Important Bat Underground Roosts in Bulgaria the number of species and the number of individuals were taken into account, following the UK scheme (Nature Conservancy Council 1989). For IBUH is declared each underground roost - natural cave, artificial gallery or part of building, which is inhabited in a certain part of the year by:

- 4 or more species and 50 or more individuals;
- 3 or more species and 100 or more individuals;
- 2 or more species and 150 or more individuals.

On the basis of the list of localities and the data on species diversity in each locality (according to Benda *et al*. 2003) the scheme described above is applied and a list of Important Bat Underground Roosts in Bulgaria is prepared (Table 2, Fig. 1).

Table 1. Ecological groups of bat species in Bulgaria according to the roost preferences: **S** – summer roost, **N** - nursery, **H** – hibernacula.

Species	Under-ground roosts	Tree roosts	Rock crevices	Buildings
Cave-dwelling				
Obligatory				
Rhinolophus euryale BLASIUS, 1853	N, H	-	-	-
Rhinolophus mehelyi MATSCHIE, 1901	N, H	-	-	-
Rhinolophus blasii PETERS, 1866	N, H	-	-	-
Myotis myotis (BORKHAUSEN, 1797)	N, H	-	-	S
Myotis blythii (TOMES, 1857)	N, H	-	-	S
Myotis capaccinii (BONAPARTE, 1837)	N, H	-	-	-
M. schreibersii (KUHL, 1817)	N, H	-	-	-
Facultative				
Rh. ferrumequinum (SCHREBER,1774)	N, H	-	-	S, N, H
Rh. hipposideros (BECHSTEIN, 1800)	N, H	-	-	S, N, H
Myotis emarginatus (GEOFFROY, 1806)	N, H	-	S	S, N
Non Cave-dwelling				
Rock crevices - dwellers				
Hypsugo savii (BONAPARTE, 1837)	-	-	S, N	S
Eptesicus serotinus (SCHREBER,1774)	-	-	S, N	S, N
Tadarida teniotis (RAFINESQUE, 1814)	-	-	S, N, H	-
Tree-dwellers				
B. barbastellus (SCHREBER,1774)	H	S	(S)	-
Myotis bechsteinii (KUHL, 1817)	H	S, N	(S)	-
Myotis daubentonii (KUHL, 1817)	H	(S, N)	(S)	-
Myotis nattereri (KUHL, 1817)	H	(S)	(S)	-
Myotis brandtii (EVERSMANN, 1845)	H	(S)	(S)	N, S
Nyctalus noctula (SCHREBER,1774)	H	S, H	S, H	S,H
Nyctalus leisleri (KUHL, 1817)	-	(S, H)	-	-
Nyctalus lasiopterus (SCHREBER,1780)	-	(S, H)	-	-
Pipistrellus pygmaeus (LEACH, 1825)	-	S	-	-
Pipistrellus nathusii (KEYSERLING & BLASIUS, 1839)	-	(S)	-	-
Plecotus auritus (LINNAEUS, 1758)	H	(S, N)		(S, N)
Sinanthropic				
Myotis mystacinus (KUHL, 1817)	H	-	-	(N)
Myotis aurascens KUSJAKIN, 1935	H	-	-	(N)
Pipistrellus pipistrellus (SCHREBER,1774)	H	-	-	N, (N)
Pipistrellus kuhlii (KUHL, 1817)	-	-	-	(S)
Plecotus austriacus (FISCHER, 1829)	H	(S)	-	(S, N)
Eptesicus nilssonii (KEYSERLING & BLASIUS, 1839)	-	-	-	(S)
NO DATA				
Myotis alcathoe HELVERSEN & HELLER, 2001	(S)			
Myotis dasycneme (BOIE, 1825)				
Vespertilio murinus LINNAEUS, 1758			(S)	(H)

There are 92 underground habitats which are identified as IBUH: 87 (97 %) - natural caves and 3 (3%) - artificial galleries.

Further the importance of the IBUH in Bulgaria is assessed according to the criteria in Table 3.

From 92 IBUH, 52 are selected according to the above-listed criteria as an IBUH with national (39) and international importance (13) (Table 4, Fig. 1). 32 of them are declared for protected areas, 5 for protected sites and 27 for natural monuments (EEA Register, 2005).

The identified 52 IBUH with national and international importance are proposed as a basis for the National Schedule for Monitoring of Cave-Dwelling Bat Species and Underground Habitats (EEA, in press).

The list of Bulgarian IBUHs represents our recent knowledge on bats and their conservation demands and is open for future development required by new conservation and monitoring approaches.

Table 2. Important Bat Underground Habitats (IBUH) in Bulgaria.

No	Locality	Village	District	Latitude	Longitude	Alt. m a.s.l.	Type
1	Aina Ini Cave	Ribino	Kardzhali	43° 37' N	25° 31' E	400	cave
2	Andaka Cave	Dryanovo	Gabrovo	42° 17' N	25° 28' E	450	cave
3	Asandelija Cave	Gorna Koznitsa	Kyustendil	42° 56' N	22° 55' E	1000	cave
4	Bacho Kiro Cave	Dryanovo	Gabrovo	42° 19' N	25° 28' E	450	cave
5	Bilernitsite Cave	Botunya	Vratsa	41° 38' N	23° 22' E	250	cave
6	Bozkite Cave	Ustrem	Yambol	43° 57' N	26° 28' E	100	cave
7	Bozkova Dupka Cave	Krivnya	Razgrad	43° 13' N	26° 19' E	190	cave
8	Bratanovskata Cave	Malko Tarnovo	Burgas	43° 15' N	27° 28' E	400	cave
9	Bunker: Gara Peio Yavorov	Kresna	Blagoevgrad	43° 12' N	23° 8' E	240	bunkers
10	Chelovecha Dupka Cave	Kunino	Vratsa	43° 13' N	24° 0' E	300	cave
11	Chernata Peshtera Cave	Armenite	Gabrovo	41° 25' N	25° 13' E	350	cave
12	Dalbokata Dupka Cave	Kraynovo	Yambol	43° 10' N	26° 52' E	400	cave
13	Derventskata Peshtera Cave	Prolaz	Targovishte	43° 28' N	26° 30' E	350	cave
14	Desni Suhi Pech Cave	Gorni Lom	Vidin	42° 58' N	22° 43' E	500	cave
15	Devetashkata Cave	Devetaki	Lovech	41° 58' N	24° 53' E	250	cave
16	Dinevata Pesht Cave	Gintsi	Sofia	42° 2' N	23° 6' E	1150	cave
17	Dyavolskoto Garlo Cave	Trigrad	Smolyan	43° 47' N	24° 22' E	1500	cave
18	Emenskata Peshtera Cave	Emen	Veliko Tarnovo	42° 2' N	25° 21' E	300	cave
19	Futiovskata Peshtera Cave	Karpachevo	Lovech	43° 0' N	25° 1' E	400	cave
20	Gabarnika Cave	Krasen	Ruse	43° 12' N	26° 1' E	110	cave
21	Gargina Dupka Cave	Mostovo	Plovdiv	43° 25' N	24° 56' E	1000	cave
22	Gyurgen Dere Caves	Gaberovo	Haskovo	42° 2' N	25° 55' E	500	volcavic cave
23	Golashkata peshtera Cave	Gabrovitza	Pazardzhik	42° 2' N	23° 56' E	700	gallery
24	Golyamata Balabanova Dupka Cave	Gintsi	Sofia	42° 49' N	23° 6' E	1500	cave
25	Golyamata Mikrenska Peshtera Cave	Mikre	Lovech	43° 16' N	24° 31' E	450	cave
26	Golyamata Mitrovska Peshtera	Mitrovci	Montana	43° 19' N	22° 55' E	400	cave
27	Golyamata Peshtera Cave	Vetren	Kyustendil	43° 6' N	22° 45' E	1000	cave
28	Golyamata Vitanovska Peshtera Cave	Malko Tarnovo	Burgas	43° 16' N	27° 31' E	350	cave
29	Haidushka Peshtera Cave	Deventsi	Pleven	41° 58' N	24° 10' E	150	cave
30	Hilyadite Ochichki	Madara	Shumen	43° 15' N	27° 6' E	200	cave
31	Ivanova Voda Cave	Dobrostan	Plovdiv	42° 1' N	24° 55' E,	1350	cave
32	Jarasa-Ini Cave	Visoka Polyana	Kardzhali	43° 7' N	25° 31' E	400	volcavic cave
33	Kalenskata Peshtera Cave	Kalen	Vratsa	42° 8' N	23° 46' E	400	cave

Table 2. Continued.

No	Locality	Village	District	Latitude	Longitude	Alt. m a.s.l.	Type
34	Kaleto Cave	Mladezko	Burgas	43° 19' N	27° 22' E	400	cave
35	Kalna Matnitsa	Beli Izvor	Vratsa	41° 22' N	23° 28' E	250	cave
36	Kanchova Varpina Cave	Tepava	Lovech	43° 43' N	24° 53' E	350	cave
37	Karangin Cave	Oreshari	Kardzhali	43° 25' N	25° 45' E	380	cave
38	Kesedzhiica Cave	Melnitsa	Yambol	43° 16' N	26° 34' E	200	cave
39	Kolibata Cave	Belidie Han	Sofia	41° 36' N	23° 10' E	750	cave
40	Kozarnika	Lipnitsa	Sofia	43°1' N	23° 45' E	600	cave
41	Lednitsata Cave	Kotel	Sliven	43° 10' N	26° 35' E	700	cave
42	Leyarnitzite Cave	Mladezko	Burgas	43° 19' N	27° 22' E	400	cave
43	Lesovo: galleries	Lesovo	Yambol	43° 13' N	26° 34' E	300	gallery
44	Levi Suhi Pech Cave	Gorni Lom	Vidin	42° 58' N	22° 43' E	500	cave
45	Lyastovicata Cave	Glozene	Lovech	42° 4'N	24° 10' E	450	cave
46	Magura Cave	Rabisha	Vidin	43° 34' N	22° 36' E	230	cave
47	Maharata Cave	Kosti	Burgas	43° 1' N	27° 46' E	200	cave
48	Manaf-Kojusju Cave	Byala Polyana	Kardzhali	41° 38' N	25° 37' E	400	cave
49	Mandrata Cave	Chavdartsi	Lovech	41° 40' N	25° 0' E	200	cave
50	Manuilovata Peshtera Cave	Ribnovo	Blagoevgrad	43° 37' N	23° 46' E	1200	cave
51	Marina Dupka Cave	Targovishte	Targovishte	43° 4' N	26° 34' E	200	cave
52	Mishin Kamak Cave	Gorna Luka	Montana	42° 56' N	22° 53' E	400	cave
53	Morovitsa Cave	Glozene	Lovech	42° 52' N	24° 10' E	600	cave
54	Nanin Kamak Cave	Muselievo	Pleven	43° 25' N	24° 51' E	150	cave
55	Orlova Chuka Cave	Pepelina	Ruse	43° 27' N	25° 55' E	150	cave
56	Orlovata Peshtera Cave	Kotel	Sliven	43° 10' N	26° 20' E	700	cave
57	Parasinskata Propast	Belimel	Montana	41° 36' N	22° 58' E	260	cave
58	Parnitsite Cave	Bezanovo	Lovech	41° 37' N	24° 23' E	180	cave
59	Pech Cave (Suhi Pech)	Oreshets	Vidin	43° 27' N	22° 43' E	450	cave
60	Ponora Cave	Chiren	Vratsa	41° 51' N	23° 34' E	350	cave
61	Prileparnika Cave	Vartop	Vidin	43° 6' N	22° 48' E	200	cave
62	Prilepnata Cave	Yantra	Gabrovo	42° 8' N	25° 4' E	150	cave
63	Prilepnata Cave (Boziya Most)	Chiren	Vratsa	41° 53' N	23° 34' E	350	cave
64	Samara Cave	Ribino	Kardzhali	43° 37' N	25° 31' E	410	cave
65	Sedlarkata Cave	Rakita	Pleven	43° 37' N	24° 16' E	250	cave
66	Serapionovata Peshtera Cave	Lyutibrod	Vratsa	43° 15' N	23° 37' E	350	cave
67	Shamaka Cave	Barlya	Sofia	41° 30' N	22° 58' E	1000	cave
68	Sharaliyskata Peshtera Cave	Ilindentsi	Blagoevgrad	42° 58' N	23° 13' E	1700	cave
69	Skoka Cave	Dragana	Lovech	42° 16' N	24° 22' E	300	cave
70	Starshelitsa Cave	Goleshovo	Blagoevgrad	42° 55' N	23° 36' E	1200	cave
71	Subatta Cave	Kotel	Sliven	43° 10' N	26° 35' E	700	cave
72	Suhata Dranchi Dupka Cave	Melnica	Yambol	43° 16' N	26° 34' E	200	cave
73	Suhi Pech Cave	Gorna Luka	Montana	42° 58' N	22° 53' E	450	cave
74	Tauk Liman, small Cave	Sveti Nikola	Varna	43° 4' N	28° 30' E	100	marine cave
75	Temnata Dupka	Berende Izvor	Sofia	41° 37' N	22° 53' E	560	cave
76	Temnata Dupka Cave	Lakatnik	Sofia	43° 13' N	23° 23' E	500	cave

Table 2. Continued.

No	Locality	Village	District	Latitude	Longitude	Alt. m a.s.l.	Type
77	Tyulenovata Cave	Primorsko	Burgas	43° 28' N	27° 46' E	0	marine cave
78	Toplya Cave	Golyama Zelyazna	Lovech	42° 56' N	24° 28' E	500	cave
79	Troevratitsa Cave	Karlukovo	Lovech	43° 0' N	24° 4' E	250	cave
80	Uhlovitsa Cave	Mogilitsa	Smolyan	43° 2' N	24° 38' E	1040	cave
81	Urashka Maara Cave	Krushuna	Lovech	43° 13' N	25° 1' E	220	cave
82	Varkan Cave	Tsar Petovo	Montana	41° 40' N	22° 37' E	200	cave
83	Vodnata Cave	Lipnitsa	Sofia	43°1' N	23° 45' E	600	cave
84	Vodnata Dranchi Dupka Cave	Melnitsa	Yambol	43° 16' N	26° 34' E	200	cave
85	Vodnata Peshtera Cave	Tserovo	Sofia	41° 43' N	23° 19' E	500	cave
86	Vodni Pech Cave	Gorna Luka	Montana	42° 58' N	22° 53' E	400	cave
87	Vodnite Dupki Cave	Apriltsi	Lovech	41° 22' N	24° 55' E	1400	cave
88	Zandana Cave	Dolno Cherkovishte	Haskovo	42° 1' N	25° 45' E	300	cave
89	Zandana Cave	Ploski	Blagoevgrad	43° 27' N	23° 16' E	600	cave
90	Zandana Cave	Shumen	Shumen	43° 38' N	26° 55' E	350	cave
91	Zandana Cave (Divdyadovska)	Divdyadovo	Shumen	42° 00' N	26° 55' E	120	cave
92	Zorovitsa Cave	Cherven	Ruse	41° 45' N	26° 1' E	250	cave

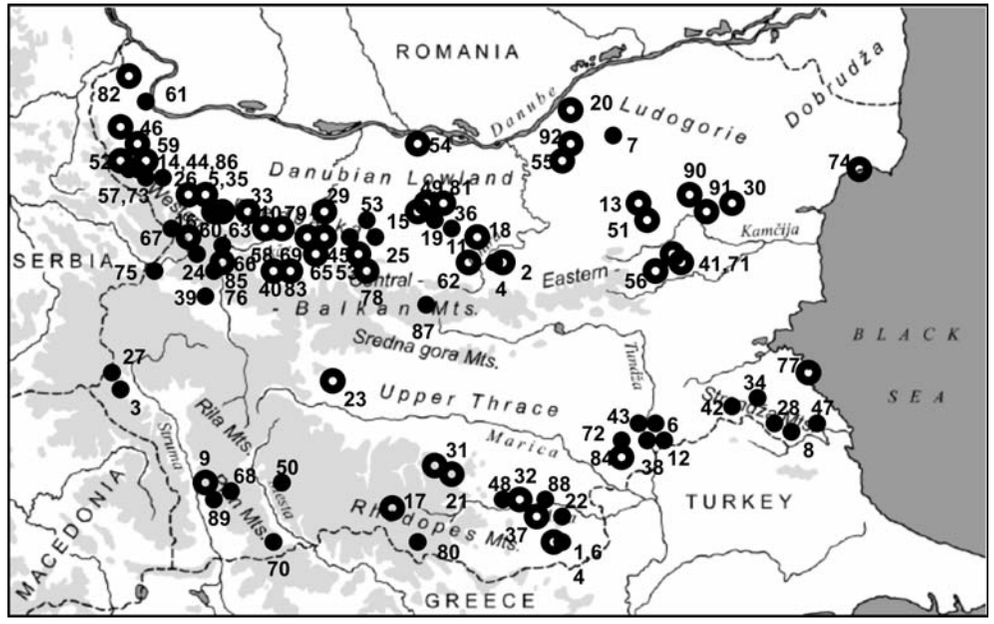

Fig. 1 Important Bat Underground Habitats (IBUH) in Bulgaria (see Table 2 and Table 4) (● - IBUH, ✪ - IBUH of national or international importance).

Table 3. Criteria for assessment of IBUH importance.

Number of bats (Code)	Number of species	Level of importance
25 - 100 (1)	4 and >4	Regional
100 - 500 (2)	3 and >3	National
500 - 1000 (3)	2 and >2	National
1000 - 5000 (4)	2 and >2	International
5000 - 10 000 (5)	2 and >2	International
> 10 000 (6)	2 and >2	International

Table 4. IBUH in Bulgaria: sites of national and international importance (Rhf - *Rhinolophus ferrumequinum*, Rhh - *Rh. hipposideros*, Rhb - *Rh. blasii*, Rhe - *Rh. euryale*, Rhm - *Rh. mahelyi*, Mmyo - *Myotis myotis*, Mbly - *M. blythii*, Mcap - *M. capaccinii*, Mem - *M. emarginatus*, Msch - *Miniopterus schreibersii*, N SP - number of species, S- summer roost, N - nursery, T - temporary roost, H - hibernacula, n - number of bats (see Tab. 3), PS - protected site, NM - natural monument, Na - national, I - international) .

No	Locality	Rhf	Rhh	Rhb	Rhe	Rhm	Mmyo	Mbly	Mcap	Mem	Msch	N SP	Type of roost	n	STATUS	Importance
1	Aina Ini Cave	X	X	X	X	X	X		X	X	X	9	S/N/T/H	5	PS	I
2	Andaka Cave	X	X		X		X		X		X	6	S/T/H	3	NO	Na
4	Bacho Kiro Cave	X	X									2	S/T/H	3	NM	Na
5	Bilernitsite Cave	X			X		X		X		X	5	S/N	4	NO	Na
9	Bunker: Gara Peyo Yavorov	X			X					X		3	S/N/T	3	NO	Na
10	Chelovechata Peshtera Cave	X	X				X	X	X		X	6	S/T/W	3	NO	Na
13	Derventskata Peshtera Cave	X			X		X					3	S/N	4	NM	Na
15	Devetashkata Peshtera Cave	X	X		X	X	X	X	X	X	X	9	S/N/T/H	6	NM	I
16	Dinevata Pesht Cave	X	X				X	X			X	5	T/H	3	NM	Na
17	Dyavolskoto Garlo Cave	X							X		X	3	S/N/H	6	PS	I
18	Emenskata Peshtera Cave	X	X		X	X	X	X	X	X	X	9	S/N/T/H	5	PS	I
20	Gabarnika	X	X		X	X	X	X	X		X	8	S/N/T/H	5	NO	I
21	Gargina Dupka Cave	X	X				X		X		X	5	S/T/H	4	NM	Na
23	Golashkata Peshtera Cave	X	X		X		X		X		X	6	S/N/T/H	5	NM	I
25	Golyamata Mikrenska Peshtera Cave	X	X		X							3	S/T/H	3	NO	Na
29	Haidushkata Peshtera Cave	X	X	X	X		X		X		X	7	S/N/T/H	4	NM	Na
30	Hilyadite Ochichki	X			X	X	X	X			X	6	S/N/T	4	NM	Na
31	Ivanova Voda Cave	X	X				X		X		X	5	S/T/H	6	PS	I
32	Yarasa-Ini Cave	X	X	X	X		X		X		X	7	S/N/T/H	5	PS	I
33	Kalenskata peshtera Cave	X	X				X		X		X	5	S/T/H	3	NO	N
35	Kalna Matnitsa Cave	X	X		X	X	X	X	X		X	8	S/N/T/H	5	NO	I
37	Karangin Cave						X		X		X	3	S/N/T	3	NM	Na
40	Kozarnika Cave	X			X					X	X	4	S/N/T	3	NO	Na
41	Lednitsata Cave	X	X				X		X		X	5	T/H	4	NM	Na
45	Lyastovitsata Cave	X	X				X				X	4	S/N/T/H	4	NM	Na

Table 4. Continued.

No	Locality	Rhf	Rhh	Rhb	Rhe	Rhm	Mmyo	Mbly	Mcap	Mem	Msch	N SP	Type of roost	n	STATUS	Importance
46	Magurata Cave	X	X		X		X				X	5	S/N/T	4	NM	Na
49	Mandrata Cave	X	X		X	X	X	X	X	X	X	9	S/N/T/H	4	NO	Na
51	Marina Dupka Cave						X				X	2	S/N/T	4	NO	Na
52	Mishin Kamak Cave	X	X	X			X	X	X		X	7	S/N/T/H	4	NM	Na
53	Morovitsa Cave	X	X	X	X	X	X	X	X	X	X	10	S/N/T/H	4	NM	Na
54	Nanin Kamak Cave	X	X		X	X	X	X	X	X	X	9	S/N/T	3	NM	Na
55	Orlova Chuka Cave	X	X		X	X	X	X	X		X	9	S/N/T/H	6	NM	I
56	Orlovata Peshtera Cave	X	X		X		X	X			X	6	S/N/T	4	NM	Na
58	Parnitsite Cave	X	X	X	X	X	X	X	X	X	X	10	S/N/T/H	6	NM	I
59	Pech Cave (Suhi Pech)	X			X		X	X	X		X	6	S/N/T	4	NM	Na
60	Ponora Cave	X	X		X		X		X	X	X	7	S/N/T/H	4	NM	Na
62	Prilepnata Peshtera Cave				X		X		X		X	4	S/N/T	4	NO	Na
63	Prilepnata Cave (Boziya Most)	X			X		X		X		X	5	S/N	3	NM	Na
65	Sedlarkata Cave	X	X		X	X	X	X	X	X	X	9	S/T/H	3	NM	Na
66	Serapionovata Peshtera Cave	X	X				X	X			X	5	S/N/T	4	NM	Na
71	Subatta Cave				X						X	2	S/N/T	3	NM	Na
74	Tauk Liman, small Cave						X				X	2	S/T	4	NO	Na
77	Tyulenovata Cave				X				X		X	3	S/N/T	4	NM	Na
79	Troevratitsa Cave	X			X		X	X	X		X	6	S/N/T	4	NO	Na
81	Urushka Maara Cave	X	X		X	X	X	X	X	X	X	9	S/N/T	4	NO	Na
82	Varkan Cave	X		X								2	S/N	5	NO	I
83	Vodnata Cave	X			X					X	X	4	T/H	2	NO	Na
84	Vodnata Dranchi Dupka Cave	X		X	X		X		X		X	6	S/T/H	3	NM	Na
86	Vodni Pech Cave	X			X		X		X		X	5	S/N/T	4	NO	Na
90	Zandana Cave	X	X		X	X	X	X	X	X	X	9	T/H	4	NO	Na
91	Zandana (Divdyadovska) Cave	X			X		X	X			X	5	S/N	4	NO	Na
92	Zorovitsa Cave	X	X		X	X	X	X	X	X	X	9	S/N/T	5	NO	I

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Значими подземни местообитания на прилепи (ЗПМП) в България

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(Резюме)

Броят на прилепите и броят на видовете са използвани като критерии за идентифициране на значими подземни местообитания на прилепи (ЗПМП) в България. Идентифицирани като ЗПМП са 92 подземни местообитания: 89 (97%) - естествени пещери и 3 (3%) - изкуствени галерии. От тях 52 са оценени като ЗПМП с национално и международно значение. Те са предложени за основа на Националната схема за мониторинг на пещеролюбиви видове прилепи и подземни местообитания.