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ORIGINAL ARTICLE

Keeping Track of Prespa's Bats, Albania

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ABSTRACT

This work represents an important contribution to the continuous documentation of bats in the Albanian part of Prespa Lakes (with a total of 33 sites visited). Throughout these surveys conducted in four seasons, from 2023 to 2024, various locations such as caves, tunnels, bunkers, buildings, forested areas and bridges were monitored. This effort led to identifying 13 bat species, some of which are rarely seen in this region. These species include *Hypsugo savii, Miniopterus schreibersii, Myotis bechsteinii, Myotis daubentonii, Myotis mystacinus, Myotis nattereri/emarginatus, Myotis capaccinii, Nyctalus leisleri, Pipistrellus nathusii, Pipistrellus pipistrellus, Rhinolophus ferrumequinum, Rhinolophus hipposideros, Rhinolophus euryale*, and possibly other medium-sized *Rhinolophus* species. The data collected highlight the high diversity of bat species and roosting sites in this part of the country. Notably, significant colonies of *Mi. schreibersii, M. capaccinii, Rh. hipposideros, Rh. ferrumequinum*, and medium-sized *Rhinolophus* were discovered. A combination of visual observations and mist netting was used. This study identified 17 sites showing current or previous signs of bat presence, with up to eight different species observed at one site and more than 3,140 bat specimens counted in a single season, shedding light on the most significant roosting sites and hibernacula in the area. Furthermore, the research presents data on the existing threats to bats and their habitats, along with recommendations for future conservation efforts.

INTRODUCTION

The Balkan Peninsula, part of the Mediterranean Basin Biodiversity Hotspot, is known for its high species diversity, including bats. It is undoubtedly one of the regions with the highest number of bat species in Europe (Dietz & Kiefer 2018). The Prespa Lakes Basin represent a significant ecosystem for bats in this area, shared by Albania, North Macedonia, and Greece. The Albanian section of this basin has been relatively well-studied concerning bats compared to other parts of the country (Chytil & Vlasin 1994, Uhrin et al. 1996, Bego 2011, Papadatou et al. 2011, Scheffler et al. 2013, Théou 2015, 2016, 2021, Théou et al. 2015a, 2015b, Benda et al. 2019). The first data ever collected in the Albanian Prespa dates back to 1991 (Chytil & Vlasin 1994). While the data from the region may not be continuous, there is knowledge of the species present and the most important hibernating and roosting sites (Théou et al. 2015a).

Prespa Lakes represent an area where important findings regarding the bats of Albania have been made. We can mention the discovery of a *Myotis daubentonii* colony, the all-yearlong presence of *Myotis capaccinii*, recordings of *Plecotus kolombatovici,* a relatively rare bat species in the country, one of the few country recordings of *Plecotus austriacus*, a colony of *Tadarida teniotis* and many other species (Théou & Bego 2018). According to Théou et al. 2015a, more than 5,000 specimens are known to roost in the Albanian part of the Prespa Basin.

The abundance of cave-dwelling species is attributed to the presence of porous limestone rocks, the wide variety of habitats available and the proximity of lakes near these roosts. In the Pustec municipality, one of the least densely populated areas in Albania, numerous abandoned houses could potentially be used as roosting sites for bats. Bats seem to travel from regions outside the Prespa basin to search for food in the Prespa area because it offers a variety of habitats and abundant insect prey (Prespanet 2017). The Albanian side is currently utilized for hunting, as a stopover site during migration, and also potentially for swarming and hibernation (Théou 2015).

The bats of Prespa are a distinct conservation priority within the Transboundary Strategic Framework for Conservation in Prespa (Prespanet 2017). This research aligns with this strategy that serves as a guide for a network of NGOs (Prespanet) operating in the Prespa region.

Studies have indicated that various factors pose a threat to these bats and their habitats. These factors include forest management practices, the presence of intensive bean and apple monocultures in Greece and North Macedonia that involve the increased use of pesticides, the disturbance of

roosts, the deterioration of old traditional houses and plans for the development of wind farms (Prespanet 2017).

This study aims to continue the work done so far in the area by showing the most recent data on bat roosts, species and their populations, present threats and recommendations for future conservation practices.

MATERIALS AND METHODS

This study was carried out in accordance with the Unified Monitoring Protocols for Bats in the Prespa Area (Théou & Stojanov 2021). During the fieldwork, the following equipment were used: headlamps, handheld lamp, camera, gloves, caving helmet, fieldwork data sheets, mist-net equipment, small mammal holding bags, hand lenses, measurement tools such as callipers and scales, and a bat identification key (Dietz & Kiefer 2018). During the bat survey expeditions, especially during the winter counts, strict recommendations were followed according to this protocol.

In total, 33 potential locations for bat presence were visited (Fig. 1), also listed in Supplementary Material (SM) Table 2, some of them during different seasons, all within a one-year timeframe (2023-24). To be more specific, we visited 17 caves, 6 bunkers, 4 abandoned buildings, 3 tunnels, 2 open spaces and 1 bridge (Fig. 1).

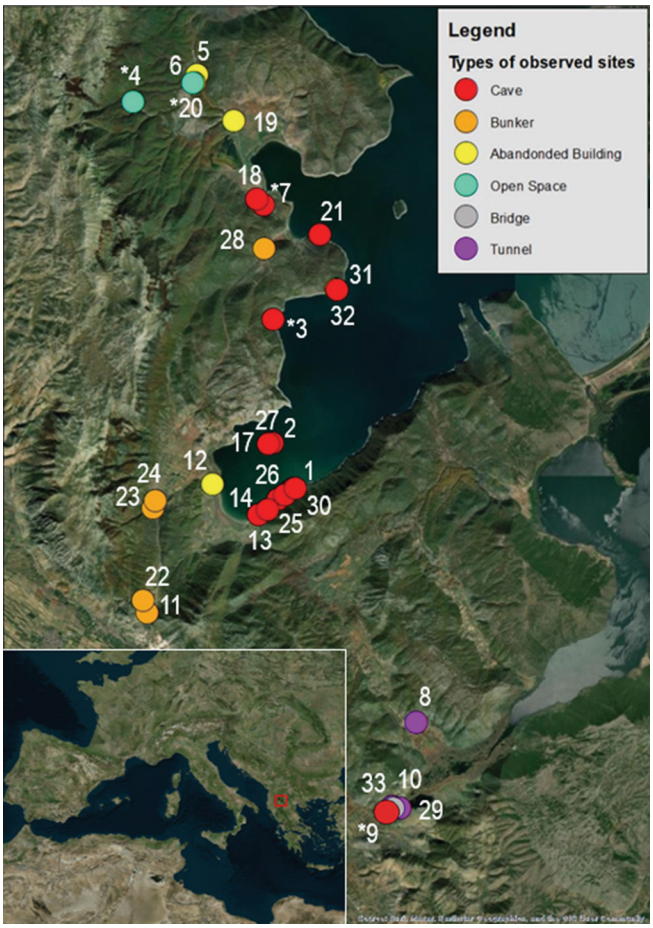

Fig. 1 - Sites visited for bat presence/signs in the Albanian part of Prespa Lakes, 2023-2024 (for site coordinates refer to Annex II); *Sites where mist nets were used.

Fig. 2 - Mist netting in site AL0004 (left) and visual inspection for bat presence/signs in site AL0028 (right).

During the initial expeditions conducted from the 22nd to the 24th of May 2023, a total of 24 locations were visited. These specific sites were selected due to their high likelihood of being used as roosting sites by bats. Monitoring activities continued throughout the year, combining visual observation and mist netting (Fig. 2). Mist netting was employed in the summer and autumn seasons, while winter monitoring efforts focused only on identifying hibernation sites and conducting bat counts. During the inspection of the selected sites, any human activities occurring inside the underground roost or near the entrance were documented, along with any other unusual activities that could potentially impact bats (Table 2 SM). The sites that were checked in the spring and showed no signs of bat presence were not revisited during the subsequent monitoring sessions.

During the summer monitoring period (1-5 August 2023), a combined monitoring approach was employed at 19 sites, which were, alongside additional ones, also monitored during autumn and winter. The monitoring involved visually checking sites with confirmed bat presence/signs or new potential ones, as well as using mist nets in five of these locations (Fig. 1). 6m and 3m mist nets were used for open spaces and caves, respectively. The 3 m nets were placed 4-8 meters from the entrance of the caves, depending on the size of the entrance. They were also positioned along two water ponds at the edges of the forest, with beech forests for site AL0004 and oak forests for site AL0020 (refer to Table 2 SM for corresponding coordinates). In these two sites, the nets were arranged in a L shape closer to half a meter from the water. This survey method was carried out for at least 3 hours, starting 20 minutes before sunset. We identified bats based on their external characteristics and measurements (Dietz et al. 2009, Dietz & Kiefer 2018) and considering their distribution range (Théou & Bego 2018). The measurements of various characteristics such as the forearm, fifth and third fingers, thumb, ear length and width, tragus length and width and the upper tooth row were taken, depending on the manipulated animals (Fig. 3).

The Autumn expeditions were conducted from October 30th to November 2nd, 2023. A total of 20 sites were surveyed. Mist netting was used in three of the monitored sites (AL0004, AL0007 and AL0009).

Fig. 3 - Instances of bat monitoring; **A**) Taking measurements for bat identification; **B**) A captured specimen of H. savii; **C**) Mist netting in AL0003 cave; **D**) Checking installed bat boxes.

On 9-11 January 2023, the winter hibernation count took place in 23 underground roosts. Considering that winter is a sensitive season for bat monitoring, the locations were only visually checked. Huge colonies were counted by photographing them and using the GIMP 2.10.36 software.

Maps presented in this article were prepared using ArcGIS 10.8.2.

RESULTS

The outcome of this study is a compilation of 13 bat species. Identifying medium-sized Rhinolophus species without using bat detectors, except for Rhinolophus, remains challenging. However, *Rhinolophus euryale*, which was identifiable in two cases. Seventeen sites confirmed the presence of bats, six sites showed signs of bats (bat droppings/guano and feeding activity), and the remaining ten sites had no signs of them (Fig. 4).

Summary analysis based on seasons

During the spring visits, only five species were identified from seven locations: *Rhinolophus hipposideros* in two locations, *Rhinolophus ferrumequinum* in one location, *R. euryale* in one location (two other middle-sized *Rhinolophus* were spotted in two other locations), *Miniopterus schreibersii* and *M. capaccinii* in one location each. *M. capaccinii* has been chosen as a target species among mammals in the action plan for indicator species of the Management Plan of The Prespa National Park (Fremuth & Shumka 2013).

During the summer season, we captured or visually observed several species of bats in ten locations. Each of the following species: *M. schreibersii*, *Myotis bechsteinii*, *M. daubentonii*, *Myotis mystacinus*, *Myotis nattereri/ emarginatus*, *Nyctalus leisleri*, *Pipistrellus nathusii*, and an unidentified middle-sized *Rhinolophus* were spotted only in one locality. Additionally, we found two instances each of *Hypsugo savii, M. capaccinii* and *R. ferrumequinum*. Lastly, we located four instances of *R. hipposideros*.

During the autumn monitoring, the following species were captured or observed in six different sites: *M. schreibersii*, *M. capaccinii*, *Pipistrellus pipistrellus*, and a middle-sized *Rhinolophus* in one site each; *R. ferrumequinum* in three sites; and *R. hipposideros* in four sites.

During the winter expeditions, we observed the same species that were seen in the spring, except for *M. schreibersii*. However, a total of three and seven sites were positive for *R. ferrumequinum* and *R. hipposideros* respectively. Sites with more than 10 individuals represented 43% of all the hibernacula.

Fig. 4 - Sites where bat presence/signs were observed.

The highest numbers of bats were recorded in summer. The species with the highest number of specimens recorded are shown in Table 1.

Summary analysis based on species and sites

Rhinolophus hipposideros was the most widespread species in terms of habitat use, found in 12 different sites, including 10 caves, 1 tunnel and 1 bunker (Fig. 1 SM). *Rhinolophus ferrumequinum* was the second most spread species, found in 5 sites (3 caves, 1 tunnel and 1 abandoned building) (Fig. 1 SM). Other species observed in various locations include middle-sized *Rhinolophus sp.* in 5 locations (3 caves, 1 abandoned building and 1 bunker); *H. savii* in two locations near a cave entrance and an open space (forest edge); *M. schreibersii* in two caves; *M. capaccinii* in two caves (in Treni Cave it is seen all year round); *M. bechsteinii*, *P. nathusii* and *M. nattereri/emarginatus* in the same open space only; *M. daubentonii*, *M. mystacinus* and *N. leisleri* near the same cave entrance; and *P. pipistrellus* in an abandoned building near the border with North Macedonia (Fig. 1 SM).

During the initial bat surveys, a mixed colony of 769 specimens of *M. schreibersii* and a few unidentified specimens of middle-sized *Rhinolophus* were observed in a cave (AL0003) on the shores of Great Prespa Lake. On the same day, another smaller colony of around 44 specimens of *Rhinolophus sp*. species was spotted at Zaveri Cave (AL0007) in Goricë e Vogël.

Table 1 - Bat species with the highest number of specimens recorded in a season

Species	Max. no. of individuals	Season	Sites
M. capaccinii	558	Summer	7; 9
Mi. schreibersii	2500	Summer	9
Mid-sized Rhinolophus	51	Spring	3; 7; 12
Rh. ferrumequinum	252	Autumn	7; 8; 9
Rh. hipposideros	39	Summer	1; 3; 6; 14

Table 2 - Distribution of identified species based on the locations where they were captured/visually observed. Numbers: Sites where the species were observed, c: captured, v: visually observed.

No.	Identified species	Sites			
		Spring	Summer	Autumn	Winter
1	*Hypsugo savii*		3c;4c		
2	*Miniopterus schreibersii*	3v	9c	9c	
3	*Myotis bechsteinii*		4c		
4	*Myotis daubentonii*		3c		
5	*Myotis mystacinus*		3c		
6	*Myotis nattereri/emarginatus*		4c		
7	*Myotis capaccinii*	9v	7c;9v	9v	9v
8	*Nyctalus leisleri*		3c		
9	*Pipistrellus nathusii*		4c		
10	*Pipistrellus pipistrellus*			5v	
11	*Rhinolophus ferrumequinum*	8v	8v;12v	7v;8v;9v	3v;7v;9v
12	*Rhinolophus hipposideros*	1v;13v	1v;3c;6v,14v	1v;7c;8v;14v	3v;7v;9v;18v;21v;30v;32v
13	*Rhinolophus euryale* & other middle sized Rhinolophus	3v;7v;12v	11v	9v	3v;7v;9v

In early August, a small colony of 20 specimens belonging to *R. hipposideros* was observed in AL0003 cave. Another colony of 558 specimens of *M. capaccinii* was found in the Zaveri Cave (AL0007), and a large colony of more than 2500 specimens, mainly of *M. schreibersii*, was discovered in Treni Cave (AL0009). Several specimens of *M. capaccinii* were observed isolated from the primary colony, using crevices close to the entrance of this cave, with bats being in close proximity to each other.

During the autumn surveys at the Zaveri Cave (AL0007), a mixed colony of 123 specimens belonging to *R. hipposideros* and *R. ferrumequinum* was observed, and also 26 individuals of *R. ferrumequinum*, *M. schreibersii*, *M. capaccinii* and middle-sized *Rhinolophus* were counted at the Treni Cave (AL0009).

During the hibernating bats count in January 2024, the same three caves (AL0003, Zaveri Cave/AL0007 and Treni Cave/AL0009) housed the highest number of specimens. In AL0003 Cave, 89 specimens of *Rhinolophus* species were counted. Zaveri Cave had 163 specimens, which belonged to three different *Rhinolophus* species. Additionally, 80 bats were counted in Treni Cave, belonging to three *Rhinolophus* species and *M. capaccinii*.

The site with the highest number of species, eight in total, was AL0003, followed by AL0009 (Treni Cave) with five species, AL0004 (forested area) and AL0007 (Zaveri Cave), each with four species.

Rare bats for the Albanian part of Prespa Basin

One specimen of *M. mystacinus* was mist netted near a cave entrance on the shore of Great Prespa Lake (AL0003), specifically in the riparian vegetation area. One specimen of *N. leisleri* was captured in the same location. *Myotis bechsteinii* was mist netted in site AL0004 (forest edge) at 1155 m a.s.l. Another M. nattereri/emarginatus specimen was captured on the same day in the same location (AL0004). *Pipistrellus nathusii* was also confirmed from this location. *Pipistrellus pipistrellus* was observed at site AL0005, an abandoned building.

DISCUSSION

Three caves were found to be the most important sites in terms of species and individuals counted: the Treni Cave/AL0009 (located near Lesser Prespa Lake), the Zaveri Cave/AL0007 and AL0003 (situated near Great Prespa Lake). *M. schreibersii* and *M. capaccinii* represented the most significant populations currently known in Albania (Théou et al. 2015a, 2015b). Since these two species are regional migrants that typically travel between 100 to 500 km (Fleming & Eby 2003), the observed high fluctuations in colonies are understandable. The bats exhibit significant movement between caves, with thousands present at certain times and none at others. This fact is also supported by the data collected from both Macedonian and Greek territories, where important maternity colonies and hibernation sites have been recorded. Bats probably use hibernation sites in neighbouring countries (Théou 2015). This pattern of movement underscores the necessity of a collaborative approach to studying and conservating bat populations in the Prespa Basin across the three countries.

We expect the species composition of Treni Cave to be more complex. Considering the large numbers of bats in summer and the fact that the *M. schreibersii* colony was highly active during our monitoring visit, it was difficult to pay attention to other species' presence.

Based on Théou's research in 2015 (Théou 2015), *R. hipposideros* and *R. ferrumequinum* primarily use the

Albanian parts of the Prespa Lakes towards the end of summer and during autumn. Our data also support these findings. *Miniopterus schreibersii*, the species with the largest colony recorded in Treni cave, is a widespread species in Albania, with colonies discovered in different regions of the country (Hanák et al. 1961, Bego & Griffiths 1994, Benda et al. 2019, Théou 2015, Théou et al. 2015a, 2020). However, the main maternity colonies of this species are located in Prespa (Théou et al. 2015b).

The Albanian populations of *M. mystacinus* belong to the widespread Balkan form, now referred to *Myotis davidii* (Benda et al. 2019). A recording of *Myotis davidii* was taken from rocky cliffs of Gollomboç village on the lake shore in August 2006 (Sachanowicz & Ciechanowski 2018). The first recording of this species in Albania comes from the Gjirokastra region (Uhrin et al. 1996). *Nyctalus leisleri* was confirmed in multiple locations in neighbouring countries (Uhrin et al. 2020). A documented record of this species originates from the Gollomboç village in August 2006 (Sachanowicz & Ciechanowski 2018). The most recent observation, closest to our study area, was documented in the Shebenik National Park, where a specimen was captured using mist nets in 2015 (Hunia et al. 2017).

The presence of *M. bechsteinii* in Prespa National Park was confirmed for the first and only time until now in 2021 at the same location where we found it (Théou 2021). The first recording for the Prespa Basin dates back to 2009, when three specimens were captured near the lake in Greece (Papadatou et al. 2011).

As for *M. nattereri*, there are still no recordings on the Albanian part of Prespa. However, there is a strong possibility of the species being present on the Albanian side, as recordings of it have been taken a few kilometers away in Greece (Hanák et al. 1961, Papadatou et al. 2011). *M. emarginatus* was discovered in Gollomboç near a cave entrance in August 2006 (Sachanowicz et al. 2014).

Pipistrellus nathusii was identified based on its dentition and fur coloration. A few discoveries of *P. nathusii* in the Prespa National Park include a cave entrance in Gollomboç in October 2005 (Sachanowicz & Ciechanowski 2018) and a recording in 2021 in an abandoned building (Site AL0005 of this study) (Théou 2021). *Pipistrellus nathusii* was observed in several locations in the Greek part of the Prespa Basin (Papadatou et al. 2011, Uhrin et al. 2020, Georgiakakis et al. 2023).

Previously, *P. pipistrellus* was documented in Gollomboç in 2005, the Treni cave in 2006 (Sachanowicz & Ciechanowski 2018), and most recently in a forested area (Site AL0004 of this study) in 2021 (Théou 2021). Additionally, this species has been sighted in various locations in North Macedonia and Greece.

The species mentioned above are rarely observed in Albania, except for *P. pipistrellus* (Théou & Bego 2018). *Myotis bechsteinii*, *M. nattereri*, *M. mystacinus* and *P. pipistrellus* were recorded only after the 1990's in the country. These findings help enhance our knowledge of their regional presence and distribution.

Prespa is an important area for forest-dwelling bats. Forest cover is crucial for these species, and it is essential that the forests are mature and structurally diverse (Papadatou et al. 2011). However, this is not always the case for Prespa's forests. Recently, ten bat houses were installed around sites AL0004 and AL0020 near Goricë e Madhe village (Mali i Thatë) in the frame of The Prespa Project - Biodiversity Conservation in Transboundary Prespa (Fig. 3). These bat houses are expected to serve as roosts for some of the species and will certainly be the subject of future surveys.

No bat recordings were found at any of the three sites observed in the Maligrad Island (AL0002, AL0017 and AL0027). This island, regardless of being part of the core zone of Prespa National Park, is attracting a significant number of visitors. Construction work to renovate the Saint Mary's Church on the island is still ongoing, and camping is becoming a popular activity. Besides the human impact, caves on this island are populated by a large number of birds, making them almost inappropriate to host bats. Numerous important hibernacula have already been lost or damaged, and others are currently at risk due to tourism in the Prespa Basin (Papadatou et al. 2011). Almost all the stalactites and stalagmites of the Treni Cave are removed, leading to changes in the cave structure and its ability to hold a large number of bats.

A significant threat for bats is the accumulation of waste in underground roosts, which are often used by fisherman, shepherds and their livestock, as well as the fires. This was particularly a problem for the Shuec Tunnels, where we cleared out all the trash inside during our winter inventory (no bats were present). A significant amount of work still needs to be done to educate the local community about preventing these practices and addressing all other problematic sites. Unfortunately, rubbish was found in 13 out of the 33 surveyed sites, signs of livestock presence in five sites, and evidence of past fires was noted in three sites.

We strongly recommend that the future Prespa National Park Management Plan includes constant monitoring of key roosting/hibernation sites, along with direct measures by the authorities to prevent further destructive actions and clean up all waste found in confirmed roosting sites. In addition, more attention should be given to forest-dwelling bats since general knowledge is more limited. Some of the bat species identified in the frame of this study belong to the Annex II of the European Habitats Directive (*Rhinolophus hipposideros, Rhinolophus ferrumequinum, Rhinolophus euryale, Myotis capaccinii, Myotis bechsteinii* and *Miniopterus schreibersii*). These species are considered of community interest, and conservation requires the designation of Special Areas of Conservation.

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REFERENCES

BEGO, F. (2011). Bat roosting sites in the territory of Prespa National Park, Albania. Mimeographed report, Society for the Protection of Prespa. Tirana, Albania.

BEGO, F. & GRIFFITHS, H. I. (1994). Preliminary data on the bats (Mammalia, Chiroptera) of Albania. Stud. *Speleol*., 9: 21-25.

BENDA, P., ŠEVČÍK, M., BEGO, F., SACHANOWICZ, K., SPITZENBERGER, F., TÁJEK, P., TÁJKOVÁ, P., UHRIN, M. (2019). Bats (Mammalia: Chiroptera) of the Eastern Mediterranean and Middle East. Part 15. The fauna of bats and bat ectoparasites of Albania with a catalogue of bats from the western Balkans in the collection of the National Museum, Prague. *Acta Soc. Zool. Bohem*. 83: 1-238. ISSN 1211-376X

CHYTIL, J. & VLAŠÍN, M. (1994). Contribution to the knowledge of bats (Mammalia: Chiroptera) in Albania. *Folia Zoologica*, 43: 465–467.

DIETZ, C. & KIEFER, A. (2018). Bats of Britain and Europe. Bloomsbury Publishing, 398 pp.

DIETZ, C., VON HELVERSEN, O., NILL, D. (2009). Bats of Britain, Europe and Northeastern Africa. A&C Black, 398 pp.

FLEMING, T. H. & EBY, P. (2003). Ecology of bat migration. In: Kunz, T.H. & Fenton, M.B. (eds) Bat Ecology. The University of Chicago Press, Chicago, USA: 156-208.

FREMUTH, W. & SHUMKA, S. (2013). Plani i Menaxhimit i Parkut Kombëtar të Prespës në Shqipëri: 2014-2024. 150 pp.

GEORGIAKAKIS, P., KAFKALETOU, D. A., SALVARINA, I., BENDA, P., BILLINGTON, G., DIETZ, C., BILLINGTON, J., COVE, D., DAVISON, S., COOKE, M., PAPADATOU, E. (2023). The Bats of Greece: An Updated Review of Their Distribution, Ecology and Conservation. *Animals*, 13 (15): 2529. https://doi.org/10.3390/ani13152529

HANÁK, V., LAMANI, F., MURAJ, X., (1961). Të dhëna nga përhapja e lakuriqve të natës (ordo Chiroptera) në Shqipëri. Bul. Univ. Tiranës, *Ser. Shken. Nat*., 3: 124-156.

HUNIA, A., BULSINK, B. J., VAN DE TEMPEL, C., VAN DER KNAAP, F., BOSHAMER J., WONDERGEM, J., BEKKER, H., MOSTERT, K., SNIJDER, M., BOON, S. (2017). Mammal survey Shebenik-Jabllanice National Park Albania 2015. *Dutch Mammal Society*, 66 pp.

PAPADATOU, E., GRÉMILLET, X., BEGO, F., PETKOVSKI, S., STOJKOSKA, E., AVRAMOSKI, O., KAZOGLOU, Y. (2011). Status Survey and Conservation Action Plan for the Bats of Prespa. Society for the Protection of Prespa, Agios Germanos, 170 pp.

PRESPANET (2017). Transboundary Strategic Framework for Conservation in Prespa. 93 pp.

SACHANOWICZ, K. & CIECHANOWSKI, M. (2018). Bats of Albania. Poznań: Bogucki Wydawnictwo Naukowe, 128 pp.

SACHANOWICZ, K., KRIŠTOFÍK, J., CIECHANOWSKI, M. (2014) Spinturnicid mites of bats in Albania - host spectrum and morphometrics as a tool of species separation. *Journal of Natural History* 48: 2661–2674. https://doi.org/10.1080/00222933.2014.939729

SCHEFFLER V. I., BEGO, F., THÉOU, P., PODANY, M., POSPISCHIL, R., HÜBNER, S. (2013). Ektoparasiten der Fledermäuse in Albanien - Artenspektrum und Wirtsbindung. *Nyctalus (N.F.)*, Berlin 18, Heft 1, S: 84-109.

THÉOU, P. & Bego, F. (2018). Bats of Albania. NaturaAl Project, 124 pp.

THÉOU, P. & STOJANOV, A. (2021). Unified Monitoring Protocols: Bats in Prespa Area. The Prespa Project - Biodiversity Conservation in Transboundary Prespa, 19 pp.

THÉOU, P. (2015). Bat Populations in Albania: Structure and Dynamic of Populations. Thesis. University of Tirana, 79 pp.

THÉOU, P. (2016). Putative predation of *Miniopterus schreibersii* (Vespertilionidae, Chiroptera) by *Zamenis longissimus* (Colubridae, Reptilia) in the Albanian National Park of Prespa Lakes. *Mammalia*, 80(5): 571-572. https://doi.org/10.1515/mammalia-2015-0003

THÉOU, P. (2021). Bats in the Prespa Area: Report. PrespaNet, 57 pp.

THÉOU, P., LOÇE, E., BEGO, F. (2015a): New data on bats (Chiroptera) in the Albanian National Park of Prespa lakes. *Buletini i Shkencave Natyrore*, 19: 79-98. https://api.fshn.edu.al/uploads/10_P_Theou_F_Bego_d92686aec0.pdf

THÉOU, P., LOCE, E., ĐUROVIĆ, M. (2015b): Results of the pioneer survey of potential bat hibernacula in Albania (2012 - 2015). *Nat Slov*., 17: 25-39. https://doi.org/10.14720/ns.17.1.25-39

THÉOU, P., RADONJIĆ, M., LOÇE, E., STOJANOV, A., RALEVIĆ, S. (2020). New data on bats from the Shkodër/ Skadar lake - Buna/ Bojana river transboundary area (Albania and Montenegro) Novi podaci o slijepim miševima prekograničnog područja Skadarsko jezero-rijeka Bojana (Albanija i Crna Gora). *Hypsugo*, 1: 14-28.

UHRIN, M., BALOGOVÁ, M., UHRINOVÁ, R., VARGOVÁ, V. (2020). Bats of the Prespa Basin in northern Greece: acoustic survey, new records and relationships to light pollution (Chiroptera). Lynx, n. s. (Praha), 51: 147–191. ISSN: 1804-6460 (online).

UHRIN, M., HORACEK, I., ŠIBL, J., BEGO, F. (1996) On the bats (Mammalia: Chiroptera) of Albania: survey of the recent records. *Acta Soc. Zool. Bohem*., 60: 63-71.