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First record of *Myotis aurascens* and second record of *Myotis brandtii* in Montenegro

První nález netopýrce zlatistého (*Myotis aurascens*) a druhý nález netopýrce Brandtova (*Myotis brandtii*) v Černé Hoře

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Abstract. Two males of *M. aurascens* were collected at two sites in the western part of Montenegro, near Risan and west of Plužine. These findings represent the first record of this species in Montenegro and its second record in Serbia and Montenegro (after the earlier finding in Peć / Peja, Kosovo). At the latter site, a female of *Myotis brandtii* was also netted which represents the second record of this species in Montenegro.

INTRODUCTION

In the Balkans, the group of whiskered bats or the *Myotis mystacinus* morpho-group consists of four morphologically very similar species, viz., *Myotis mystacinus* (Kuhl, 1817), *M. brandtii* (Eversmann, 1845), *M. aurascens* Kusjakin, 1935, and *M. alcathoe* von Helversen et Heller, 2001 (see e.g., BENDA & TSYTSULINA 2000, VON HELVERSEN et al. 2001, HANÁK et al. 2001, BENDA et al. 2003a, etc.). On the Balkan Peninsula, *M. aurascens* is considered the most common species from the whole group (BENDA & TSYTSULINA 2000, BENDA et al. 2003a). Its occurrence was recorded in Albania, Bulgaria, Greece and some parts of the former Yugoslavia (BENDA & TSYTSULINA 2000, BENDA 2004, SACHANOWICZ et al. 2004). *M. brandtii* shows patchy distribution in the Balkans proper, its records are restricted mainly to some mountain ranges of Bulgaria, Romania and the former Yugoslavia (BENDA et al. 2003a, DECU 2003, KRYŠTUFEK & ČERVENY 1997, TVRTKOVIĆ et al. in press). The recently described *M. alcathoe* is known within the Peninsula from Greece and Bulgaria, but it very probably occurs also in Romania and perhaps in other countries (VON HELVERSEN 2004, SCHUNGER et al. 2004). The distribution of *M. mystacinus* s. str. in the Balkans has not been confirmed for sure, however, it is very probable (BENDA et al. 2003a).

In the territory of Serbia and Montenegro, the occurrence of at least two forms of the group has been documented, *M. mystacinus* s. l. and *M. brandtii* (PAUNOVIĆ 2002, 2004). However, in the broad taxonomic revision of the *M. mystacinus* group, BENDA & TSYTSULINA (2000) identified three specimens collected by V. E. MARTINO in Serbia and Montenegro and presently deposited in the collection of the Zoological Institute of the Russian Academy of Sciences in St. Petersburg (ZIN) (see also BENDA 1999). These individuals were mentioned for the first time by HANÁK (1965) and later by PETROV (1967) in his review of distribution of *M. mystaci-*

nus s. l. in the former Yugoslavia. Two specimens originating in Peć (= Peja) (Kosovo, Serbia) were identified as *M. aurascens*, while another individual from the Čakor pass (1800 m a. s. l.), Montenegro, as *M. brandtii* (Benda & Tsytsulina 2000). The latter individual was mentioned under this species identification already by Strelkov (1983) and, up to now, it has been the only record of bat of the *M. mystacinus* group from Montenegro (Kryštufek 1999), and one of four records of *M. brandtii* in Serbia and Montenegro (Paunović 2004). Up to now, the former individuals from Kosovo have represented the only record of *M. aurascens* in Serbia and Montenegro (see also Tab. 1).

RECORDS

During a short trip to Montenegro in the summer 2002, several individuals of bats were caught. Within these, two specimens of *Myotis aurascens* and one of *M. brandtii* were also identified (Fig. 1):

(**1**) a subadult male of *M. aurascens* (NMP 90208) was netted at a large shore cave, 200 m SW of Vitoglav (2 km SW of Risan), western Montenegro (42° 31' N, 18° 41' E, ca. 10 m a. s. l.), 31 July 2002;

(**2**) an adult male of *M. aurascens* (NMP 90226) was netted over the Vrbnica river, 3 km SE of Stabna (5 km W of Plužine), north-western Montenegro (43° 10' N, 18° 46' E, ca. 770 m a. s. l.; Fig. 2), 8 August 2002; at this site two other individuals of the *M. mystacinus* group, an adult female of *M. brandtii* (NMP 90227) and an adult female of *M. mystacinus* s. str. or *M. alcathoe* respectively (see below) (NMP 90228), were also caught.

Tab. 1. Basal data and measurements of collection specimens of *Myotis mystacinus* group from the southern part of Serbia and Montenegro. For abbreviations used see Appendix
Tab. 1. Základní údaje a rozměry sbírkových jedinců netopýrů skupiny *Myotis mystacinus* původem z jižní části Srbska a Černé Hory. Použité zkratky viz Appendix

species	No.	site	date	sex, age	G	LC	LCd	LAt	LA	LTr
M. aurascens	NMP 90208	Montenegro, Vitoglav	31. 7. 2002	m, s	4.0	45	45	36.1	15.0	7.7
M. aurascens	NMP 90226	Montenegro, Stabna	8. 8. 2002	m, a	5.4	46	43	36.6	13.9	6.9
M. brandtii	NMP 90227	Montenegro, Stabna	8. 8. 2002	f, a	6.0	48	40	35.2	15.0	6.9
M. mystacinus†	NMP 90228	Montenegro, Stabna	8. 8. 2002	f, a	3.4	40	35	31.8	13.3	6.0
M. aurascens	ZIN 35062	Kosovo, Peć / Peja	17. 8. 1939	–	–	–	–	34.6	–	–
M. brandtii	ZIN 35063	Montenegro, Čakor	24. 8. 1939	m, a	–	–	–	35.4	–	–
M. aurascens	ZIN 35064	Kosovo, Peć / Peja	31. 8. 1939	–	–	–	–	35.9	–	–

No.	LCr	LCb	LaZ	LaI	LaN	ANc	CM^3	LMd	ACo	CM_3	ACin	LCn	LaCn	RCn
NMP 90208	13.72	13.09	–	3.35	6.75	4.77	5.39	9.82	3.02	5.75	0.07	0.90	0.65	1.38
NMP 90226	14.16	13.42	8.63	3.29	6.71	5.27	5.19	10.08	2.87	5.61	0.05	0.98	0.69	1.42
NMP 90227	14.14	13.41	8.69	3.78	6.98	4.66	5.31	10.07	2.94	5.58	0.24	0.81	0.67	1.22
NMP 90228	12.97	12.36	7.26	3.15	6.17	4.41	4.95	9.38	2.76	5.28	0.16	0.81	0.64	1.27
ZIN 35062	14.15	13.15	–	3.53	6.92	4.73	5.23	10.05	2.73	5.63	0.08	0.92	0.69	1.33
ZIN 35063	14.25	13.60	8.40	3.75	6.68	4.65	5.35	10.37	2.90	5.72	–*	0.82	0.65	1.26
ZIN 35064	14.27	13.28	8.43	3.32	6.93	4.90	5.62	9.80	2.92	5.72	0.08	0.97	0.73	1.32

† the species identity is tentative (see text)

* the cingular cusps on both third upper premolars (P^4) were abrased, as well as the most of other dental traits; however, the species was identified according to a well developed metaconuli, typical for *M. brandtii* (Tupinier & Aellen 1978, Strelkov & Buntova 1982, Menu & Popelard 1987, Benda & Tsytsulina 2000, etc.).

The bats are deposited in the zoological collection of the National Museum, Prague (NMP), all individuals are prepared as alcohol specimens with extracted skulls. The identification of the bats is indisputably confirmed by the revision of their skull measurements and dental traits, according to characters given by BENDA & TSYTSULINA (2000) and BENDA (2004) (Tab. 1).

COMMENTS

The distribution of *M. aurascens* in Montenegro is not surprising, since the records connect the known occurrence spots in Dalmatia and northern Italy to the west and in Kosovo, Albania, Macedonia, Greece and Bulgaria to the east and south. According to the list given by PAUNOVIĆ (2004), the number of bat species known in the fauna of Montenegro has thus increased to 24, together with the recent record of *Tadarida teniotis* (Rafinesque, 1814) (CIECHANOWSKI et al. in press).

However, the other records of bats of the *M. mystacinus* group in the Vrbnica river valley near Stabna (site 2, Fig. 2) are of significance. The female of *M. brandtii* represents the second record in Montenegro, and, moreover, an additional evidence of syntopic occurrence of *M. brandtii* and *M. aurascens* which has been occasionally reported in Bulgaria and Russia (BENDA & TSYTSULINA 2000, BENDA et al. 2003a). The other bat collected at the site belongs

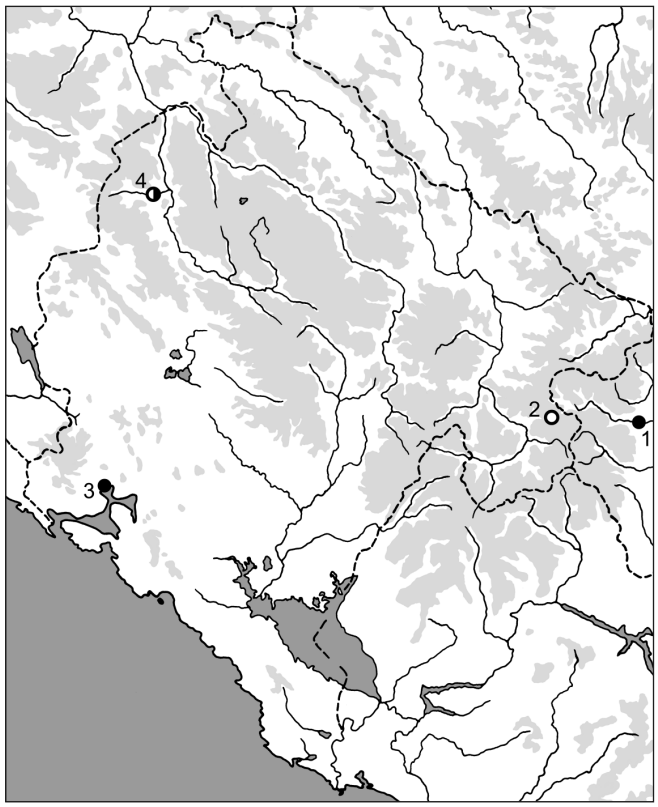

Fig. 1. Records of whiskered bats (*Myotis mystacinus* s. l.) in Montenegro and Kosovo (Serbia): *M. aurascens* (closed circes) and *M. brandtii* (open circles). 1 – Peć / Peja (Kosovo), 2 – Čakor, 3 – Vitoglav, 4 – Stabna.
Obr. 1. Nálezy netopýrů skupiny netopýrce vousatého (*Myotis mystacinus* s. l.) v Černé Hoře a Kosovu (Srbsko): *M. aurascens* (plné kroužky) a *M. brandtii* (prázdné kroužky). 1 – Peć / Peja (Kosovo), 2 – Čakor, 3 – Vitoglav, 4 – Stabna.

Fig. 2. Foraging habitat of three forms of the *Myotis mystacinus* group in northwestern Montenegro (Vrbnica river, 3 km SE of Stabna, 5 km W of Plužine).
Obr. 2. Lovný biotop tří forem skupiny *Myotis mystacinus* v severozápadní Černé Hoře (řeka Vrbnica, 3 km JV od Stabny, 5 km západně od Plužine).

to one of the smaller species types of *M. mystacinus*-like bats, i.e. to *M. mystacinus* s. str. or to *M. alcathoe*. Since the differentiation of these species using morphological traits is nearly impossible (cf. BENDA et al. 2003b), the final identification must be confirmed by a subsequent genetic analysis. In any case, this specimen also represents the first record of the respective species in Montenegro.

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SOUHRN

Na dvou lokalitách na západě Černé Hory byli sebráni dva samci netopýrce zlatistého (*Myotis aurascens*). První byl zaznamenán odchytem do sítě před jeskyní nedaleko Risanu na břehu Boky Kotorské. Druhý

jedinec byl odchycen do sítě nad řekou Vrbnicí západně od Plužine (770 m n. m.; obr. 2). Nálezy netopýrce zlatistého představují první důkaz jeho výskytu v Černé Hoře a současně druhý záznam tohoto druhu v Srbsku a Černé Hoře (po starším nálezu v Peći v západním Kosovu V. E. MARTINEM) (tab. 1, obr. 1). Na druhé uvedené lokalitě byla současně zastižena samice netopýrce Brandtova (*Myotis brandtii*). Tento nález je druhým záznamem druhu v Černé Hoře.

REFERENCES

BENDA P., 1999: Tři poznámky k taxonomii netopýra Brandtova, *Myotis brandtii* (Chiroptera: Vespertilionidae) a k historii jeho rozpoznávání v západní části Evropy. *Lynx*, *n. s.*, **30**: 5–26.

BENDA P., 2004: *Myotis aurascens* Kusjakin, 1935 – Steppen-Bartfledermaus. Pp.: 1149–1158. In: KRAPP F. (ed.): *Handbuch der Säugetiere Europas*. *Band 4*: *Fledertiere*. *Teil II*: *Chiroptera II*. *Vespertilionidae 2*, *Molossidae*, *Nycteridae*. Aula-Verlag, Wiebelsheim, 582 pp.

BENDA P. & TSYTSULINA K. A., 2000: Taxonomic revision of *Myotis mystacinus* group (Mammalia: Chiroptera) in the western Palearctic. *Acta Soc. Zool. Bohem.*, **64**: 331–398.

BENDA P., IVANOVA T., HORÁČEK I., HANÁK V., ČERVENÝ J., GAISLER J., GUEORGUIEVA A., PETROV B. & VOHRALÍK V., 2003a: Bats (Mammalia: Chiroptera) of the Eastern Mediterranean. Part 3. Review of bat distribution in Bulgaria. *Acta Soc. Zool. Bohem.*, **67**: 245–357.

BENDA P., RUEDI M. & UHRIN M., 2003b: First record of *Myotis alcathoe* (Chiroptera: Vespertilionidae) in Slovakia. *Folia Zool.*, **52**: 359–365.

CIECHANOWSKI M., SACHANOWICZ K., RACHWALD A. & BENDA P., in press: First records of *Tadarida teniotis* (Rafinesque, 1814) (Chiroptera: Molossidae) from Serbia and Montenegro and Bosnia and Hercegovina. *Mammalia*.

DECU V., 2003: Atlasul chiropterolor din România. Pp.: 201–352. In: DECU V., MURARIU D. & GHEORGHIU V. (eds.): *Chiroptere din România*. *Ghid instructiv şi educativ*. Insitutul de Speleologie "Emil Rakoviţa" al Academiei Române, Muzeul Naţional de Istorie Naturală "Grigore Antipa", Bucureşti, 522 pp.

HANÁK V., 1965: Zur Systematik der Bartfledermaus *Myotis mystacinus* Kuhl, 1819 und über das Vorkommen von *Myotis ikonnikovi* Ognev, 1912 in Europa. *Věst. Čs. Společ. Zool.*, **29**: 353–367.

HANÁK V., BENDA P., RUEDI M., HORÁČEK I. & SOFIANIDOU T. S., 2001: Bats (Mammalia: Chiroptera) of the Eastern Mediterranean. Part 2. New records and review of distribution of bats in Greece. *Acta Soc. Zool. Bohem.*, **65**: 279–346.

VON HELVERSEN O., 2004: *Myotis alcathoe* v. Helversen und Heller, 2001 – Nymphenfledermaus. Pp.: 1159–1167. In: KRAPP F. (ed.): *Handbuch der Säugetiere Europas*. *Band 4*: *Fledertiere*. *Teil II*: *Chiroptera II*. *Vespertilionidae 2*, *Molossidae*, *Nycteridae*. Aula-Verlag, Wiebelsheim, 582 pp.

VON HELVERSEN O., HELLER K.-G., MAYER F., NEMETH A., VOLLETH M. & GOMBKÖTÖ P., 2001: Cryptic mammalian species: a new species of whiskered bat (*Myotis alcathoe* n. sp.) in Europe. *Naturwissenschaften*, **88**: 217–223.

KRYŠTUFEK B., 1999: Bosnia & Herzegovina, Croatia, Macedonia, Slovenia and the Federal Republic of Yugoslavia. In: MITCHELL-JONES A. J., AMORI G., BOGDANOWICZ W., KRYŠTUFEK B., REIJNDERS P. J. H., SPITZENBERGER F., STUBBE M., THISSEN J. B. M., VOHRALÍK V. & ZIMA J. (eds.): *The Atlas of European Mammals*. Academic Press, London, 484 pp.

KRYŠTUFEK B. & ČERVENY J., 1997: New and noteworthy records of bats in Slovenia. *Myotis*, **35**: 89–93.

MENU H. & POPELARD J.-B., 1987: Utilisation des caractéres dentaires pour la determination des vespertilionines de l'ouest européen. *Le Rhinolophe*, **4**: 1–88.

PAUNOVIĆ M., 2002: *National Report on the Implementation of the Agreement of the Conservation of Bats in Europe*. *Federal Republic of Yugoslavia*. Unpublished report. Federal Secretariat for Labour, Health and Social Care – Environmental Department, Belgrade, 13 pp.

PAUNOVIĆ M., 2004: *National Report on the Implementation of the Agreement of the Conservation of Bats in Europe 2004*. *Serbia and Montenegro*. *An Update*. Unpublished report. Ministry of Science and Environmental Protection of Serbia, Belgrade, 17 pp.

Petrov B. M., 1967: O rasprostranjenju *Myotis mystacinus* Kuhl 1819 (Chiroptera, Mammalia) u Jugoslaviji. *Arch. Biol. Sci., Belgrade*, **19**(1–2): 9*P*–10*P*.

Sachanowicz K., Ciechanowski M. & Rachwald A., 2004: Bats of Albania: state and knowledge and recent records from one of the least studied European countries. Pp.: 105. In: Bogdanowicz W., Lina P. H. C., Pilot M. & Rutkowski R. (eds.): *Programme and Abstract for the 13th International Bat Research Conference Poland, Mikołajki, 23–27 August 2004*. Museum and Institute of Zoology PAS, Warszawa, 120 pp.

Schunger I., Dietz C., Merdschanova I., Merdschanov S., Christov K., Borissov I., Staneva S. & Petrov B., 2004: Swarming of bats (Chiroptera, Mammalia) in the Vodnite Dupki Cave (Central Balkan National Park, Bulgaria). *Acta Zool. Bulgar.*, **56**: 323–330.

Strelkov P. P., 1983: Mesta nahodok *Myotis brandti* Eversmann, 1845 i *Myotis mystacinus* Kuhl, 1819 (Chiroptera, Vespertilionidae) po materialam muzeev SSSR. *Trudy Zool. Inst. Akad. Nauk SSSR*, **119**: 38–42.

Strelkov P. P. & Buntova E. G., 1982: Usataja nočnica (*Myotis mystacinus*) i nočnica Brandta (*Myotis brandti*) v SSSR i vzaimootnošenija etih vidov. Soobščenie 1. *Zool. Žurnal*, **61**: 1227–1241.

Tupinier Y. & Aellen V., 1978: Présence de *Myotis brandti* (Eversmann, 1845) (Chiroptera) en France et en Suisse. *Revue Suisse Zool.*, **85**: 449–456.

Tvrtković N., Holcer D., Vuković, Kletečki E. & Jalžić B., in press: First findings of *Myotis brandtii* (Chiroptera) in Croatia with some remarks on their southern distribution border in Europe. *Folia Zool.*

APPENDIX

Abbreviations used in the Tab. 1. / Zkratky použité v tab. 1.
G – weight / hmotnost; LC – head and body length / délka těla; LCd – tail length / délka ocasu; LAt – forearm lenght / délka předloktí; LA – ear length / délka ušního boltce; LTr – tragus length / délka tragu; LCr – greatest length of skull / největší délka lebky; LCb – condylobasal length of skull / kondylobasální délka lebky; LaZ – zygomatic width of skull / zygomatická šíře lebky; LaI – width of interorbital constriction / interorbitální šíře; LaN – neurocranium width / šíře mozkovny; ANc – neurocranium height / výška mozkovny; CM^3 – upper tooth-row length / délka horní zubní řady; LMd – mandible length / délka dolní čelisti; ACo – coronoid height / výška korunového výběžku; CM_3 – lower tooth-row length / délka dolní zubní řady; ACin – height of cingular cusp on P^4 / výška hrbolku na cingulu P^4; LCn – mesiodistal length of upper canine / mesiodistální délka horního špičáku; LaCn – palatolabial width of upper canine / palatolabiální šíře horního špičáku; RCn – upper canine ratio (length/width) / poměr horního špičáku (délka/šíře); m – male / samec; f –female / samice; a – adult / dospělý; s – subadult / nedospělý