Twenty-two year-old *Rhinolophus hipposideros* (Bechstein, 1800): the longest known lifespan of a bat in Slovenia

Dvaindvajsetletni mali podkovnjak *Rhinolopus hipposideros* (Bechstein, 1800): najdaljša življenjska doba netopirja v Sloveniji

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The second author has ringed 43 *Rhinolophus hipposideros* in the cave Kevderc na Lubniku (Slovene Cave Cadastre No. 3) near Škofja Loka in NW Slovenia (lat. 46.16°, long. 14.26°) with intention to follow the dispersion of the species' wintering population. On 4. 4. 1989, seven males and four females were marked with bird rings (ring codes: Lj Slo A 289401–289411), and additional 24 males and 8 females on 10. 3. 1991 (ring codes: Lj Slo A 456905–456936). No permit for ringing was necessary at the time; for legal details see Presetnik et al. (2009). Presetnik et al. (2009) report on observation of several (six) ringed bats in the winter of 1998/99 in the same cave, while surveys in the winters of 2002/03 and 2005/06 failed to produce evidence of any ringed individuals. Another small-scale bat banding project was embarked upon by the first author in 2006 and continued in 2007 (altogether 65 animals marked with bat bands; permit No. 35701-80/2004 issued by the Slovenian Environment Agency) in the cave Marijino brezno, situated approximately 2.6 km E of Kevderc. Subsequently, we systematically searched for banded bats also in the cave Kevderc. Indeed, on 2. 2. 2007 we noticed *R. hipposideros* with a ring on the right forearm, hibernating in the entrance hall, approximately 30 m from the cave entrance, hanging on a small rock protuberance three meters above ground (Fig. 1a). At that time, we thought it was one of the animals banded in Marijino brezno and did not examine it to read the ring code. In the ensuing winter (6. 12. 2008), a bat, most probably the same animal, was hanging exactly on same spot. To our surprise, a closer examination revealed that it was one of the bats ringed in 1989. The specimen was a male with a ring code that was not fully readable. It clearly started with »Lj Slo A 289«, followed by an unreadable digit, a digit that was most likely »9« or »0«, while the last digit was most likely »1«. As *R. hipposideros* were ringed in Slovenia with bird rings starting with »Lj Slo A 289« only in cave Kevderc na Lubniku, we observed the male with ring code »Lj Slo A 289401«.

The ring had penetrated the wing membrane (Fig. 1b). Other than that, we noticed no obvious damage, like unusual teeth abrasion, etc. The male was in a good body condition, weighing 6.0 g. In the next years, we observed the same animal on the same rock protuberance on 29. 1. 2009, 3. 2. 2010 and 16. 1. 2011, but during our detailed surveys on 14. 1. 2012, 8. 2. 2012 and 1. 1. 2013 we failed to find any ringed bat in the cave. Even though we cannot completely rule out the possibility of the bat hibernating elsewhere, we think he did not change his traditional cave for hibernation and assume the old male probably died in 2011.

Twenty-one years and 10 months passed from the time of ringing till the most recent sighting. If we assume, however, that the male was born before 15. 7. 1988 (most *R. hipposideros* in the area are born between the end of June till mid-July), he survived a minimum of 22 years and 6 months. This makes him, to our knowledge, the third oldest *R. hipposideros* ever recorded in the world, being surpassed only by the female, which lived to the age of 29 years and max. 7 months, the 25 year-old male ringed in the Czech Republic (Gaisler et al. 2003), and closely followed by the Polish female, which survived over 21 years (Harmata 1982). All other accounts of this species' longevity are less than 20 years, e.g. out of more than 6,000 ringed bats with more than 1,000 recoveries, only three were older than 15 years and 12 older than 10 years (Gaisler et al. 2003). Given that *R. hipposideros* has the average lifespan of 4–5 years (Dietz et al. 2009), our finding of more than 22 year-old male is a rare occurrence on a world scale, and the longest lifespan recorded for a bat in Slovenia.

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References

Dietz C., von Helversen O., Nill D. (2009): Bats of Britain, Europe and northwest Africa. A and C Black, London, UK, 400 pp.

Gaisler J., Hanák V., Hanzal V. & Jarský V. (2003): Výsledky kroužkování netopýrů v České republice a na Slovensku, 1948–2000 [Results of bat banding in the Czech and Slovak Republics, 1948–2000]. Vespertilio 7: 3–61 (in Czech, with an abstract in English)

Harmata W. (1982): Wiederfund einer kleinen Hufeisennase (*Rhinolohus hipposideros*) nach 21 Jahren. Myotis (20): 74.

Presetnik P., Koselj K., Zagmajster M. (Eds.) (2009): Atlas netopirjev (Chiroptera) Slovenije, Atlas of bats (Chiroptera) of Slovenia. Atlas faunae et florae Sloveniae 2. Center za kartografijo favne in flore, Miklavž na Dravskem polju, 151 pp.

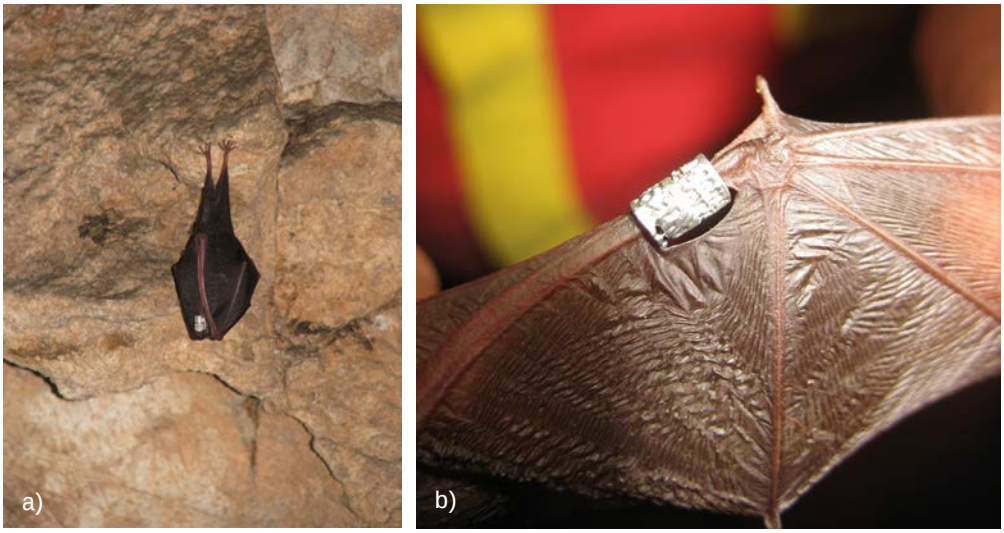

Figure 1. a) The old *Rhinolophus hipposideros* male hibernating at its usual place in the cave Kevderc na Lubniku during the last sighting (photo: Tea Knapič, 16 Jan 2011); and b) the ring on the bat's right wing (photo: Primož Presetnik, 6 Dec 2008).

Slika 1. a) Zadnje opažanje starega samca malega podkovnjaka (*Rhinolophus hipposideros*), prezimujočega na običajnem mestu v Kevdrcu na Lubniku (foto: Tea Knapič, 16.1.2011), in b) obroček na njegovi desni prhuti (foto: Primož Presetnik, 6.12.2008).