

## Winter observations of Eurasian Lynx (*Lynx lynx*) inspecting karst caves and dolines in the Northern Dinaric Mountains, Slovenia

OPAŽANJA PREGLEDOVANJA KRAŠKIH JAM IN VRTAČ S STRANI EVRAZIJSKEGA RISA (*LYNX LYNX*) V SEVERNIH DINARIDIH

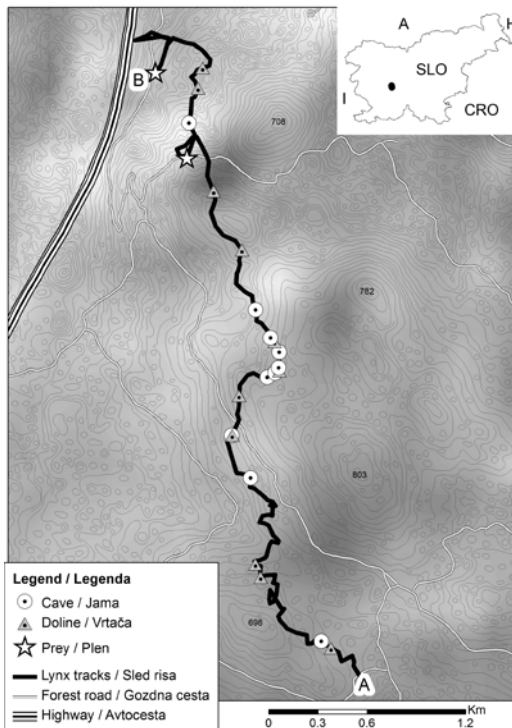
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Between 6<sup>th</sup> and 8<sup>th</sup> February 2005, I was snow tracking a Eurasian Lynx (*Lynx lynx*) on the Menišija Plateau in the »Ljubljanski vrh« hunting reserve in the Northern Dinaric Mountains, Slovenia. Very likely the same lynx, an older female whose home range covered Menišija, the Logatec Plateau and part of Rakitna, was a month later captured and radio-collared in the same area (Krofel *et al.* 2006). Snow tracking data were obtained with the aid of a handheld GPS and all the observer's comments recorded on a dictaphone. The total length of the recorded lynx track measured 7.0 km (Fig. 1). During the snow tracking, I frequently observed that the lynx approached a karst cave or smaller holes in the bedrock. Footprints in the snow indicated that the lynx obviously inspected it, as she was circling around, sitting in front or going inside, if the cave was large enough. I was under the impression that the lynx knew these caves from before, as on several occasions she turned from her path, went straight to the opening, inspected it, and then continued in the same direction. Several times, the lynx also went into doline (smaller sinkholes or larger collapse dolines). During this tracking session, I recorded the lynx inspecting a cave 11 times (once every 636 m on average), 7 of which were large (> 0.5 m diameter) vertical caves, 1 large horizontal cave and 3 smaller holes. Eight times she entered a sinkhole (every 875 m on average) and 3 times approached a large collapse doline (every 2333 m on average). During this snow tracking I also found two kill sites. On the first location I found intestines of a rodent, caught by the lynx on its way, while on the second location (point B in Fig. 1) there was a carcass of a 10

month old male European roe deer (*Capreolus capreolus*). Inspection of this carcass showed that the lynx (probably the same animal) killed it a few days earlier and has now returned to continue feeding. I also regularly observed similar inspections of caves and other karst phenomena while snow tracking other lynx in different parts of the Northern Dinaric Mountains (e.g. Fig. 2). Although I found no direct evidence indicating the reason for this behaviour, the studies of carnivores' diet in this region provide a possible hypothesis. Recently it has been shown that edible dormouse (*Glis glis*) is an important alternative prey of Eurasian lynx in the Northern Dinaric Mountains and that lynx are able to catch them even during the winter (Krofel *et al.*, submitted) when this large rodent is hibernating (Kryštufek 2007). Dormice are often using caves and other openings in the karst landscape of the Dinaric Mountains for hibernation (Polak 1997). So the explanation for the observed behaviour of inspecting caves and holes could be that the lynx were searching for hibernating dormice. Similarly, remains of an edible dormouse were found in winter scats of beech marten (*Martes foina*) in the Northern Dinaric Mountains, and Polak (1994) suggested that martens could be catching them underground during their hibernation. Searching for dormice could also explain inspections of dolines, since such places often provide openings into the systems of underground caves. In addition, in the Northern Dinaric Mountains the chamois (*Rupicapra rupicapra*), lynx's occasional prey, are often concentrated in large collapse dolines, where larger rock cliffs on their edge provide preferred habitat for this ungulate (personal observations). Other possible explanation could be that lynx are visiting entrances to caves by virtue of their marking behaviour. During snow tracking in the Dinaric Mountains, it has been observed that lynx use prominent locations like large rocks and cliffs for urine marking (Krofel 2008), and it is generally thought that lynx commonly use exceptional and contrasting objects that differ from the surroundings (Skrbinšek & Potočnik 2005, Zachariae 2008). During my snow tracking, however, I did not observe the lynx marking in the vicinity of any of the caves she visited, despite the fact that urine marking is usually easy to observe during snow tracking. Therefore searching for prey, especially dormice, is in my opinion the most likely explanation for the observed behaviour.

## Literature

- Krofel M. (2008): Možnosti monitoringa s pomočjo vonjalnih količkov. Final report. Oddelek za biologijo, Biotehniška fakulteta, Univerza v Ljubljani, Ljubljana, 17 pp.
- Krofel M., Potočnik H., Skrbinšek T., Kos I. (2006): Spremljanje gibanja in predacije risa (*Lynx lynx*) na območju Menišije in Logaške planote. Veterinarske novice 32: 11-17.
- Krofel M., Huber D., Kos I. (submitted): Diet of Eurasian lynx *Lynx lynx* in northern Dinaric Mountains: importance of edible dormouse *Glis glis* as alternative prey. Acta Theriologica.
- Kryštufek B. (2007): Navadni polh – značilnosti in življenje. In: Kryštufek B., Flajsman B. (Eds.), Polh in človek. Ekološki forum LDS, Liberalna akademija, Ljubljana, pp. 43-89.
- Polak S. (1994): Prehrana kune belice (*Martes foina* Erxleben, 1777) v okolici Knežaka. Diploma thesis. Oddelek za biologijo, Biotehniška fakulteta, Univerza v Ljubljani, Ljubljana, 53 pp.
- Polak S. (1997): The use of caves by the edible dormouse (*Myoxus glis*) in the Slovenian karst. Natura Croatica 6: 313-321.
- Skrbinšek T., Potočnik H. (2005): Morfološke, fiziološke in etološke značilnosti risa. In: Kos I. (Ed.), Ris v Sloveniji. 2nd edition. Oddelek za biologijo, Biotehniška fakulteta, Univerza v Ljubljani, Ljubljana, 271 pp.
- Zachariae G. (2008): Duftmarken – die chemische Kommunikation. In: Breitenmoser U., Breitenmoser-Würsten Ch. (Eds.), Der Luchs: Ein Grossraubtier in der Kulturlandschaft. Band 2. Salm Verlag, Wohlen/Bern, pp. 371-373.



**Figure 1.** Mapped tracks of the Eurasian Lynx (*Lynx lynx*) on the Menišija Plateau in the Northern Dinaric Mountains, Slovenia from 6 - 8 Feb 2005 with indicated locations of caves or smaller openings (»Cave«) and smaller dolines – sinkholes – or larger collapse dolines (»Doline«) inspected by the lynx. Locations of prey remains are shown as well. Contour line interval is 10 m. Smaller map indicates location of the track inside Slovenia. A – beginning of the track, B – end of the track.

**Slika 1.** Vrisana pota evrazijskega risa (*Lynx lynx*) na Menišiji, severni Dinaridi, Slovenija, zabeležena med 6. in 8. februarjem 2005 z označenimi lokacijami jam in lukenj (»Jama«) ter vrtač in udornic (»Vrtača«), ki jih je risinja pregledala na svoji poti. Prikazani sta tudi lokaciji dveh najdenih ostankov plena. Ekvidistanca med plastnicami znaša 10 m. Manjši zemljevid kaže lokacijo sledi v Sloveniji. A – začetek sledenja, B – konec sledenja.



**Figure 2.** Snow track of a Eurasian Lynx (*Lynx lynx*) leading into a karst cave on the Snežnik Plateau in the Northern Dinaric Mountains, Slovenia, 20 Nov 2007. Photo: Miha Krofel.

**Slika 2.** Sled evrazijskega risa (*Lynx lynx*), ki vodi v kraško jamo, na Snežniški planoti, severni Dinaridi, Slovenija, 20.11.2007. Foto: Miha Krofel.