

First record of a golden jackal (*Canis aureus*) in the Savinja Valley (Northern Slovenia)

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Abstract. The article presents the record of an adult female golden jackal (*Canis aureus*) accidentally shot in 2005 near Gornji Grad in the Upper Savinja Valley, Northern Slovenia (UTM VM82, 980 m a.s.l.). Although this individual was most likely a vagrant, it indicates that golden jackals may soon, or perhaps already have, established permanent territories in Slovenia. Further studies are necessary to determine the status and distribution of this protected species in Slovenia, as well as public awareness actions, especially among hunters, in order to avoid additional accidents at hunting.

Keywords: carnivores, canids, Canidae, golden jackal, *Canis aureus*, Slovenia

Izvleček. PRVI PODATEK O POJAVLJANJU ŠAKALA (*CANIS AUREUS*) V SAVINJSKI DOLINI (SLOVENIJA) – V prispevku navajava podatke o odrasli samici šakala (*Canis aureus*), ki je bila leta 2005 pomotoma odstreljena v okolici Gornjega Grada v Zgornjesavinjski dolini (UTM VM82, 980 m n. v.). Najverjetneje je v tem primeru šlo za klateža, vendar nakazuje možnost, da bi šakali lahko oziroma so že vzpostavili stalne teritorije v Sloveniji. Nujno so potrebne nadaljnje raziskave, da se ugotovi status in razširjenost te zavarovane vrste v Sloveniji. Priporočava tudi akcije osveščanja javnosti, še posebej lovcev, ki bi zmanjšale možnosti nadaljnjih morebitnih zmot med lovom.

Ključne besede: zveri, kanidi, Canidae, šakal, *Canis aureus*, Slovenija

Golden jackal (*Canis aureus*) is one of the rarest and least known autochthonous canids in Europe. It is not recognized as a large carnivore by LCIE, although it is comparable in size to the Iberian lynx (*Lynx pardinus*). It seems that it has colonized Europe during the Upper Holocene (Bauer 2001), and nowadays it is most common on the Balkan Peninsula (Kryštufek et al. 1997). Rarely, records of vagrants are also reported from Central Europe, e.g. Slovakia (T. Pataky pers. comm.), Austria (Bauer 2001), Italy (Lapini & Perco 1993), and Slovenia

(Kryštufek et al. 1997). First observations of jackals in Slovenia were reported in 1952 (Brelj 1955). Several other individuals have been shot or observed since then, mostly along the border with Croatia and at Ljubljansko barje (Krofel 2008).

On 25th November, 2005, an »unusual canid« was shot near Gornji Grad in the Upper Savinja Valley, Northern Slovenia (UTM VM82, 980 m a.s.l.), in a mixed beech-spruce forest (primary vegetation *Castaneo sativae-Fagetum*) (Figs. 1-3). The hunter thought he was shooting a fox, but the later inspection by one of the authors (H.P.) revealed that it was a golden jackal. It was an adult female weighing 11 kg. Other body and skull measurements are given in Tables 1 and 2. In comparison to the measurements reported for jackals killed or found dead in Slovenia or Croatia (Kryštufek & Tvrković 1990a, Kryštufek & Tvrković 1990b, Kryštufek 1994, Dvoršak 1996), this female was relatively small. According to the state of dentition, her age was estimated to be more than two years. Generally, it was in good condition. No ectoparasites were found on the coat. Nipples had not been suckled, indicating that she had never had cubs. Simple qualitative stomach content analysis revealed only parts of domestic pig skin and hair. This indicates that the jackal had probably been feeding on offal of the animals slaughtered on one of the farms in the area.



Figure 1. Female golden jackal (*Canis aureus*) shot in November 2005 near Gornji Grad in the Upper Savinja Valley (N Slovenia). Photo: Alojz Vrtačnk.

Slika 1. Samica šakala (*Canis aureus*), ustreljena novembra 2005 v bližini Gornjega Grada v Zgornjesavinjski dolini (S Slovenija). Foto: Alojz Vrtačnk.



Figure 2. Front paw of a female golden jackal (*Canis aureus*) shot in November 2005 near Gornji Grad in the Upper Savinja Valley (N Slovenia). Note the characteristic union of digital pads of third and fourth digits. Photo: Hubert Potočnik.

Slika 2. Sprednja šapa samice šakala (*Canis aureus*), ustreljene novembra 2005 v bližini Gornjega Grada v Zgornjesavinjski dolini (S Slovenija). Vidita se za šakala značilni zraščeni blazinici tretjega in četrtega prsta. Foto: Hubert Potočnik.



Figure 3. Skull of a female golden jackal (*Canis aureus*) shot in November 2005 near Gornji Grad in the Upper Savinja Valley (N Slovenia). Note the characteristic shape of anterior edge of nasal bones. Photo: Hubert Potočnik.

Slika 3. Lobanja samice šakala (*Canis aureus*), ustreljene novembra 2005 v bližini Gornjega Grada v Zgornjesavinjski dolini (S Slovenija). Vidi se značilna oblika anteriornega roba nosnih koščic. Foto: Hubert Potočnik.

Table 1. External measurements of the female golden jackal (*Canis aureus*) shot in November 2005 near Gornji Grad in the Upper Savinja Valley (N Slovenia).

Tabela 1. Zunanje mere samice šakala (*Canis aureus*), ustreljene novembra 2005 v bližini Gornjega Grada v Zgornjesavinjski dolini (S Slovenija).

Body mass / Telesna teža	11 kg
Body mass (dressed) / Telesna teža (brez drobovine)	9.5 kg
Head and body length / Dolžina trupa z glavo	79 cm
Tail length / Dolžina repa	24 cm
Shoulder height / Plečna višina	49 cm
Head circumference / Obseg glave	33 cm
Neck circumference / Obseg vratu	30 cm
Thoracic circumference / Obseg prsi	51 cm
Abdominal circumference / Obseg trebuha	46 cm
Ear length / Dolžina uhljev	80 mm
Front paw length / Dolžina sprednje šape	55 mm
Front paw width / Širina sprednje šape	37 mm
Hind paw length / Dolžina zadnje šape	51 mm
Hind paw width / Širina zadnje šape	32 mm
Hind foot length / Dolžina zadnjega stopala	160 mm
Length of hairs on the back, shoulder, flank, abdomen / Dolžina dlake na hrbtu, vihru, boku, trebuhu	75, 110, 55, 45 mm

Table 2. Skull measurements of the female golden jackal (*Canis aureus*) shot in November 2005 near Gornji Grad in the Upper Savinja Valley (N Slovenia).

Tabela 2. Dimenzije lobanje samice šakala (*Canis aureus*), ustreljene novembra 2005 v bližini Gornjega Grada v Zgornjesavinjski dolini (S Slovenija).

Condylbasal length / Kondilobazalna dolžina	163 mm
Zygomatic breadth / Zigomatična širina	88 mm
Upper canine length (right, left) / Dolžina zgornjih podočnikov (desni, levi)	18.4, 18.4 mm
Lower canine length (right, left) / Dolžina spodnjih podočnikov (desni, levi)	16.0, 16.0 mm
Distance between upper canines / Razmak med zgornjima podočnikoma	31.3 mm
Distance between lower canines / Razmik med spodnjima podočnikoma	26.9 mm

According to the available information, it is not possible to reliably ascertain whether this was a territorial animal or a vagrant. However, since there were neither reports of other jackals observed in this region nor any vocalization heard before or after the killing, it seems more reasonable to conclude that it was a vagrant. The unusual aspect of this record is the location in Northern Slovenia, which is further away from areas of permanent jackal presence in Croatia than other known records of jackals in the last decades in Slovenia (Krofel 2008). Furthermore, the altitude of the location is higher than that of most other records of jackals in Slovenia (M. Krofel, unpublished data). It is also interesting to note that it was a female, as among carnivores females usually disperse over shorter distances than males (Waser 1996,

Mech & Boitani 2003). This gives another indication that golden jackals may in the future, or perhaps already have, establish permanent territories in Slovenia. Another reason why this individuals was found so far to the north might be that a large part of Southern Slovenia is inhabited by grey wolves (*Canis lupus*), while in the northern part they are absent (Adamič et al. 2004). It has been noted in several parts of Europe that jackals are excluded from areas inhabited by wolves (e.g. Giannatos et al. 2005, S. Stoyanov pers. comm.).

Further studies are necessary to determine the geographical distribution and the status of this relatively new species of Slovenian mammalian fauna. Golden jackal is listed as a protected species in Slovenia and is not allowed to be shot or harmed in any other way (Uredba o zavarovanih prosto živečih živalskih vrstah, 2004). However, as it has been shown by the present case, this legislation alone is not enough to ensure the conservation of the species in Slovenia. We recommend public awareness actions, especially among hunters, as the golden jackal is very poorly known and the majority of people in Slovenia are most likely not able to recognize it in the field. Additionally, it would be recommended to include this species into the hunting legislation, which would enable much more control over illegal hunting.

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