



**UNIVERSITÀ
DEGLI STUDI
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hic sunt futura

**3° International jackal symposium
02-04 November 2022 Gödöllő, Hungary**

MATE



Deer for dinner! First documented predation with camera-trap of golden jackal on roe deer and subsequent kleptoparasitism by wild boar in Italy

Frangini L., Franchini M., Pesaro S., Ferfolja S., Stokel G., Madinelli A., Filacorda S.

Department of Agri-Food, Environmental and Animal Sciences, University of Udine





Species interactions: a complex world

- Species interaction is a key topic in ecology for conservation and management purposes (e.g., ecosystem equilibrium)
- Predator-prey interactions, as well as kleptoparasitism, are difficult to study due to the rarity of observing such events

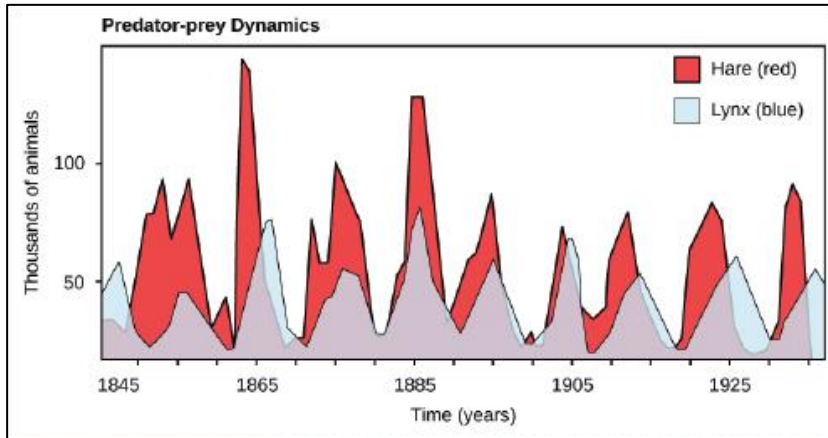


Image credit: top, Community ecology: Figure 2 by OpenStax College, Biology, CC BY 4.0; bottom, Populations of snowshoe hare and their Canada lynx predator show repeating cycles by CK-12 Foundation, CC BY-NC 3.0

Journal of Animal Ecology



Journal of Animal Ecology 2012, 81, 443–454

doi: 10.1111/j.1365-2656.2011.01928.x

Predicting the potential demographic impact of predators on their prey: a comparative analysis of two carnivore–ungulate systems in Scandinavia

Vincenzo Gervasi^{1*}, Erlend B. Nilsen¹, Håkan Sand³, Manuela Panzacchi¹, Geir R. Rauset^{2,3}, Hans C. Pedersen¹, Jonas Kindberg⁴, Petter Wabakken⁵, Barbara Zimmermann⁵, John Odden¹, Olof Liberg³, Jon E. Swenson^{1,2} and John D. C. Linnell¹

Behav Ecol Sociobiol (2012) 66:1297–1304

DOI 10.1007/s00265-012-1384-6

ORIGINAL PAPER

The noble cats and the big bad scavengers: effects of dominant scavengers on solitary predators

Miha Krofel · Ivan Kos · Klemen Jerina



A new species for Italy: the golden jackal

- The golden jackal (*Canis aureus*) has been detected in Italy since 1984 (~40 years)
- Highly adaptive opportunistic omnivore → diet varies greatly among seasons

Mammal Review



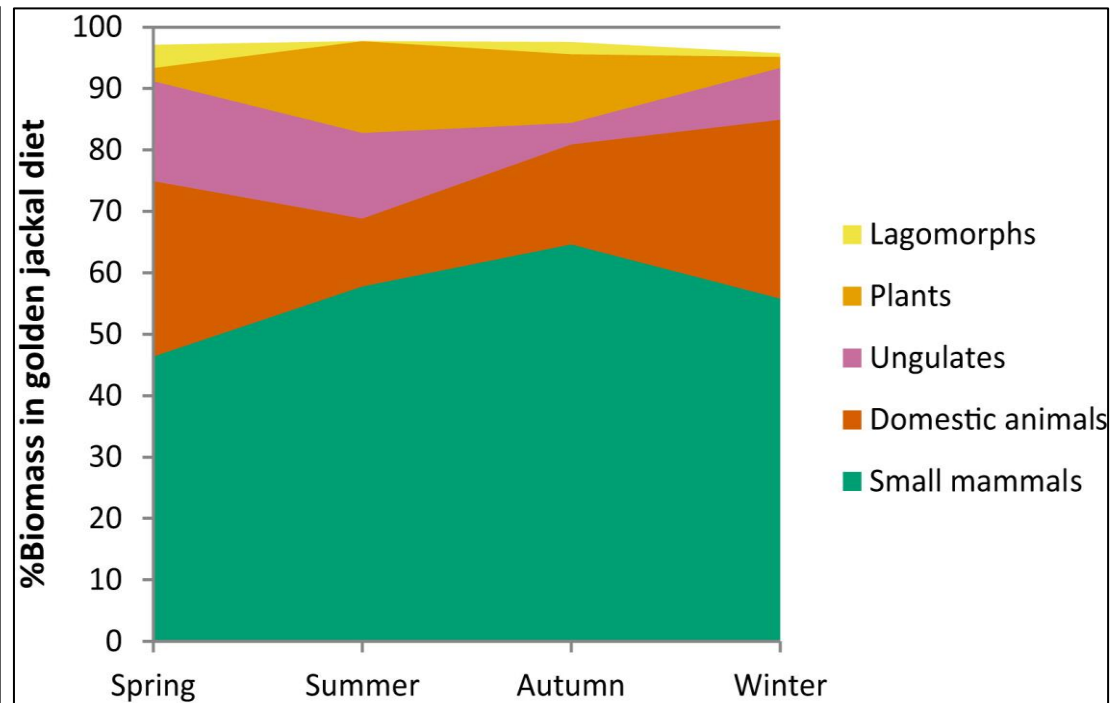
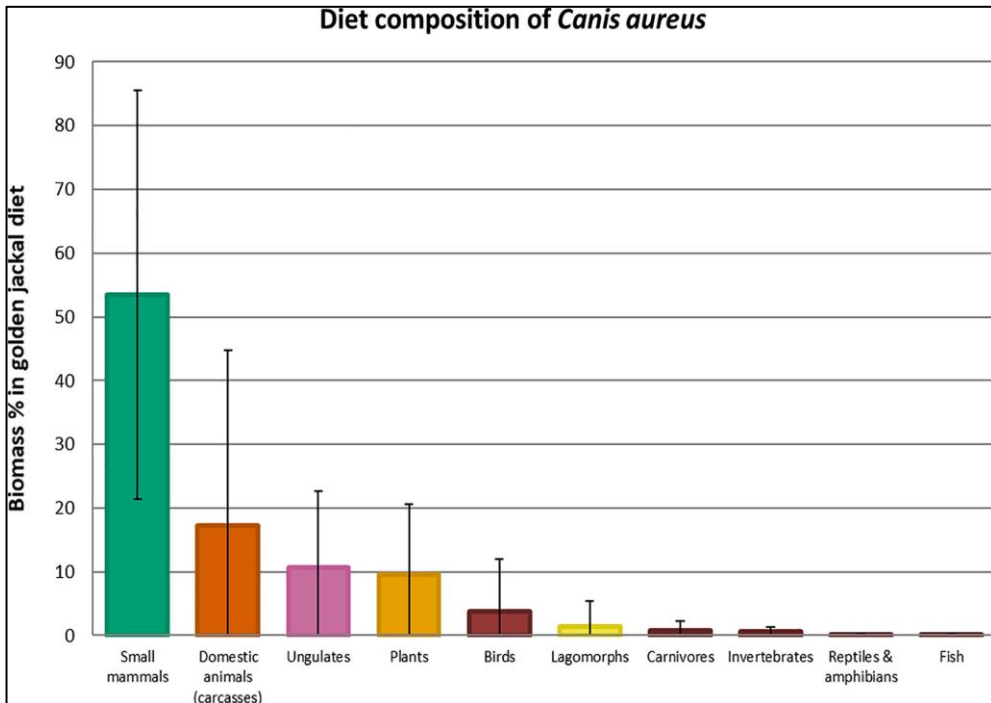
Mammal Review ISSN 0305-1838

REVIEW

Diet composition of the golden jackal *Canis aureus* in south-east Europe – a review

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 Glenn LELIEVELD* Zoogdierverseniging, Postbus 6531, Nijmegen, GA, 6503, the Netherlands. Email: glenn.lieveld@zoogdierverseniging.nl
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Diet composition of *Canis aureus*

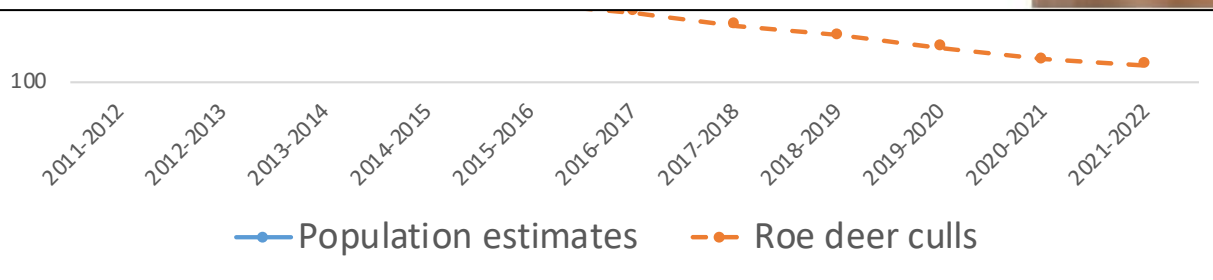




Karstland hunting district

Does this new carnivore affect prey communities?

Jackal invasion on the karstland. Roe deer extermination



Aims of the study

Understand the influence of golden jackal on the presence, population dynamics and behaviour of prey species, especially ungulates throughout systematic field monitoring using different techniques (e.g., camera-trap, jackal-howling, etc.).



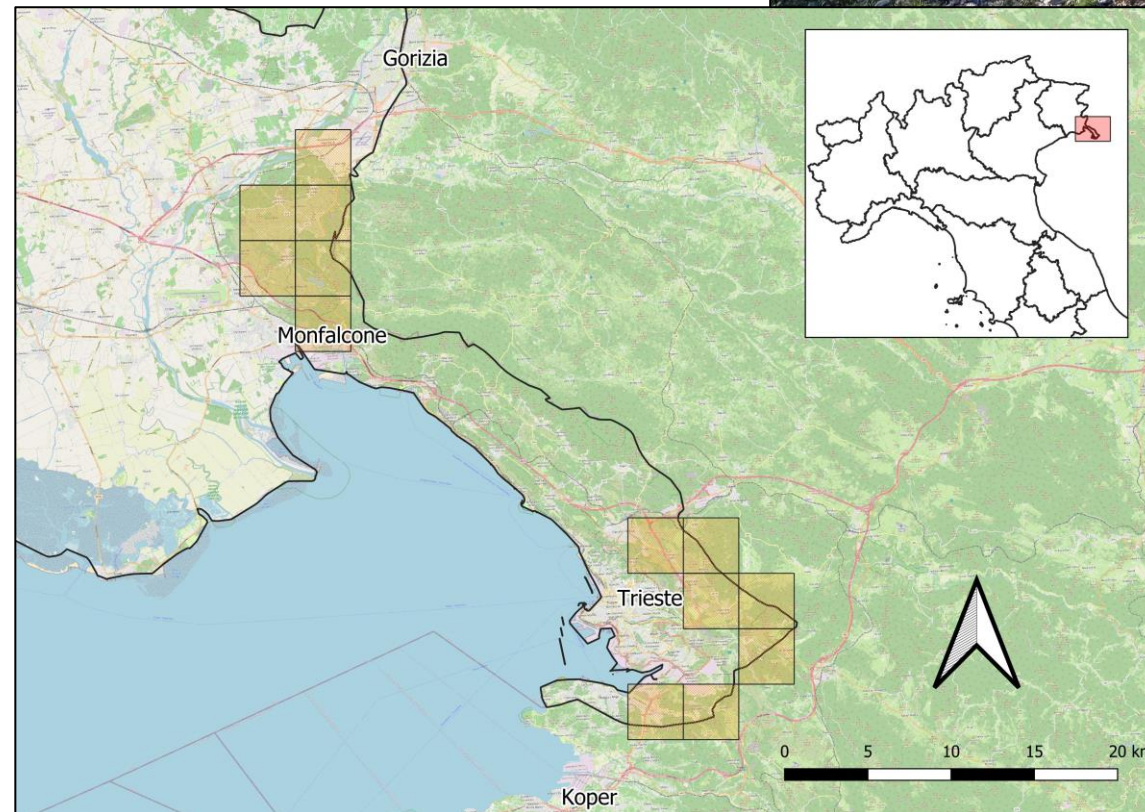
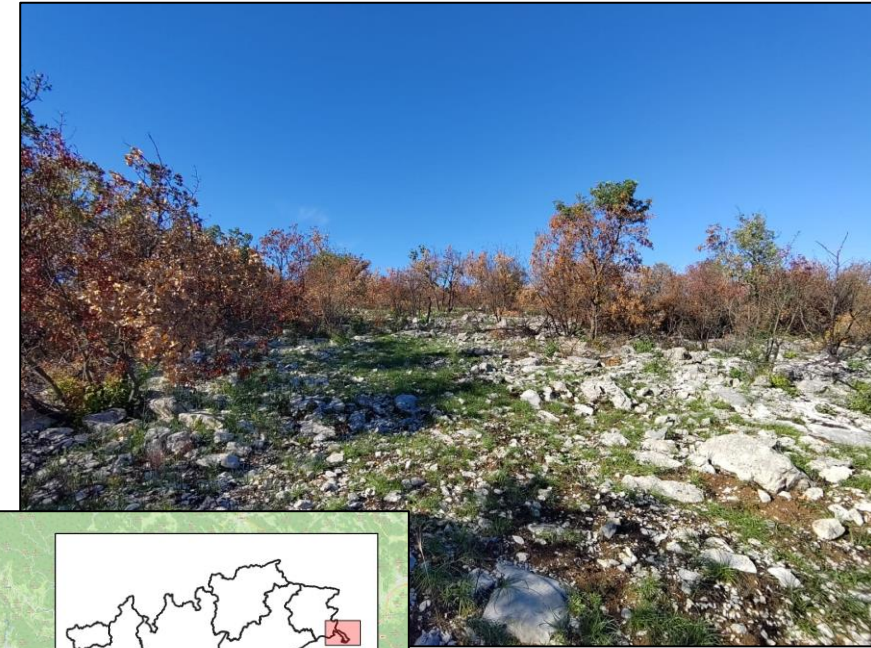
28.32 inHg ↓ 11°C ○ 01/03/2022 11:09AM ID05





Materials and methods

- 13 Quadrants monitored (3x3 km)
- One camera-trap for each quadrant (roads, natural pathways, water ponds)
- 4680 camera-trap days (September 2021 – August 2022)
- Video recording (20 s)



Interactions with wild boar



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Attempted predation on roe deer



29.65 inHg ↓

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🌙 08/31/2022

07:59AM

ID06





28.96 inHg ↓ 🌡️ 0°C 🌙 12/05/2021 06:46PM ID03



Results

Main results:

1. Interactions with the wild boar
2. Attempted predation on the roe deer
- 3. First video recorded predation by golden jackal on the roe deer**
- 4. Kleptoparasitism by the wild boar on the golden jackal**

Other interesting results:

1. Other species detected: red fox (*Vulpes vulpes*) and beech marten (*Martes foina*) on predation site
2. Carcass consumption by wild boar in almost 1 hour



Discussion

We were able to detect and confirm that **golden jackal can actively prey on larger prey, within specific contexts**

Journal of Threatened Taxa | www.threatenedtaxa.org | 26 June 2015 | 7(8): 7422–7427



DIET COMPOSITION OF GOLDEN JACKALS *CANIS AUREUS* (MAMMALIA: CARNIVORA: CANIDAE) IN VAN VIHAR NATIONAL PARK, INDIA, A SMALL ENCLOSED AREA

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²Indian Institute of Forest Management, Nehru Nagar, Bhopal, Madhya Pradesh 462003, India
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OPEN ACCESS

1647

Feeding habits and trophic niche overlap between sympatric golden jackal (*Canis aureus*) and red fox (*Vulpes vulpes*) in the Pannonian ecoregion (Hungary)

J. Lanszki, M. Heltai, and L. Szabó

Another important component in the diet of Golden Jackals was Chital, which has also been reported by previous studies by Mukherjee 1989; Chourasia et al. (2012). During two months of field work, a Chital fawn was sighted only once as opposed to 732 sightings of adult females, perhaps they are easily preyed upon by the jackals; this suggests that there are not many chital fawns in VVNP. Predation on fawns has also been reported by Klare et al. (2011); Majumder et al. (2011), in their studies elsewhere. In other studies, Chital female to fawn ratio has been 1:0.3 on average (Sankar & Acharya 2004). The presence of Nilgai hair in the scat means that they are likely hunting Nilgai calf in VVNP, since adults are too big a prey for jackals. **Hunting of Nilgai calves by jackals has been seen in Bhal and Kutch areas of India (Y.V. Jhala 2013, pers comm.).**

Torretta et al. *BMC Ecol Evo* (2021) 21:129
<https://doi.org/10.1186/s12862-021-01860-3>

BMC Ecology and Evolution

RESEARCH Open Access

Niche partitioning between sympatric wild canids: the case of the golden jackal (*Canis aureus*) and the red fox (*Vulpes vulpes*) in north-eastern Italy

Elisa Torretta^{1*}, Luca Riboldi¹, Elena Costa², Claudio Delfoco¹, Erica Frignani² and Alberto Meriggi¹

Interestingly, we observed the **kleptoparasitism exerted by wild boar on golden jackal**

VOL. 190, NO. 3 THE AMERICAN NATURALIST SEPTEMBER 2017

Kleptoparasitism and Scavenging Can Stabilize Ecosystem Dynamics

Stefano Focardi,^{1*} Massimo Materassi,¹ Giacomo Innocenti,² and Duccio Berzi³

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Online enhancements: videos. Dryad data: <http://dx.doi.org/10.5061/dryad.p8j38>.

Mammalian Biology
<https://doi.org/10.1007/s42991-020-00070-6>

SHORT COMMUNICATION

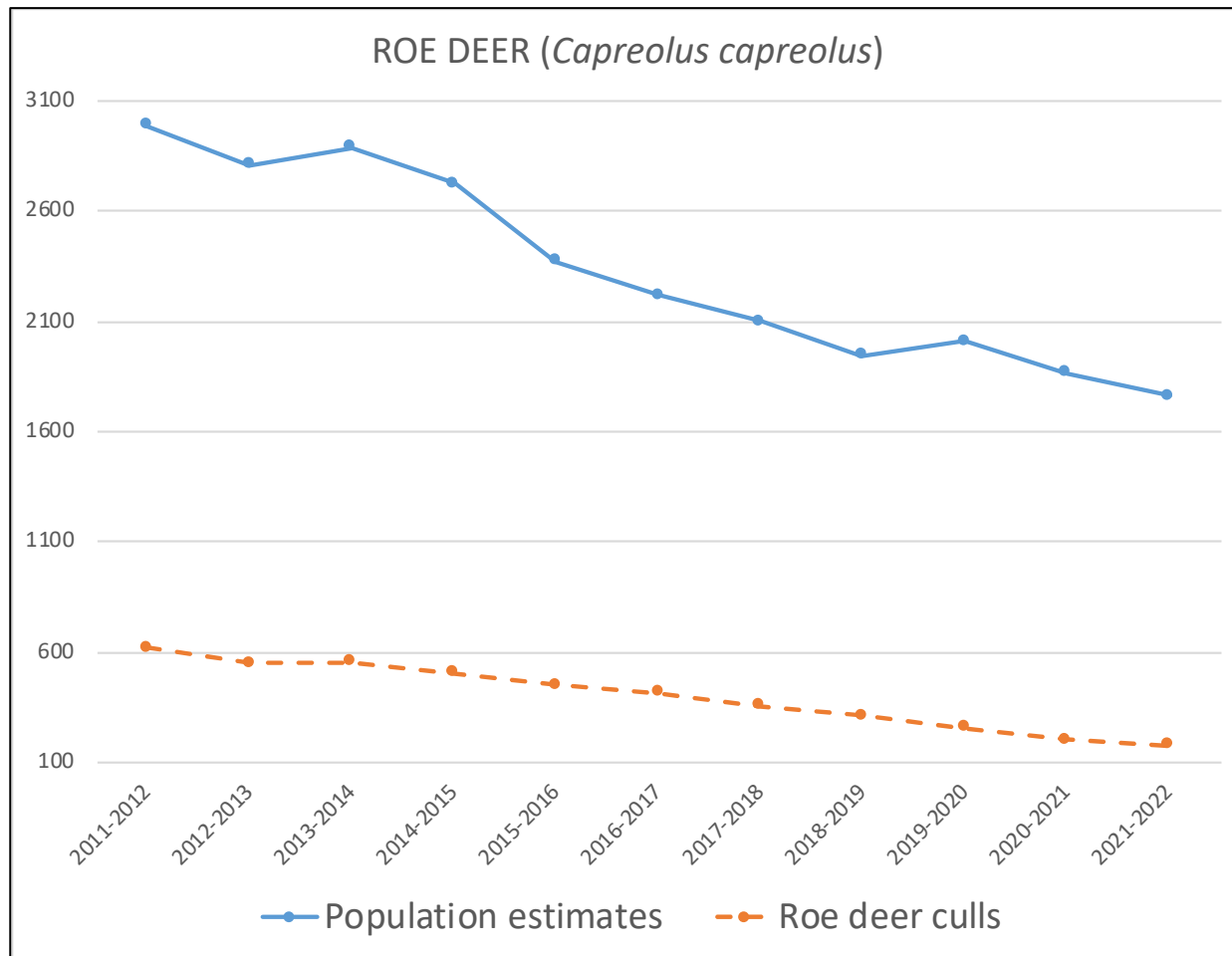
A cat in paradise: hunting and feeding behaviour of Eurasian lynx among abundant naive prey

Martin Duřa^{1,2} · Miha Krofel³



And here we are again

After this evidence should we start to consider the effect of golden jackal on roe deer population dynamics?

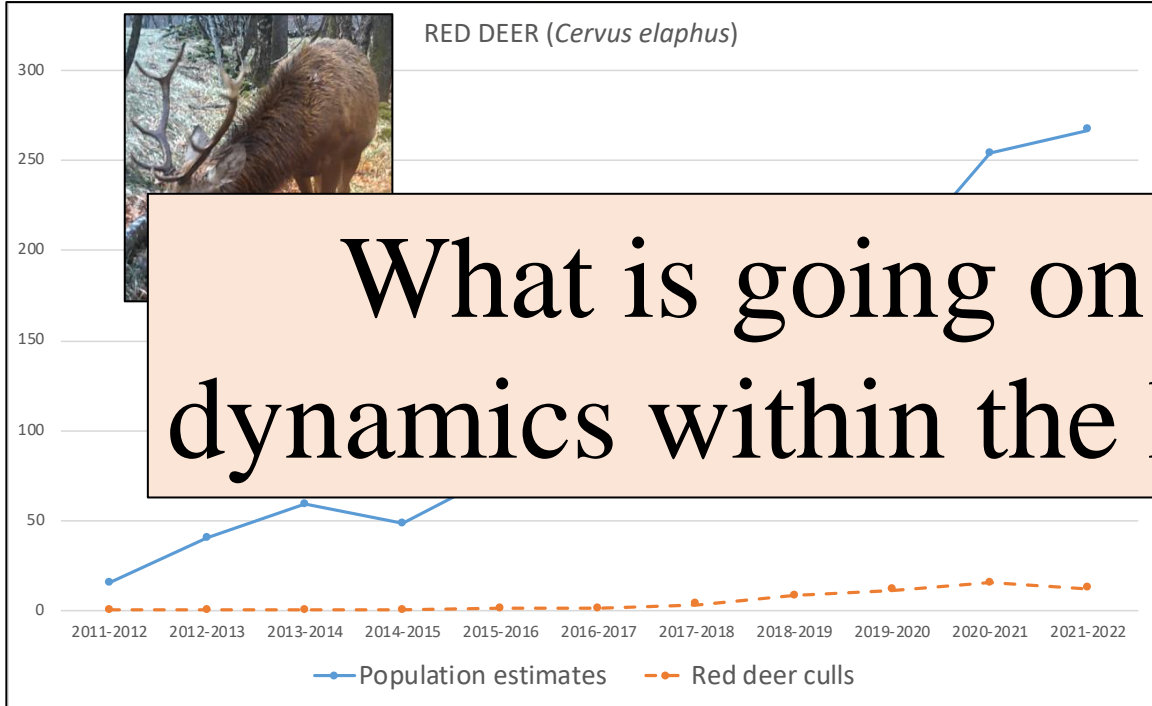




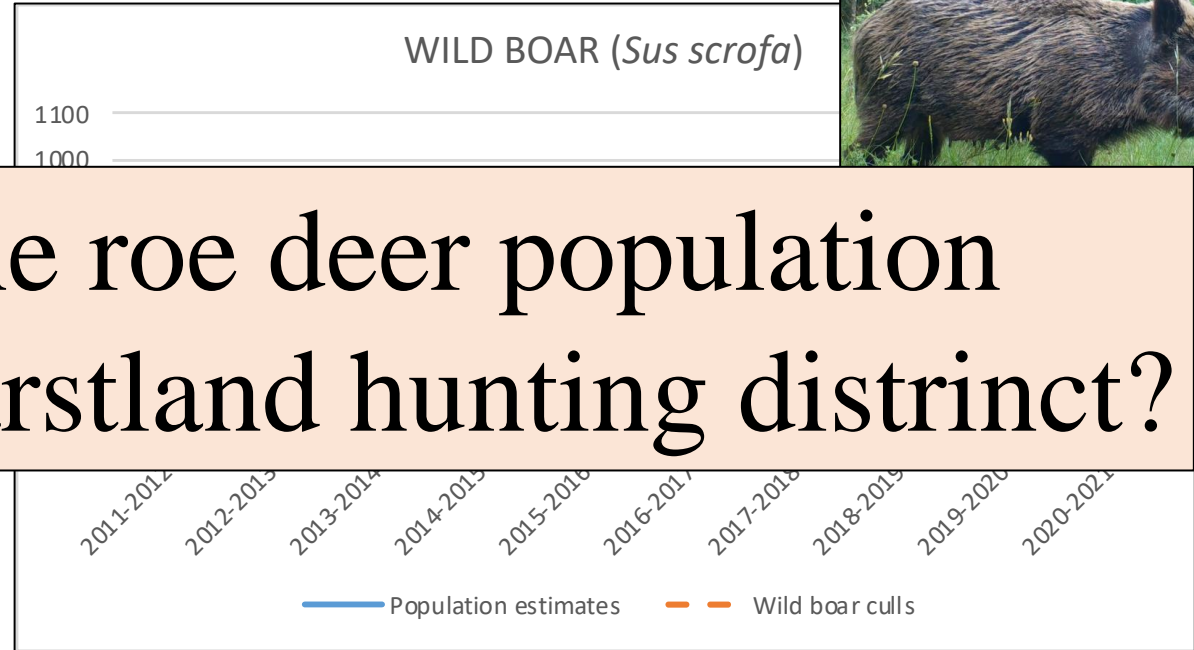
Only jackals or something more?



RED DEER (*Cervus elaphus*)



WILD BOAR (*Sus scrofa*)



What is going on the roe deer population dynamics within the karstland hunting district?

Journal of Zoology



You're stressing me out! Effect of the interspecific competition exerted by the red deer on the roe deer physiological stress response

Journal:	Journal of Zoology
Manuscript ID:	JZO-03-22-OR-068.R1
Manuscript Type:	Original Research
Date Submitted by the Author:	29-Aug-2022
Complete List of Authors:	Franchini, Marcello; University of Udine, Scienze Agroalimentari, Ambientali e Animali Peric, Tanja; University of Udine Department of Agricultural Food Environmental and Animal Sciences Frangini, Lorenzo; University of Udine Department of Agricultural Food Environmental and Animal Sciences Prandi, Alberto; University of Udine Department of Agricultural Food Environmental and Animal Sciences Comin, Antonella; University of Udine Department of Agricultural Food Environmental and Animal Sciences Rota, Marc; Universitat de Vic - Universitat Central de Catalunya, Facultat de Ciències i Tecnologia Filacorda, Stefano; University of Udine Department of Agricultural Food Environmental and Animal Sciences

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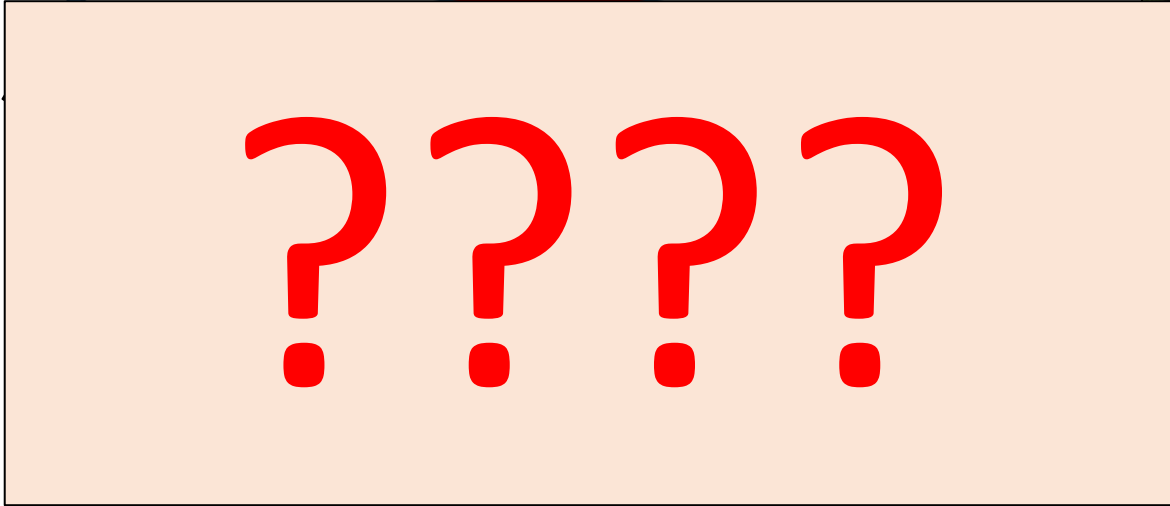
Possible interactions within karstland hunting district



Predation on piglets



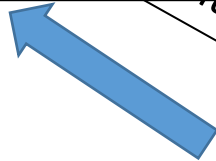
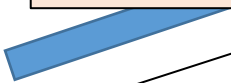
Kleptoparasitism



Predation on fawns



Interference



at



Conclusion and future perspectives

We point out:

- Golden jackals in particular situations are able to (or attempt to) predate even subadults (adults?) roe deer
- High densities of wild boar possibly lead to kleptoparasitic interactions

What can we do to better understand species interactions and disentangle their roles within roe deer population dynamics?

Complex questions ask for multidisciplinary approaches (scat analyses, genetic sampling on predations, camera-trapping, etc..)

But what more?

Thank you for the attention



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