

Changes in Golden jackal and Red fox population size in Romania with new records of local density in hunting terrains from Timiș county, Dobruja, and maritime levees from the Danube Delta

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MATE



3RD INTERNATIONAL JACKAL
SYMPOSIUM
02-04. NOVEMBER 2022
GÖDÖLLŐ, HUNGARY



Background

- H.I.P.D. = **Hunting Indicator of Population Density** (*i.e.*, the total number of individuals eliminated from nature by hunters in 1 km²).
- During 2015/2016 hunting season the Red fox H.I.P.D. was analyzed at country-regional scale in Central and Southeast Europe.
- Red Fox hunting bags (HB)
 - **136.182** specimens in Austria and Hungary (similar HIPD of 0,78 / km²) and
 - **45.727** specimens in Romania and Bulgaria (HIPD 0,1 and 0,17 / km²).
- It was suggested that a very **high abundance of foxes resulted from aggressive hunting might represent a limiting factor for the golden jackal dispersion and survival reproductive clusters establishment** (Banea et al, 2018).

Background

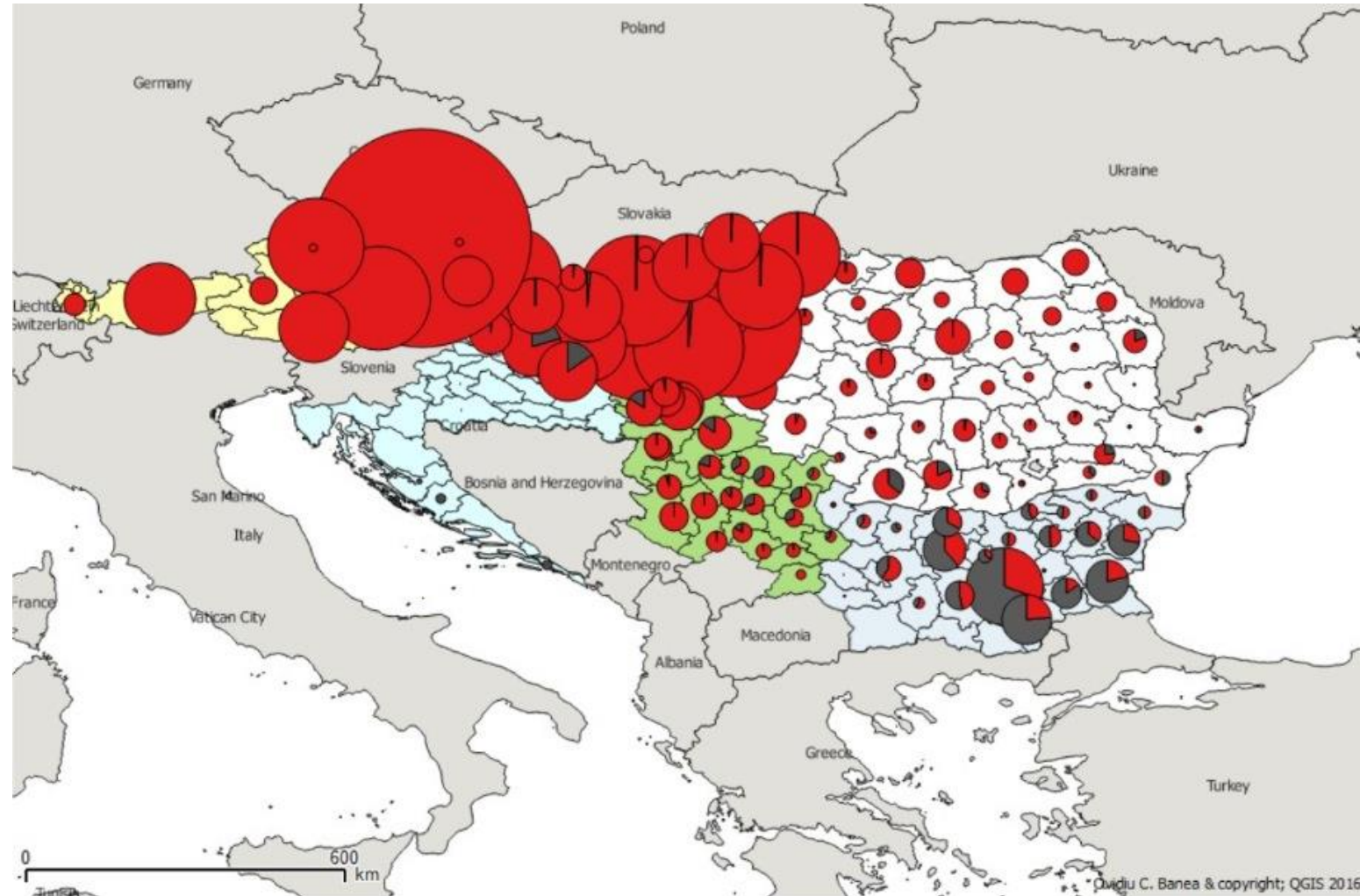
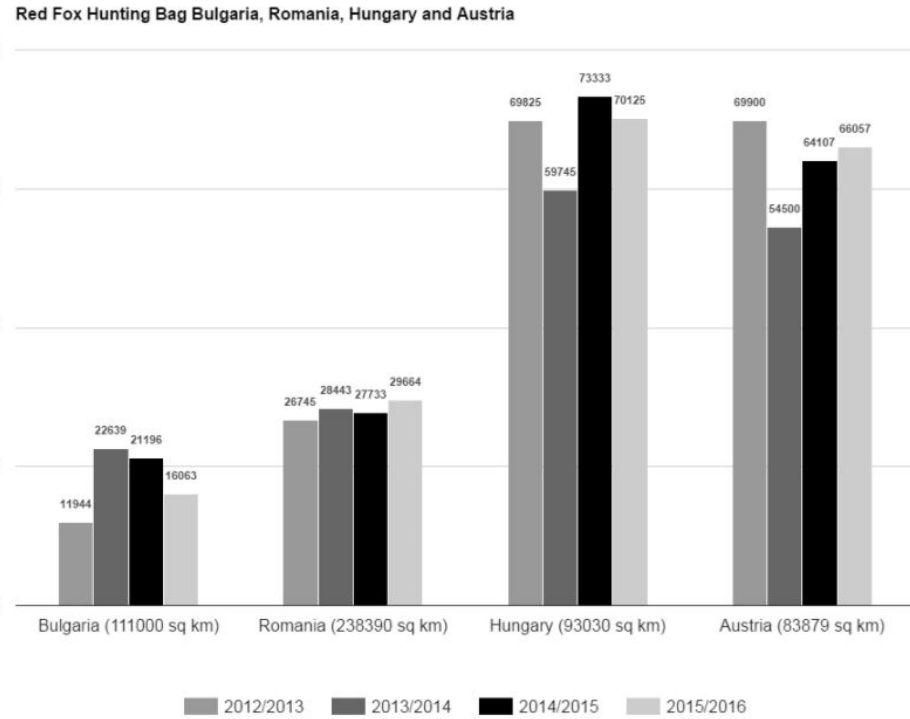
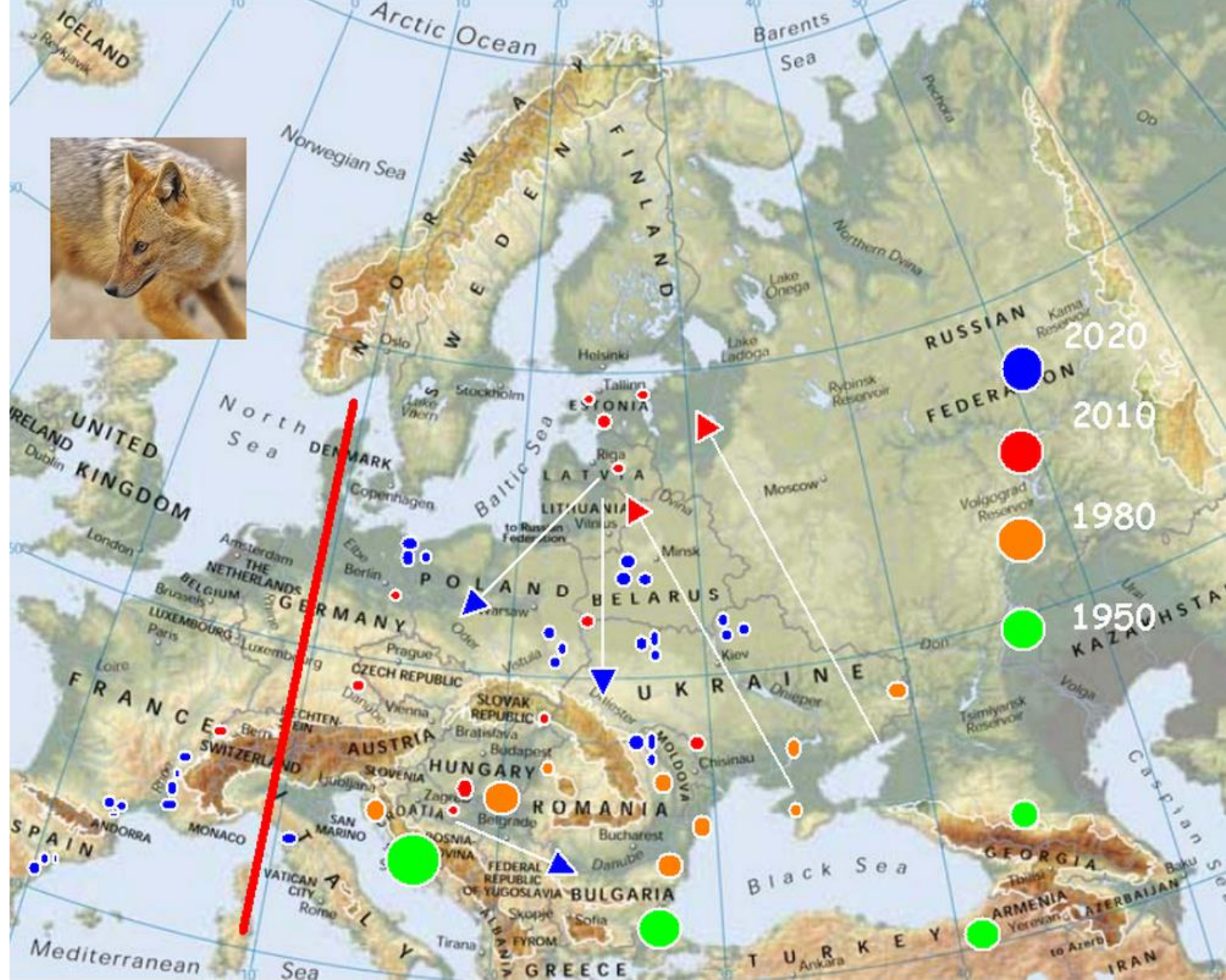


Fig. 1 Red Foxes (red) and Golden Jackal (gray) Harvested in 2014 (Central Europe)

2014 Serbia LDD



Aim of the study

- We aimed at analyzing interannual changes in red fox and golden jackal population size and control rate (CR) at country and loco-regional levels in Romania.
- Additionally, we present new data of golden jackal densities in a hunting ground from western part of Romania and Danube Delta Biosphere Reserve.

Methods (1)

- We analyzed RF and GJ annual SA and HB for 2006-2022 period from centralized data (MAPM)
- We calculated the **Control Rate** for both species, retrospectively, using a simple mathematical equation.

$$CR=HB/SA,$$

And we assumed this was the **Harvest Quota** realized by Game Management Units (GMU).

$$HQ (\%) = CR \times 100$$

Then, we compared HQ GMU with those imposed by the Government (Gov HQ).

- We also calculated data from four counties with different habitat type and environmental conditions: Giurgiu, Ialomița in Southern parts of Romania, Cluj and Satu Mare inside the Carpathian Arch.

Methods (2)

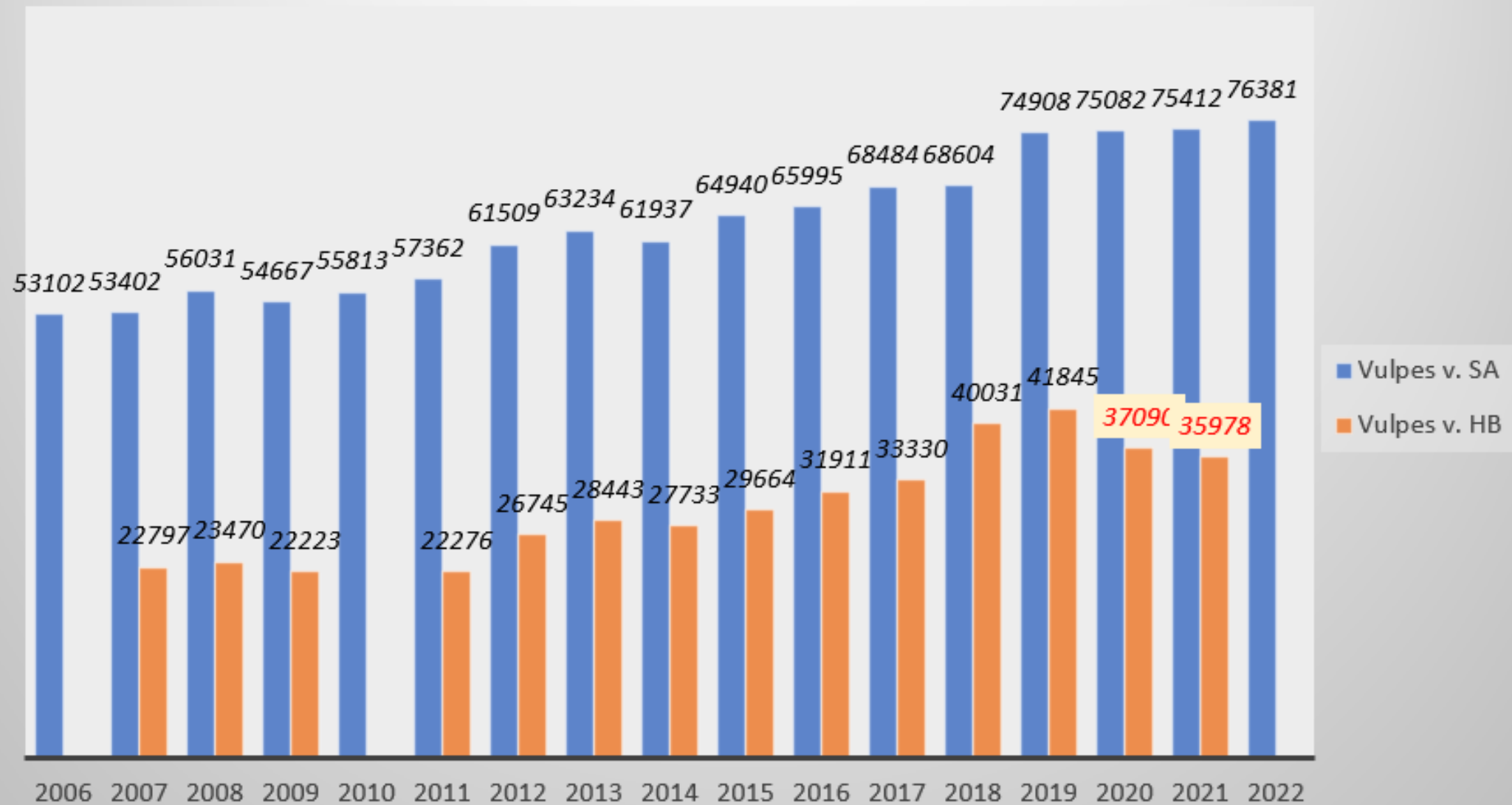
- We performed bimodal monitoring surveys with bioacoustic monitoring (Giannatos 2004) and wildlife video camera opportunistic spontaneous trapping in April, August and December 2021:
- Study areas:
 - GMU Nr. 2 Cheglevici, Timis county
 - GMU Nr. 28 Gura Dobrogei, Constanta county
 - Two critical areas from Danube Delta Biosphere Reserve ROSCI0065, Caraorman and Letea maritime levees.
 - Calling stations: 35
 - Surface: 40.000 ha.

Results

The **Red Fox** HB in 2007 was 22.797 and this increased gradually until 2019, when it started to decrease from 41.845 specimens in 2019 to 35.978 specimens in 2021 at an estimated population size of **76.381 alive individuals in 2022 (CR 0.48)**.

Stock Assessment and Hunting Bag Data of Red Fox species (*Vulpes vulpes*) in Romania during 2006-2022 period

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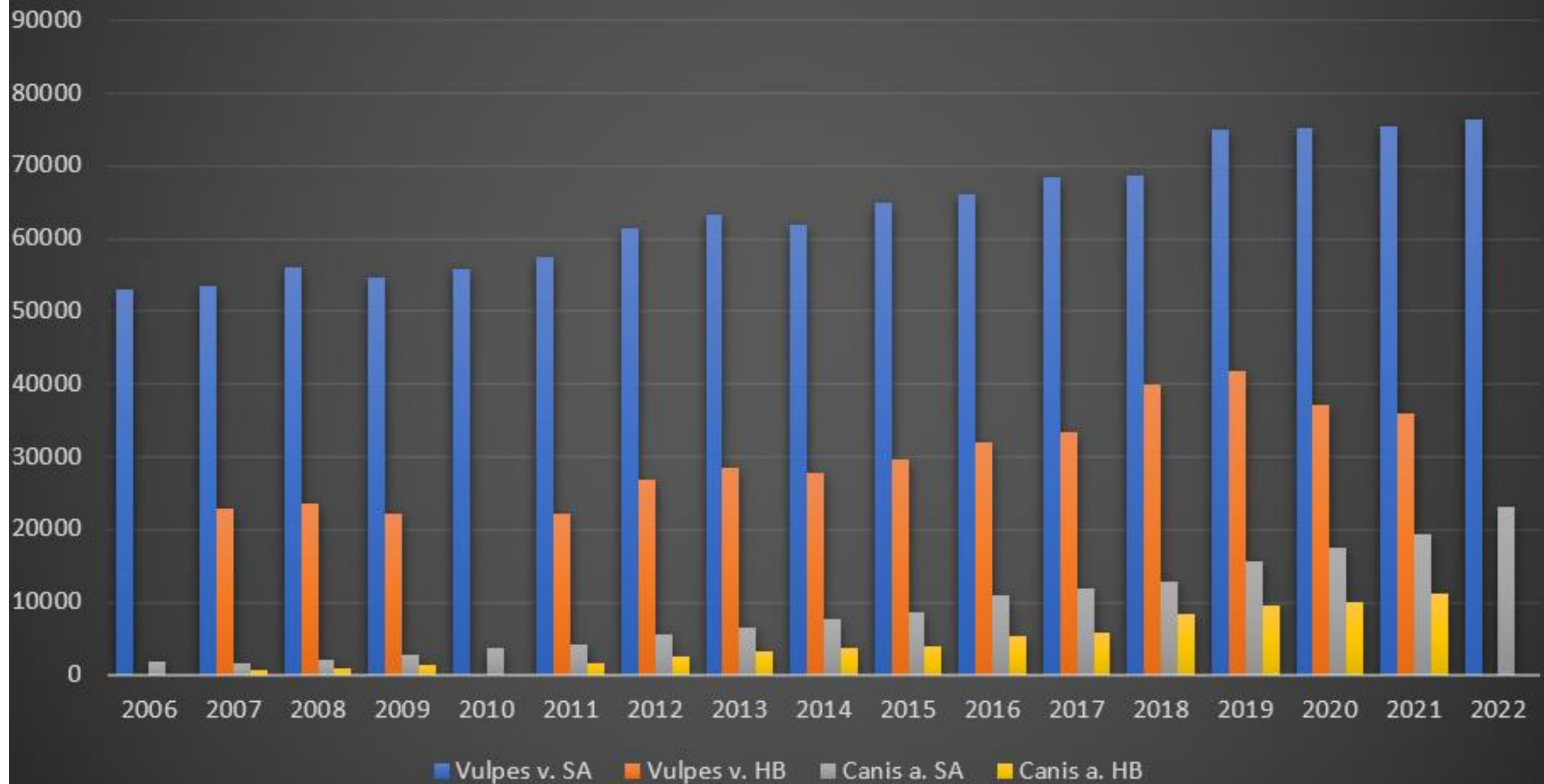


GOLDEN JACKAL DYNAMICS?

The **Golden Jackal** HB changed from 746 in 2007 to 11.292 shot jackals in 2021, at an estimated population size of **23.042 in 2022 (CR 0.58)**.

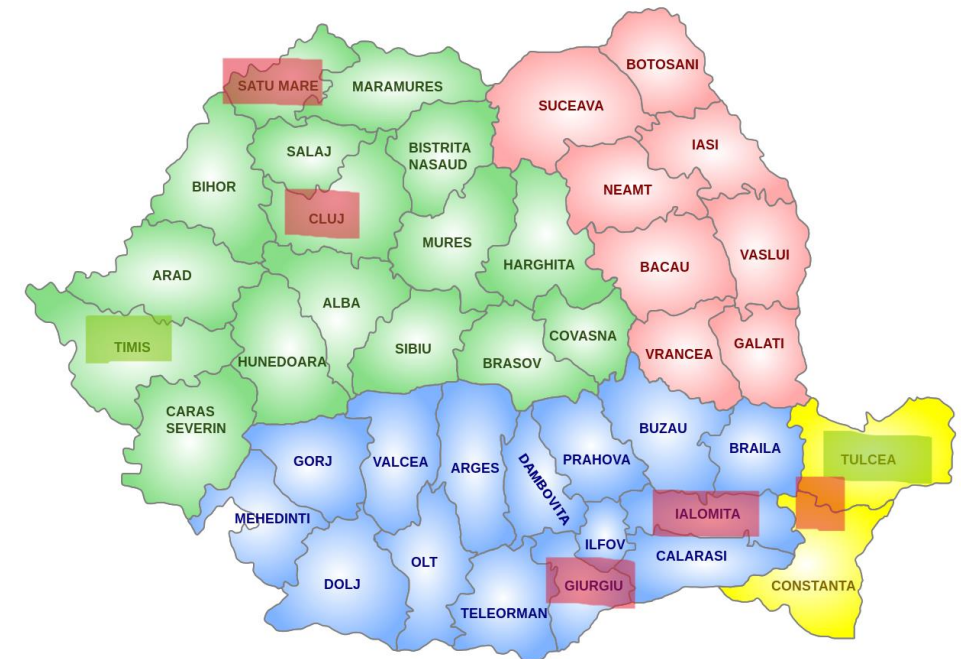
Numărul de exemplare vii (SA) și împușcate (HB) la vulpe (*Vulpes vulpes*) și hilac (*Canis aureus*) 2006-2022

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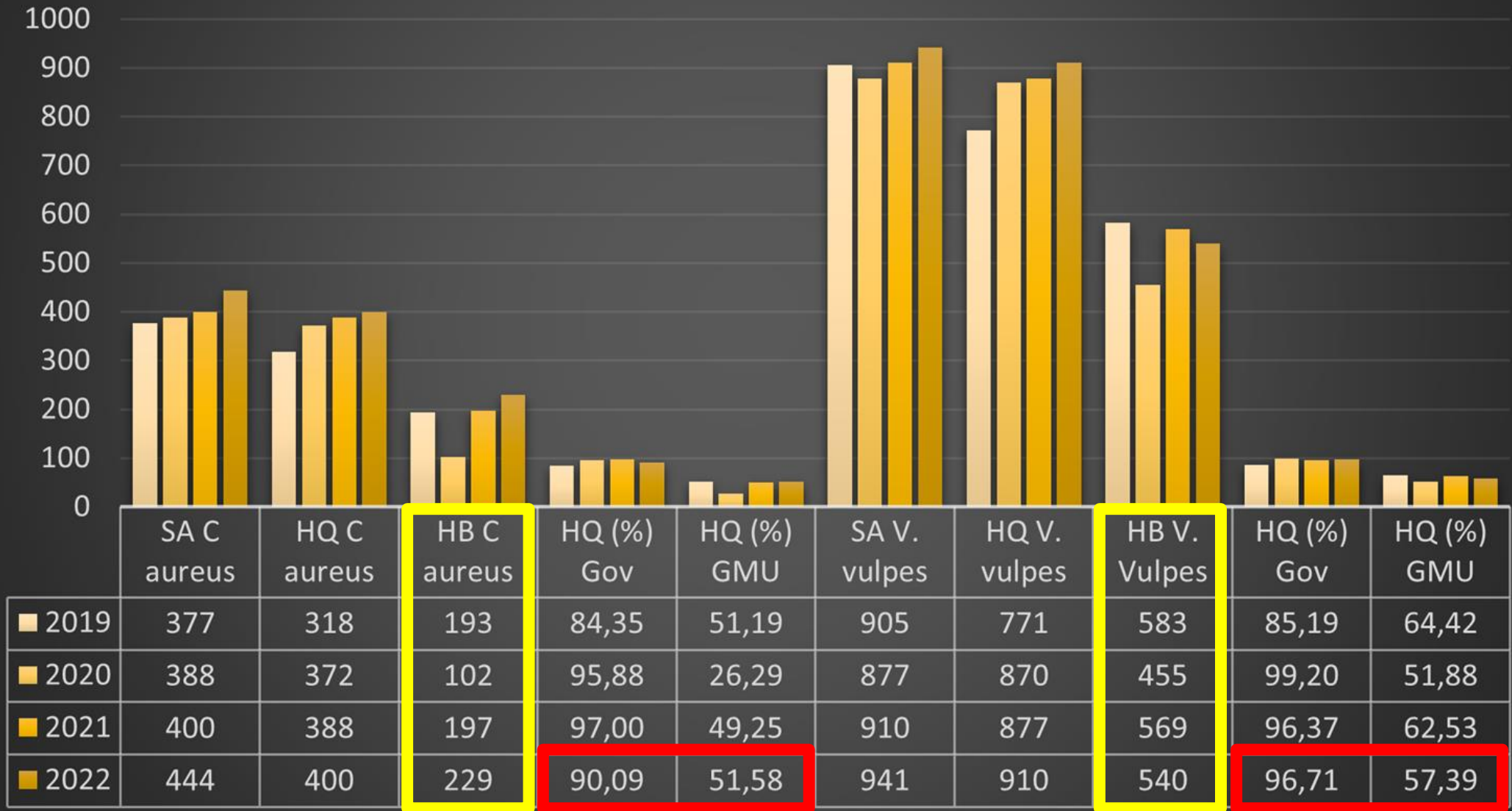
LOCOREGIONAL

- Giurgiu realized harvest quota of **57.4%**, while **Gov approved 96%**,
- Ialomița realized **64%** (**Gov 99%**),
- Cluj showed HQ of **39,6%** (**Gov 82%**) and
- Satu Mare realized a HQ of **61%** (**Gov 82%**).



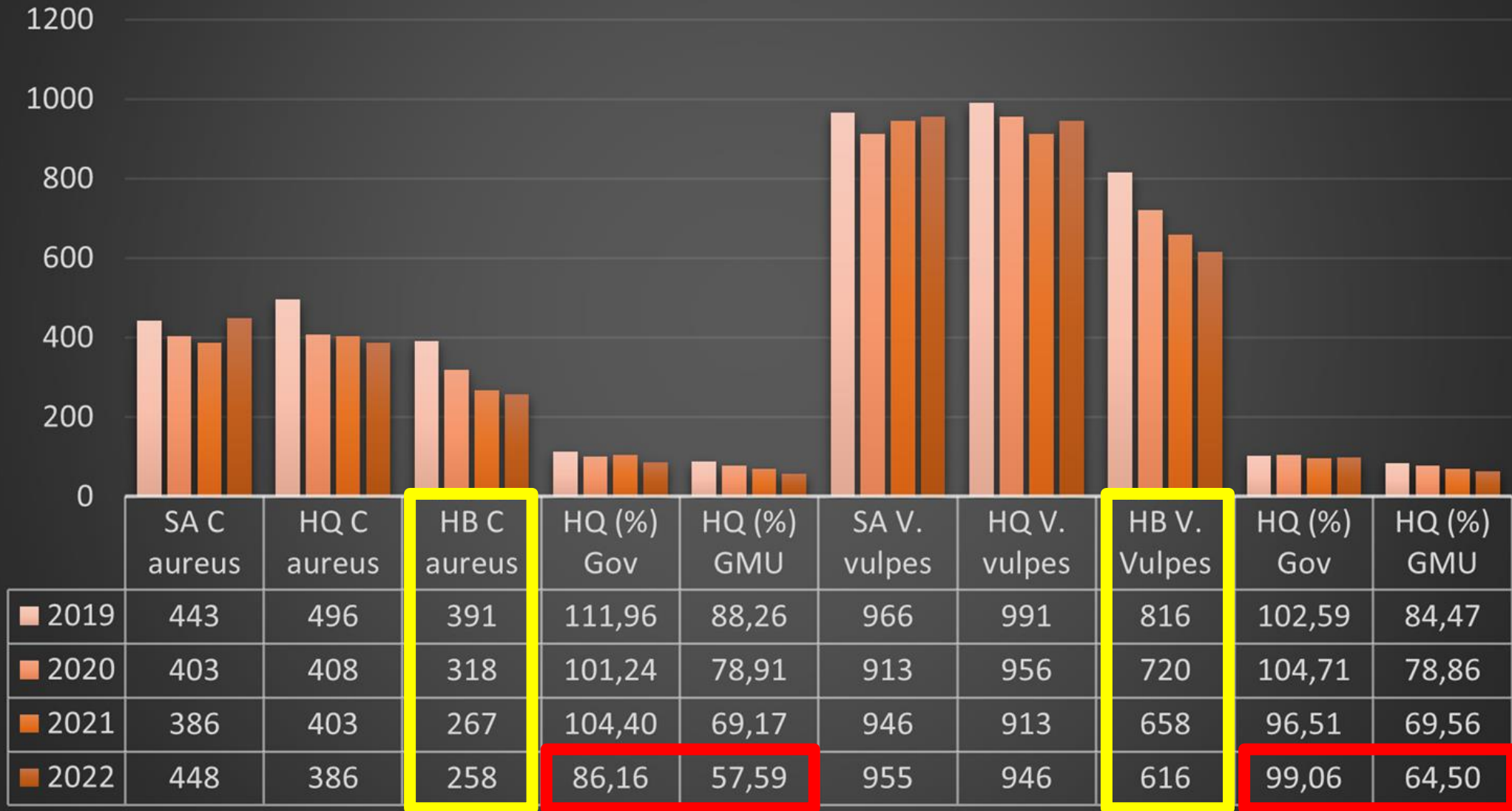
Giurgiu County, Stock Assessment, Harvest Quota and Hunting Bag of C aureus and V vulpes

by Ovidiu C. Banea, Crispus NGO Sibiu



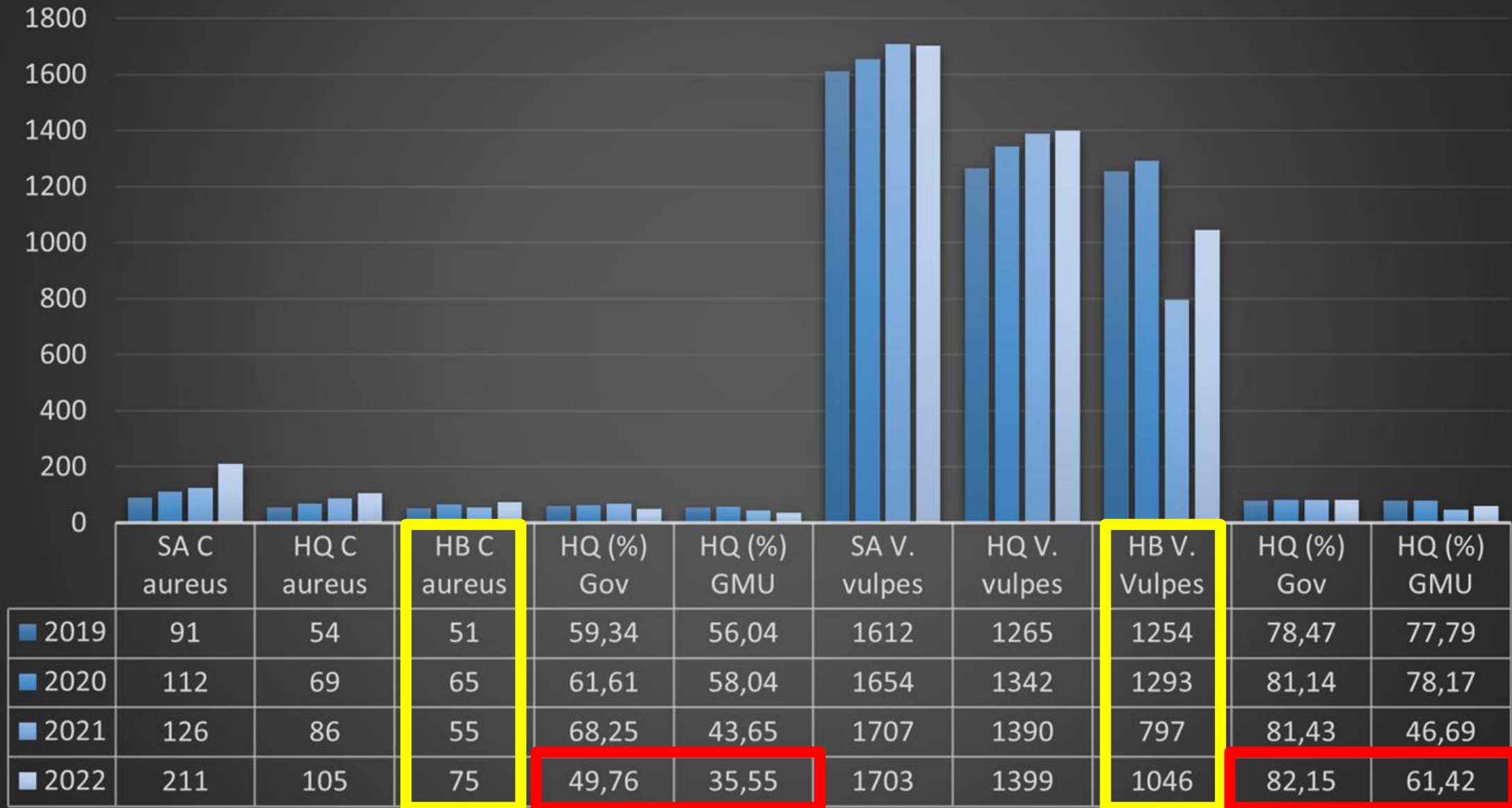
Ialomița County, Evolution of *C. aureus* and *V. vulpes* SA, HQ and HB

by Ovidiu C. Banea, Crispus NGO Sibiu



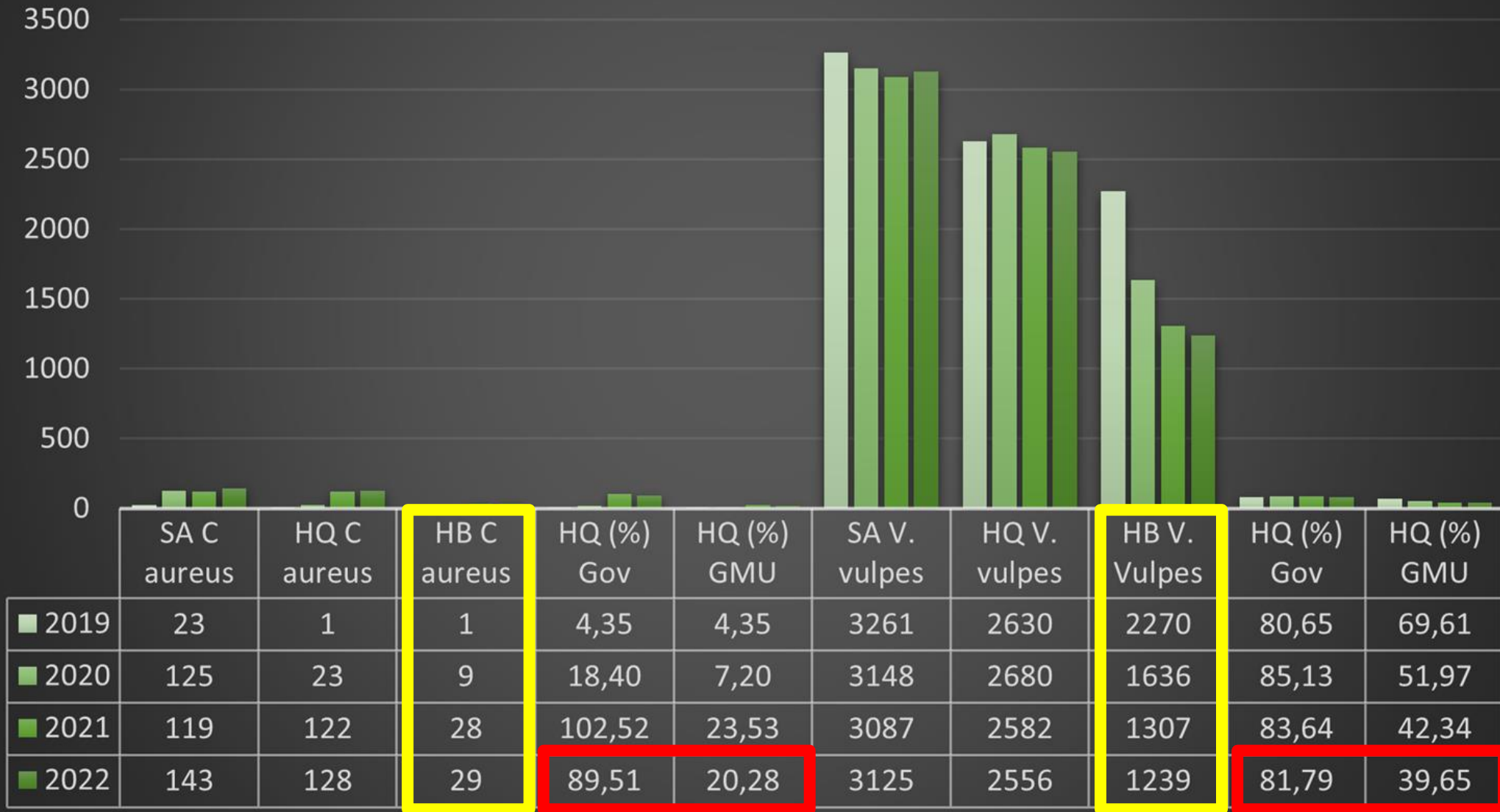
Satu Mare County, C aureus and Red Fox

by Ovidiu C. Banea, Crispus NGO Sibiu



Cluj County, Evolution of *Canis aureus* and *Vulpes vulpes* Stock Assessment, Harvest Quotas (imposed and realized) and HB

by Ovidiu C. Banea, Crispus NGO Sibiu



THE DIFFERENCE, Hypothesis

Jackals showed an increased abundance of up to 258 shot jackals in Ialomita and Giurgiu and remained with less than 29 and 75 individuals removed in Cluj and Satu Mare where the number of shot foxes is almost double (1239 in Cluj and 1046 in Satu Mare) than in the counties from the South; Giurgiu (540), Ialomita (614).

Is Red Fox aggressive hunting and the Red Fox abundance a limiting factor for jackal spreading and establishment?

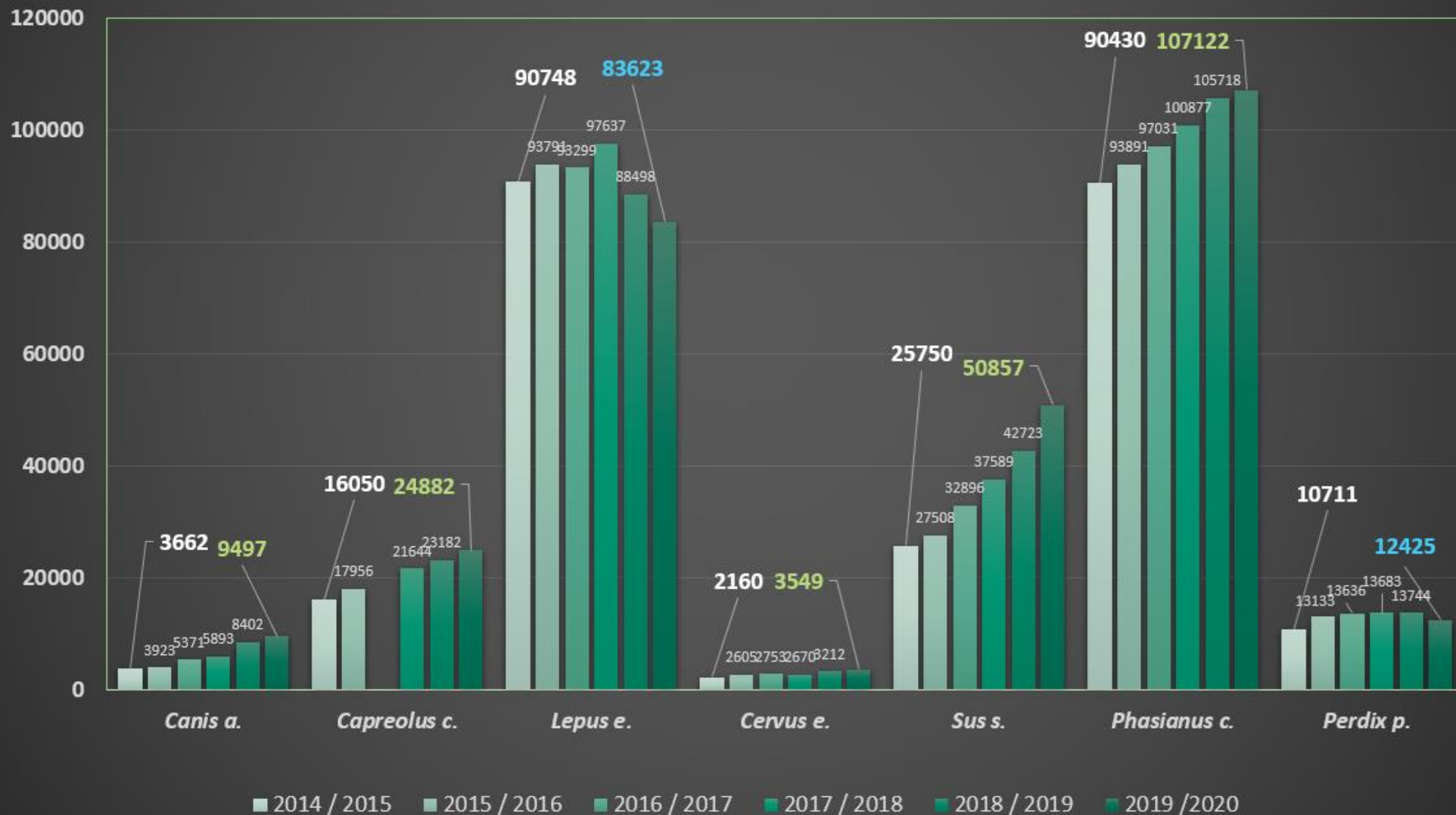
GAME species dynamics (HB) in Romania

Hunting Bag Data for golden jackal and other game species in Romania, 2014-2020 period

SPECIES: *Canis aureus*, *Capreolus capreolus*, *Lepus europeus*, *Cervus elaphus*, *Sus scrofa*, *Phasianus colchicus*, *Perdix perdix*

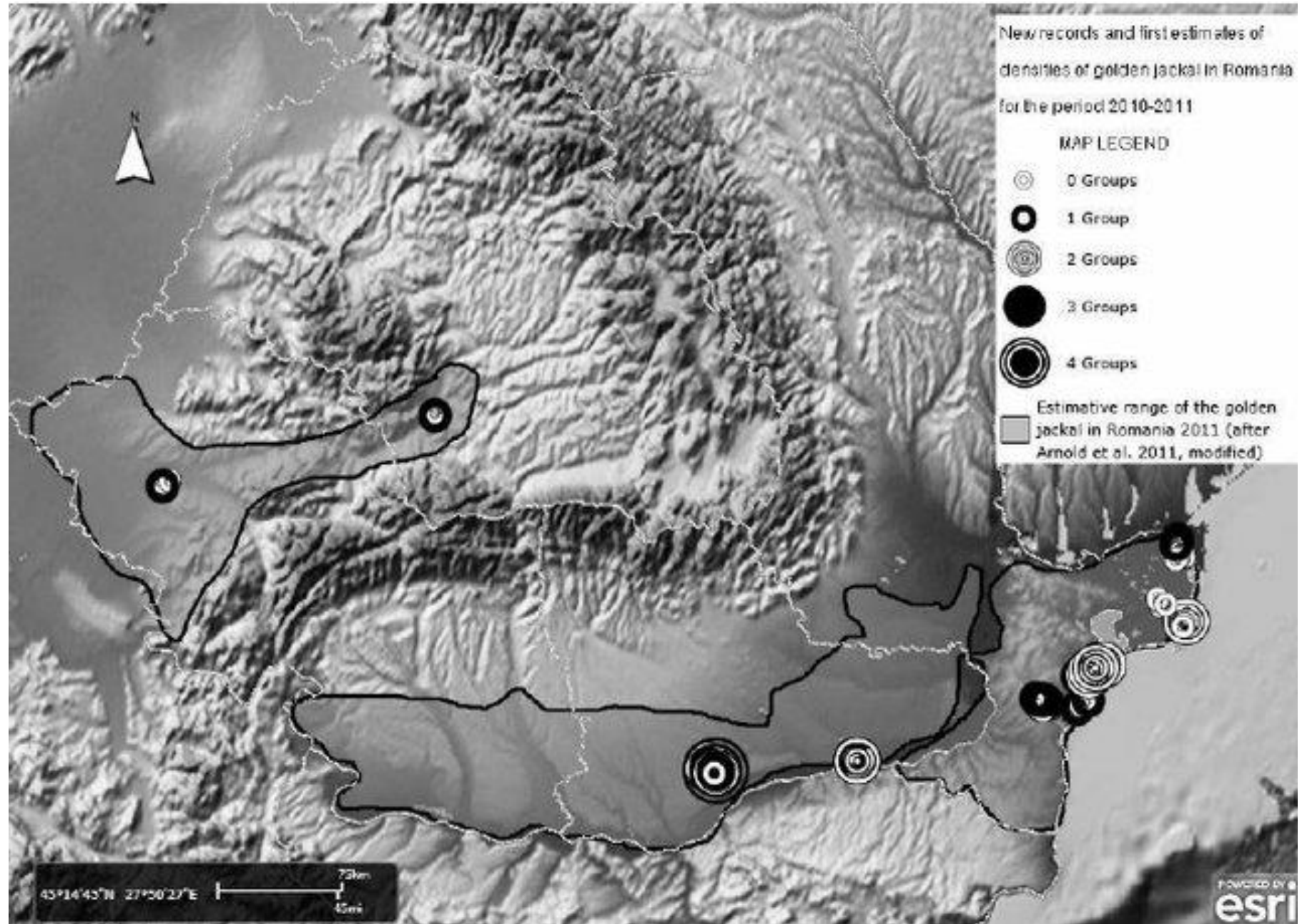
06.03.2021 © Ovidiu C Banea, Crispus NGO Sibiu

Source: www.mmediu.ro Method: Harvest Quota = Cotele realizate



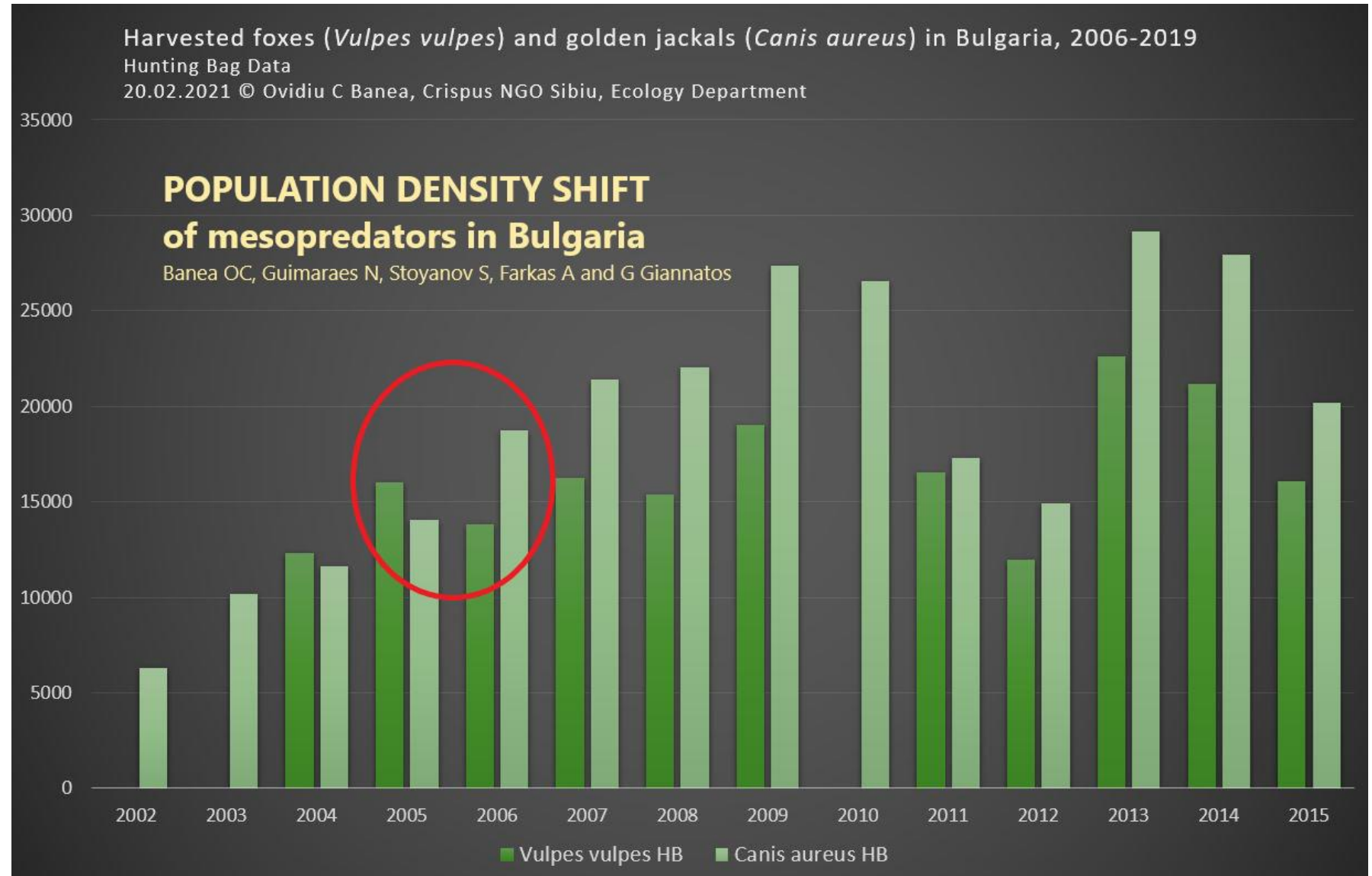
Habitat

Banea *et al* 2012



RF and GJ Population shift

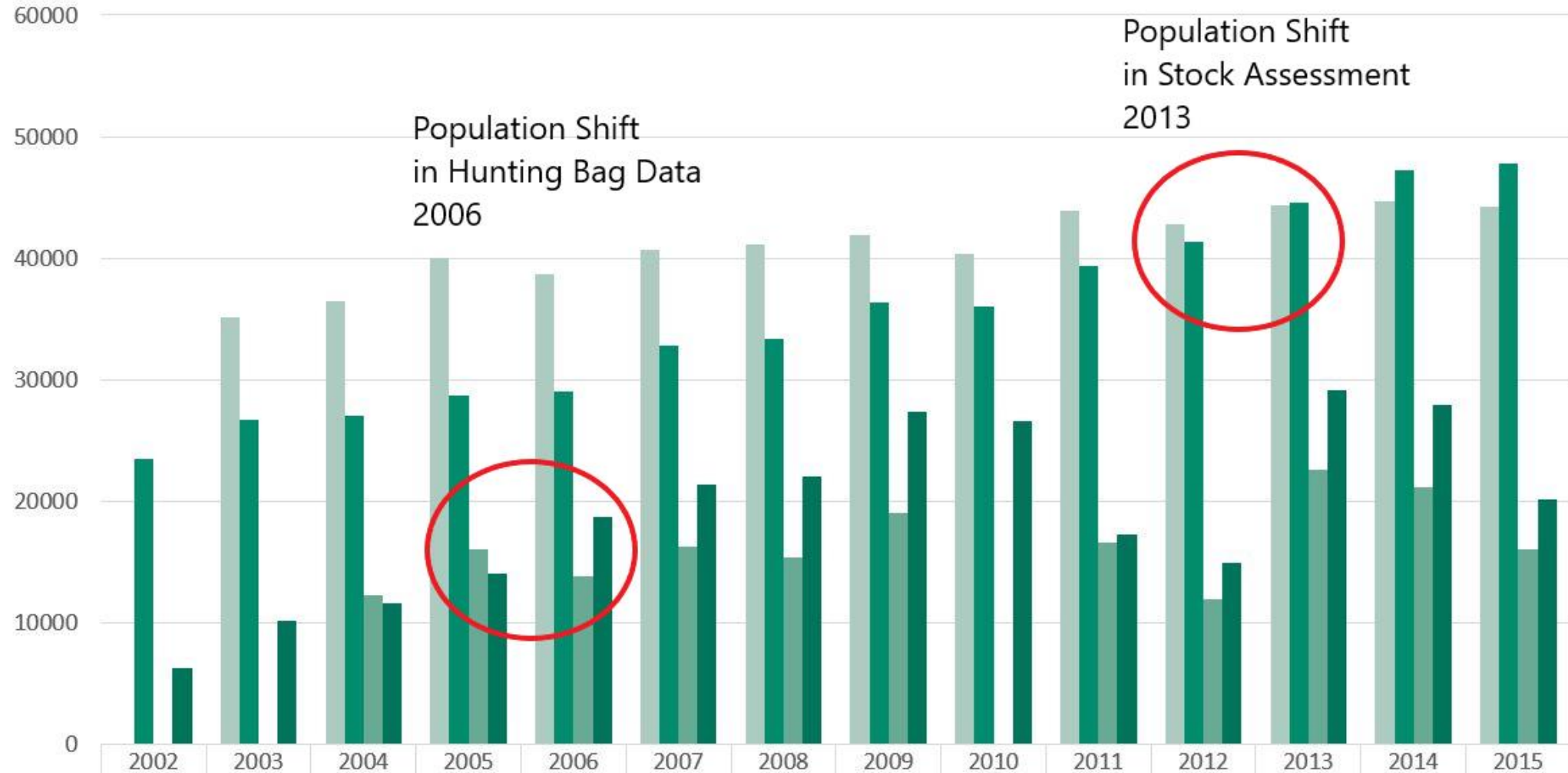
Case study BULGARIA



Population dynamics of foxes (*Vulpes vulpes*) and golden jackals (*Canis aureus*) in Bulgaria, 2002-2015

Stock Assessment and Hunting Bag Data

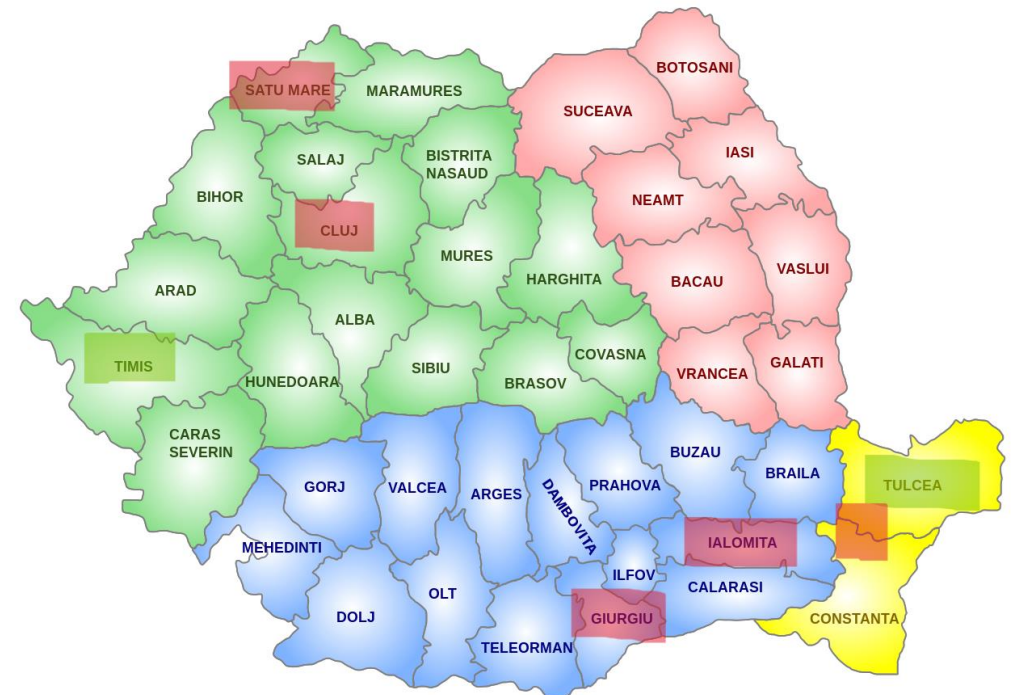
20.02.2021 © Ovidiu C Banea, Crispus NGO Sibiu, Ecology Department

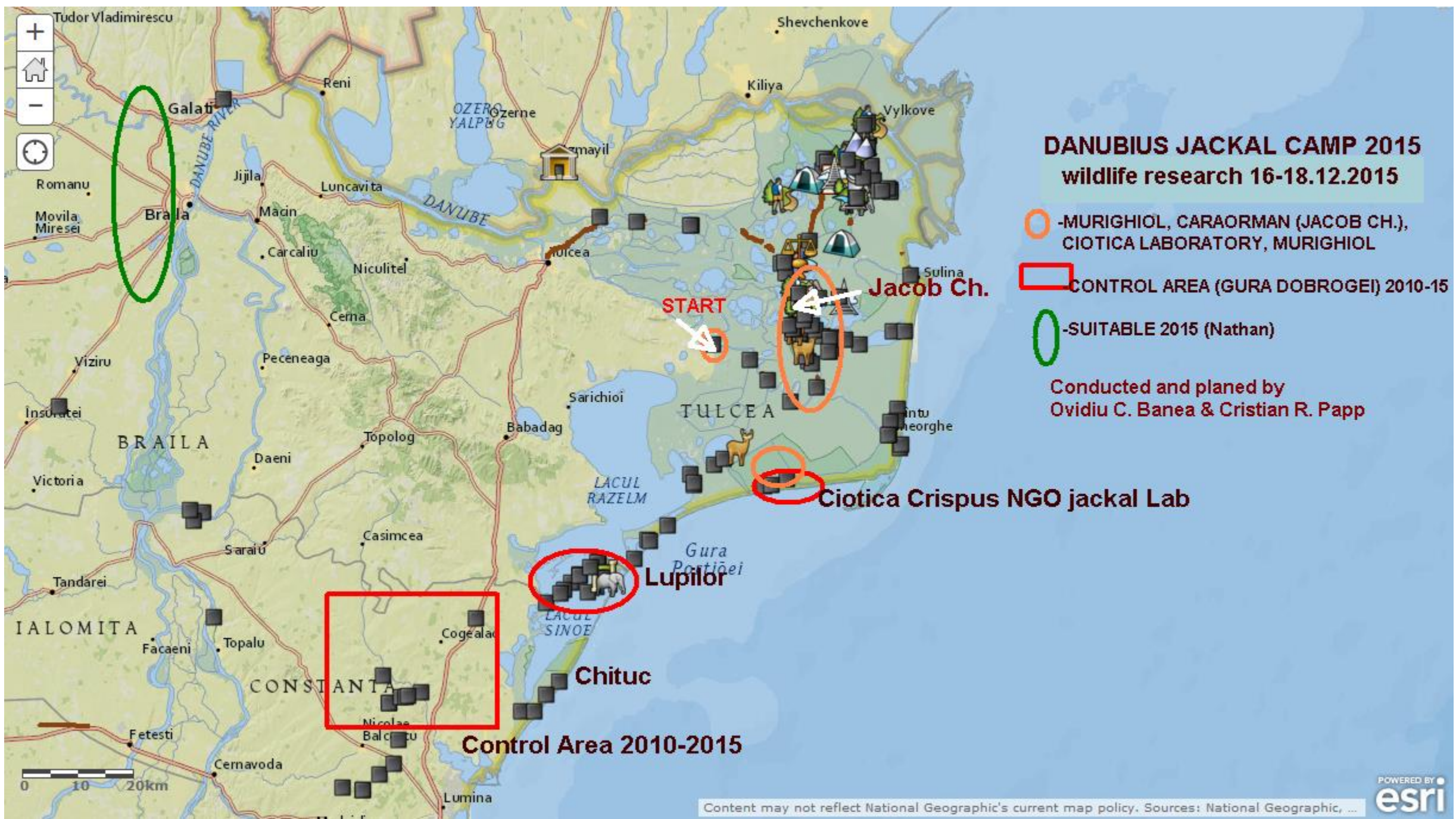


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
■ <i>Vulpes vulpes</i> SA		35095	36502	40070	38727	40651	41163	41896	40303	43899	42756	44306	44665	44268
■ <i>Canis aureus</i> SA	23513	26730	27084	28706	29063	32819	33401	36304	36075	39343	41345	44569	47242	47752
■ <i>Vulpes vulpes</i> HB			12292	16033	13798	16225	15360	19012		16561	11944	22639	21196	16063
■ <i>Canis aureus</i> HB	6282	10150	11649	14068	18734	21413	22029	27384	26570	17280	14938	29135	27954	20179

LOCAL DENSITIES 2021 and CONTROL AREA

Density derived from BAM was in 2021 between 0,7 in -3,3 territorial groups / 10 km².





DANUBIUS JACKAL CAMP 2015
wildlife research 16-18.12.2015

- -MURIGHIOL, CARAORMAN (JACOB CH.), CIOTICA LABORATORY, MURIGHIOL
- CONTROL AREA (GURA DOBROGEI) 2010-15
- -SUITABLE 2015 (Nathan)

Conducted and planed by
Ovidiu C. Banea & Cristian R. Papp

Jacob Ch.

START

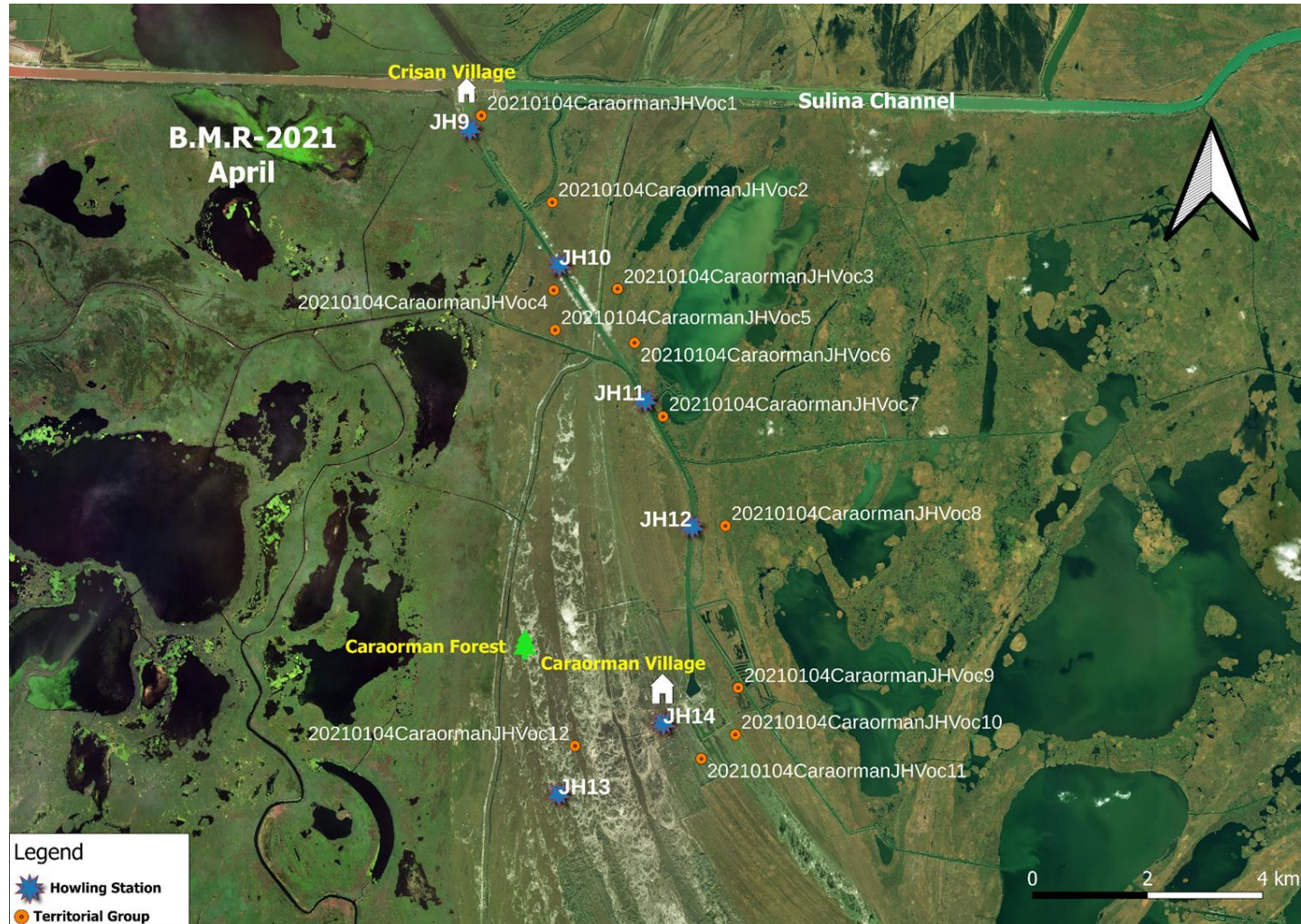
Ciotica Crispus NGO jackal Lab

Lupilor

Chituc

Control Area 2010-2015

April 2021



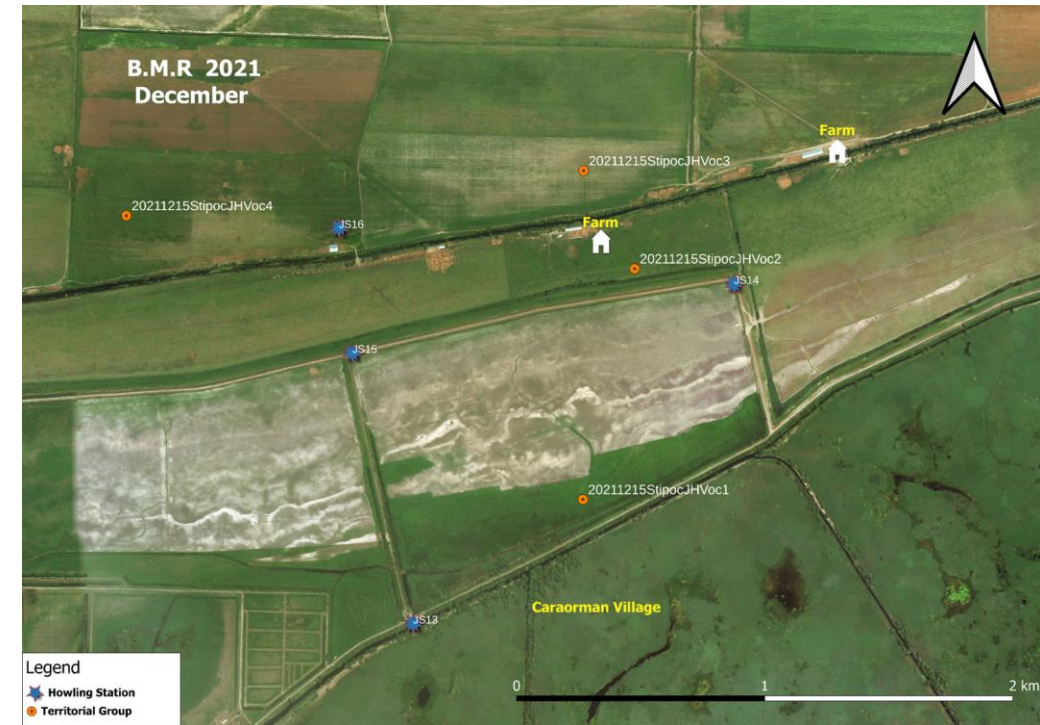
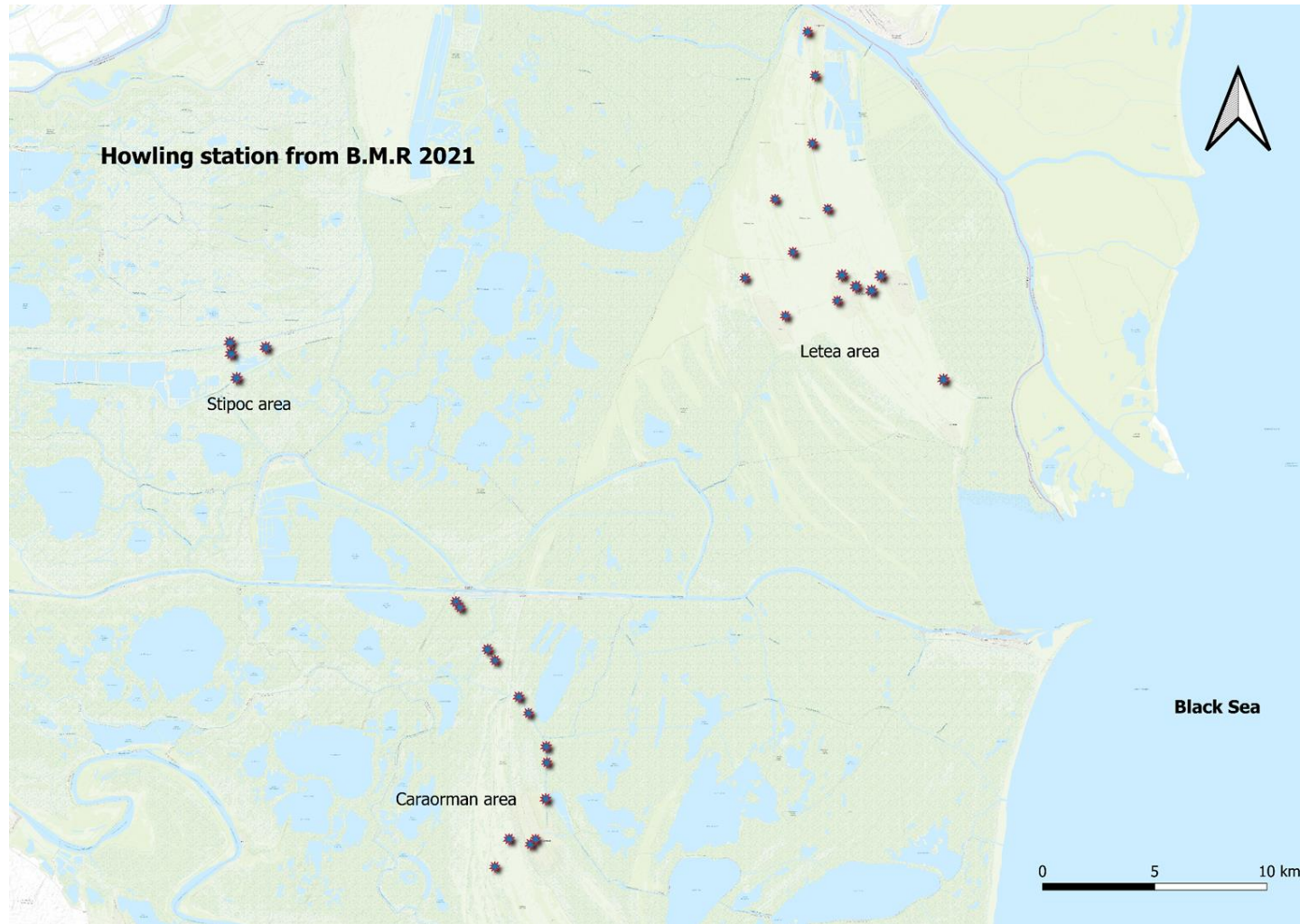
Hunting terrain Cheglevici
Dudestii Vechi Timis
1,6 TG / 10km²

Grindul Caraorman
3,3 TG / 10km²

Grindul Letea
1,9 TG / 10 km²

CONTROL AREA DOBROGEA
0.7 TG / 10 km²

December 2021



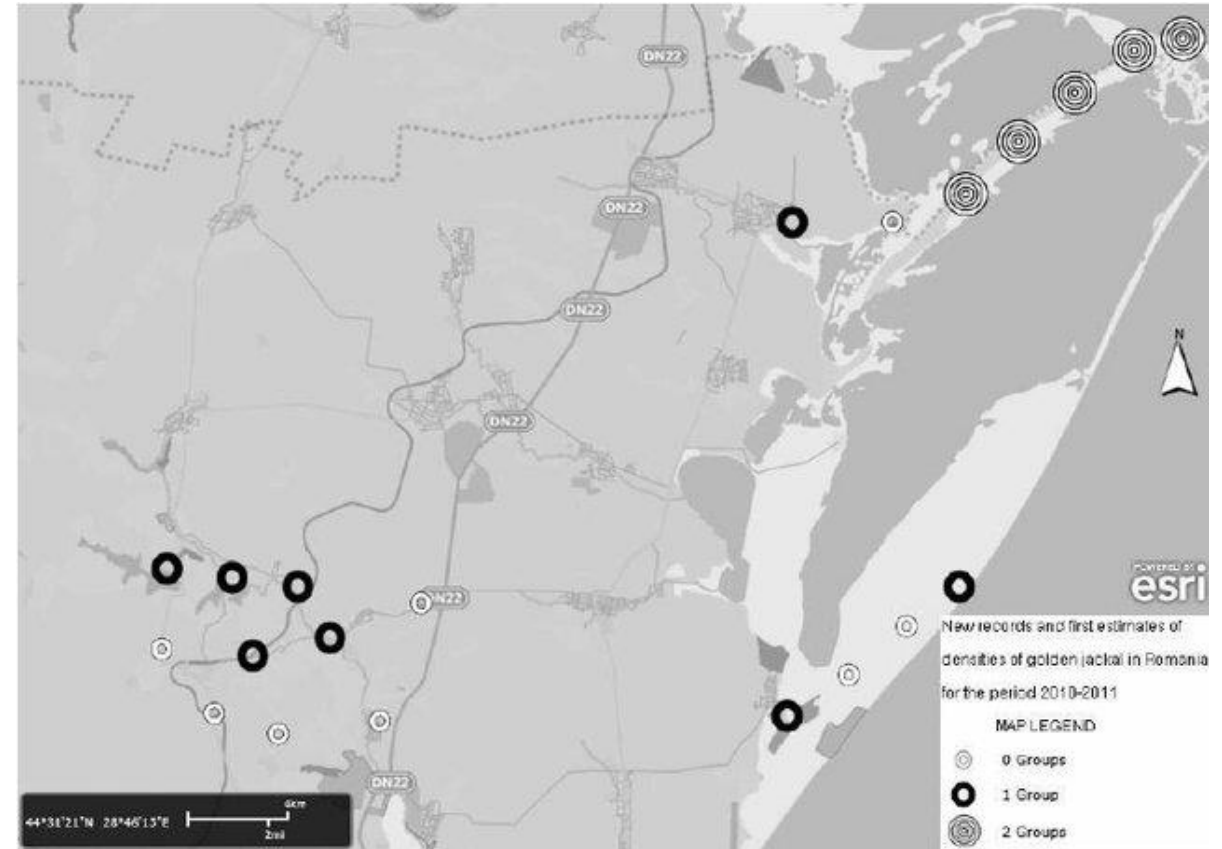
December 2021

GRIND maritim Caraorman: **0,49 TG / 10 km²** (1,47-2,45 ind / 1000 ha)

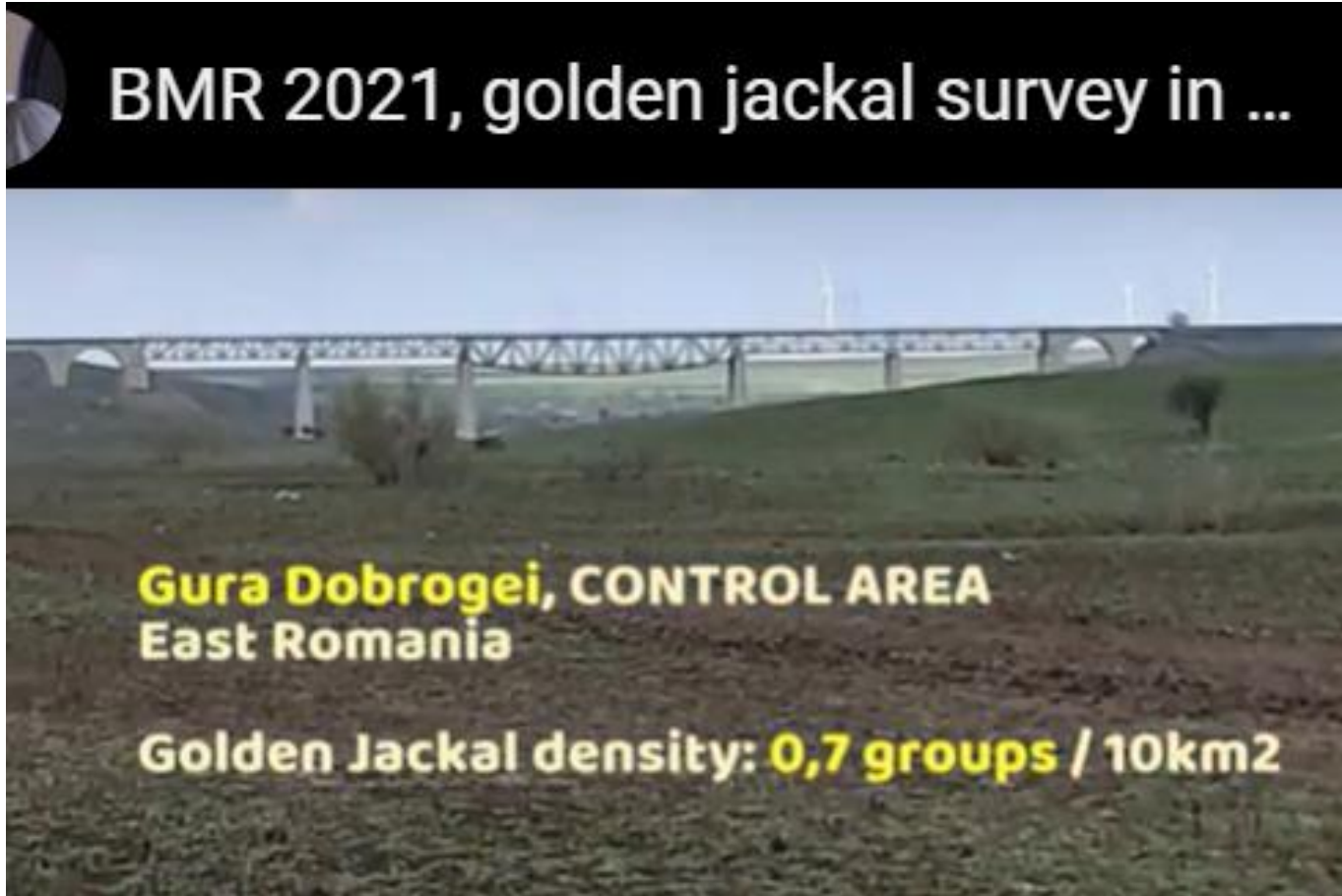
GRIND maritim Letea: **1,71 TG / 10 km²** (5,42-8,85 ind / 1000 ha)

GRIND continental Stipoc (partea estică): **3,18 TG / 10 km²** (9,55-15,92 ind / 1000 ha).

CONTROL AREA, WHY?



CONTROL AREA GURA DOBROGEI



14.000 Hectars = 140 km²

2011

0.52 territorial groups/10 km²

2021

0.7 territorial groups/10 km²

BioAcoustic Monitoring Romania 2021



BMR 2021

1) RED FOX STILL EXISTS IN DDBR

**2) Golden Jackal as cleaners
in the Danube Delta Biosphere Reserve**

Conclusion

- ❑ The process of golden jackal natural colonization in Romania is constant and shows increasing population from year to year with jackals being now removed from all 41 counties.
- ❑ Red fox population hunting bag started to decrease in the last two years.
- ❑ There are important differences between harvest quotas proposed by the Government and the realized numbers by GMU, the former ones overpassing 100% in many cases.
- ❑ Local density in hunting terrains and in the Danube Delta Biosphere Reserve show fluctuations in different years and the optimum densities are still found in the Danube Delta.

Thank you!

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Photo: Ovidiu C. Banea



Photo: Alexandra ion