

The Golden Jackal in Europe



San Donà di Piave, Venice, Italy,
2009. Photo M. Cappelletto.



Sistiana, Trieste, 2009, Italy. Photo
L. Lapini.



Romania, 2010. Photo O.
Banea.

Luca Lapini

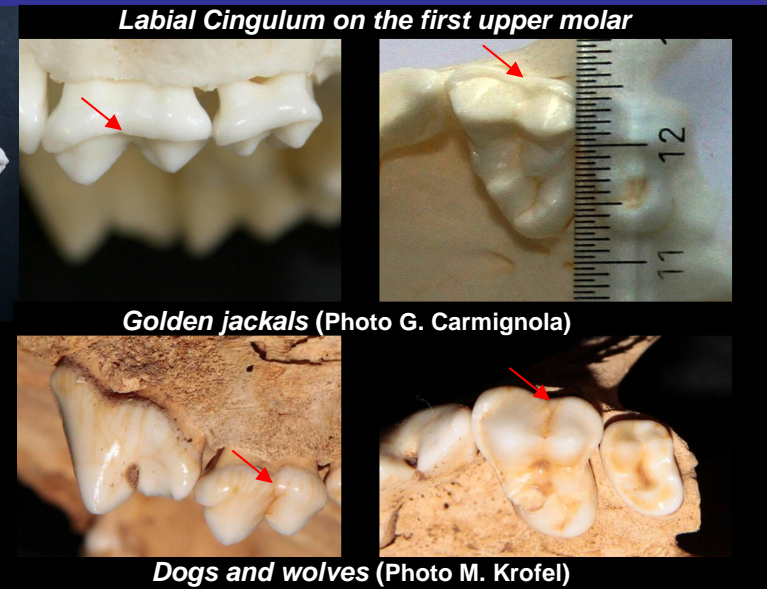
-Friulian Natural History Museum Udine, Italy-

(Communication presented to the Symposium "Wolf & co.", Nümbrecht, Germany, on October, 29th, 2011)

Canis aureus: physical description and diagnosis of the golden jackal



The most important characters are linked to cranial and teeth morphology

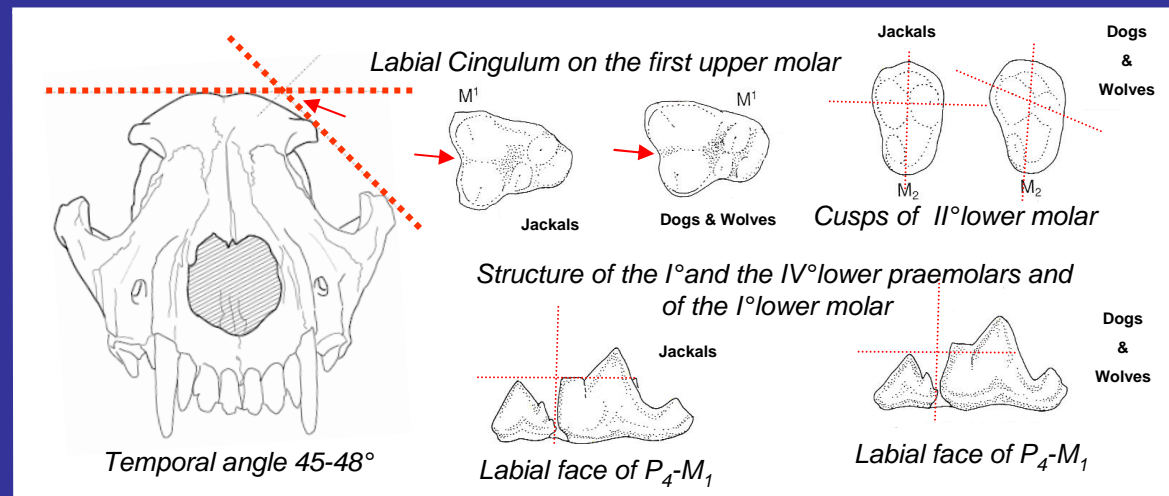


External features and pelt colouring



Sistiana, Trieste, Italy, 2009
(Photo L. Lapini)

Graphic synthesis of the cranial characters of the golden jackal



(Drawings by L. Lapini)

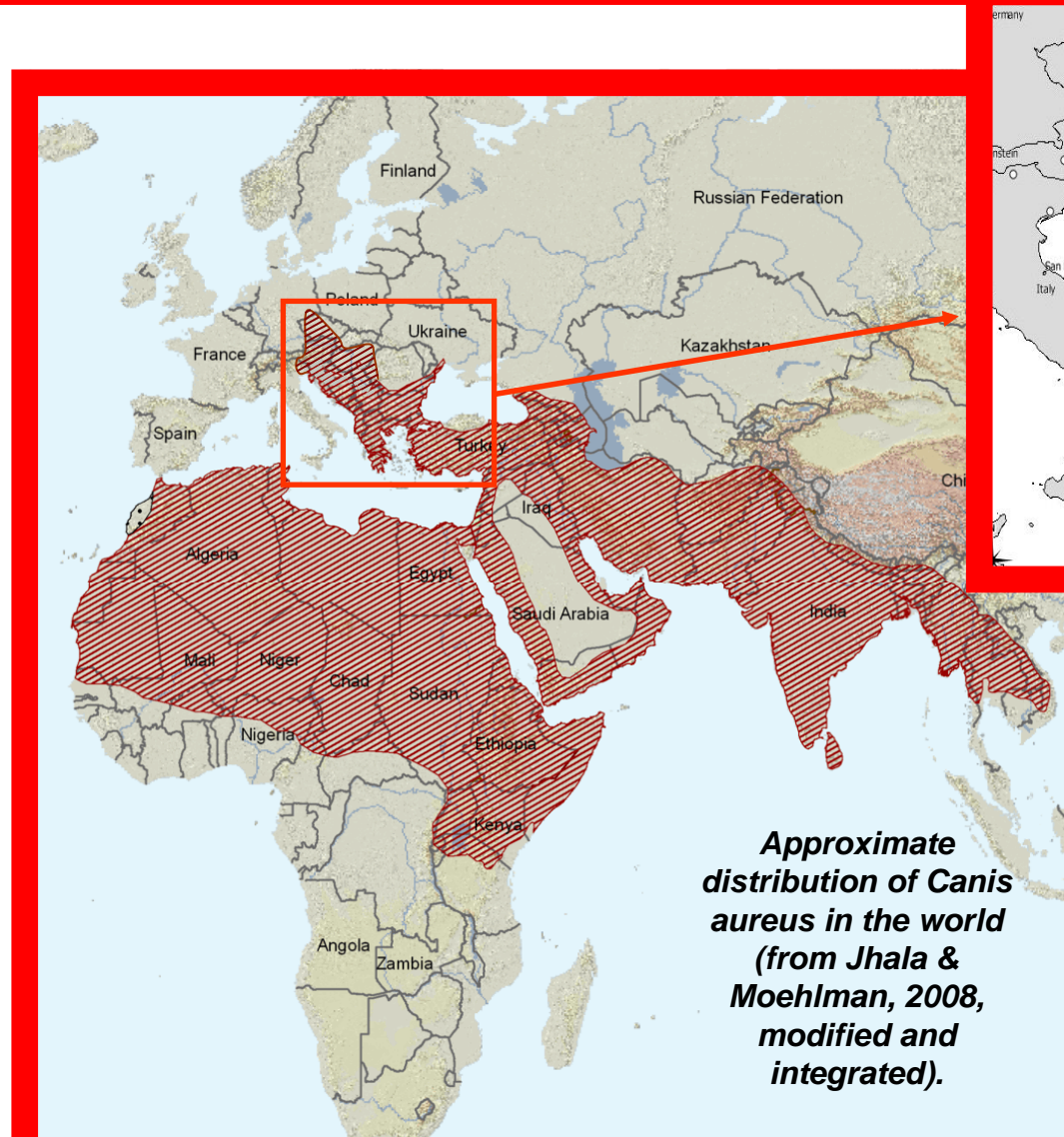
The European golden jackal in pills ...

- Family:** Canidae
- Genus:** *Canis*
- Species:** *aureus*
- Subspecies:** *moreoticus* (the biggest in the world)

- English name:** *European golden jackal, Greek jackal*

- Weight:** 10-16 kg, females are smaller
- Social structure:** *Familiar reproductive group, in south-eastern Europe mostly constituted by 5-7 specimens (mother, father, 3-5 cubs, sometimes one or two females helpers of previous generations)*
- Diet:** *Clear-cut preferences for small mammals, but omnivorous and generalist*
- Status:** *Autochthonous, with impressive trends to the expansion in Southern and Central Europe*
- Source countries for the present European expansion:** *Bulgaria, Romania, Hungary, Serbia, Croazia*
- Recently established reproductive populations:** *Italy, Slovenia, Austria (?)*
- Sink countries:** *Germany, Czech Republic, Slovakia, Moldova, Ukraine, Bosna-Hercegovina*
- Declining populations:** *Greece, Albania (?)*
- Current European population estimates:** *20.000-30.000 specimens*

Present Global distribution ...



... European distribution



*Present distribution of *Canis aureus* in Europe (Arnold et al., 2011). True reproductive populations (black areas) dwells only in some Europeans countries. The expansion to the North of the species (single dots) is not always followed by the creation of true populations. The current European situation of the jackal might be easily under-estimated because the species is very secretive.*

Golden jackal study methods

1-Collecting of information.



Road-killed specimens



Foto J. Lanski

3-Photo-trapping.



2-Play-back method.
(Bio-Acoustic methods)



Photo L. Lapini-D.Conte



Volpe rossa. 4 Marzo 2011

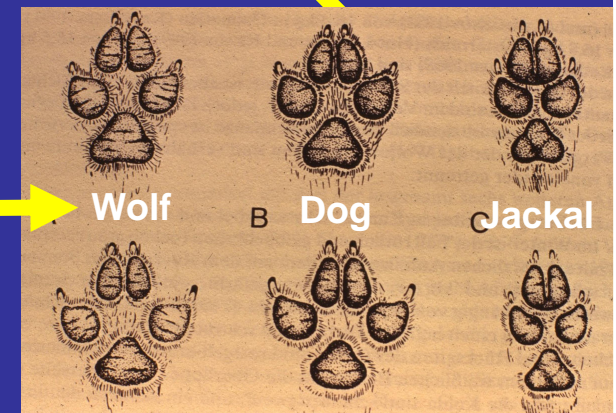


Lepre. 25 Febbraio 2011



Tasso. 23 Febbraio 2011

Foto-trappolaggio sulla comunità di vertebrati terrestri simpatici con lo sciacallo dorato (foto L. Lapini-D. Conte)



Wolf

B

Dog

Jackal

4-Tracks and genetics.

(Radio-Tracking ?)

A short analysis of the impressive expansion of the European Jackal.

- The European golden jackal dramatically declined in the first half of the XX Century, due to human persecution.
- In the same period also wolves, the principal competitors of the species, were nearly exterminated all over Europe.
- In the '60s the golden jackal was protected in **Bulgaria**, starting the first big expansion in an European population of jackal.
- At the same time the reduction of Balkan's wolves allowed a drastic increase of **Croatian** populations of golden jackals.
- In these last zones the **first** pulsation of the expansion happened in '50s, when some vagrants reached NW Slovenia. A **second** big European pulsation was recorded in '80s, a **third** in '2000s.
- The reasons of these cyclical trends to the expansion are not clear yet, but they are probably linked to the growth of the main European populations under heterogeneous human pressures.

An overview of the European situation



Doberdò del Lago, Gorizia, Italy, July 1997. Photo A Scarpa

A synthesis

Country	Status	Location within country	First reported appearance	Population trend
Albania	U	West coast†	Unknown	Unknown
Austria	ES	East	1987	Increase
Bosnia	U	Unknown	Unknown	Unknown
Bulgaria	ES	Nearly whole country	Autochthon	Increase
Croatia	ES	West (coast)	2007	Increase
Czech Republic	V	Southwest	2006	Increase
Germany	V	East	1996	Unknown
Greece	ES	Coastlines south and west	Unknown	Decrease
Hungary	ES	South, northeast and northwest	1980*	Increase
Italy	ES	Northwest	1985	Increase
Republic of Macedonia	U	Unknown	End of 1980s*	Unknown
Montenegro	U	Unknown	Unknown	Unknown
Romania	ES	South	1931	Increase
Serbia	ES	Northwest	1983*	Increase
Slovakia	V	Southwest	1989	Increase
Slovenia	ES	Northeast and northwest	1952	Increase
Turkey (European part)	ES	West	Unknown	Unknown
Ukraine	ES	South	1998	Increase

Status of golden jackal in European countries, classed as Vagrant animals (V)/Established population independent of population size but with confirmed reproducing animals (ES)/Unknown (U) (from Arnold et al., 2011)

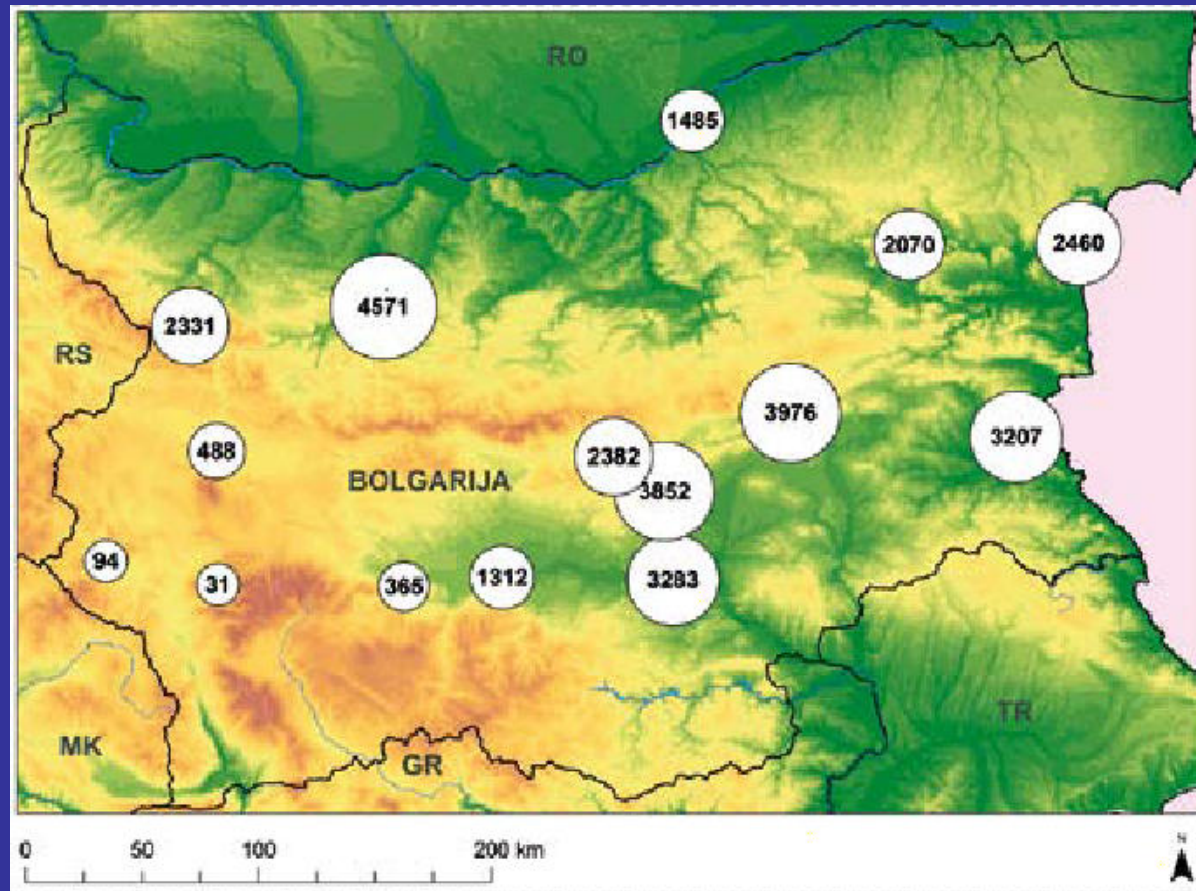
Source countries: Bulgaria



Recent distribution of golden jackal in Bulgaria (after Spassov 2007 with additions by authors, unpublished data). Shaded areas denote moderate to low density; crossed areas indicate high density, patches to the west show isolated population clusters. **(from Arnold et al., 2011)**

Source countries: Bulgaria

The distribution and range expansion of the Jackal in Bulgaria are reviewed by Pomakov (1981), Genov&Wassilev (1989) and Demeter & Spassov (1993). The jackal started its range expansion in south/eastern Bulgaria at the beginning of the 1970s. Pomakov (1981) explains this by (i) partial protection since 1962, (ii) increases in small game species and (iii) by the reduction or local extermination of the Wolf. (Krystufek et al, 1997). (from Banea, 2011)



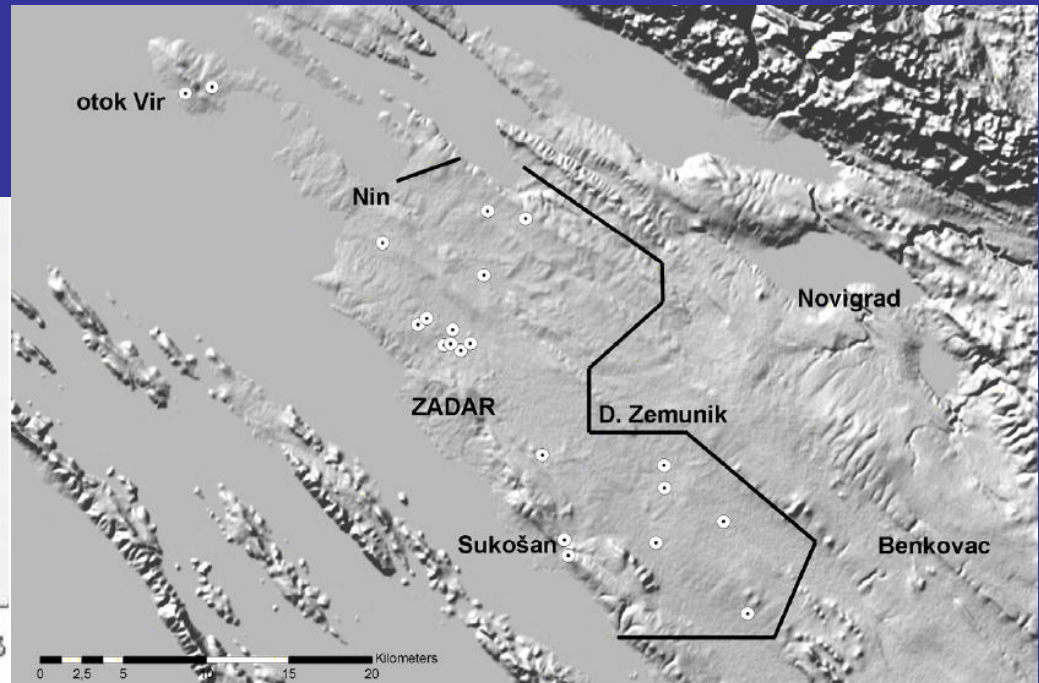
Golden jackal's numeric estimates in various Bulgarian hunting districts (2010: from Krystufek, 2011).

Source countries: Croatia

The presence of the golden jackal along Croatian coasts is well documented, particularly in Southern Dalmatia (see below). In the 80's has been colonized also NW Croatia (Istrian Peninsula) that is surely the main source for the colonization of both Slovenia and north eastern Italy.



Localities with documented presence of golden jackals on Peljesac Peninsula, Dalmatia (Krofel, 2007)



Locations of recorded jackal groups in Ravnikotari and on Vir Island (n=21), Dalmatia. Black line indicates the border of the area surveyed using acoustic method (Krofel, 2009).

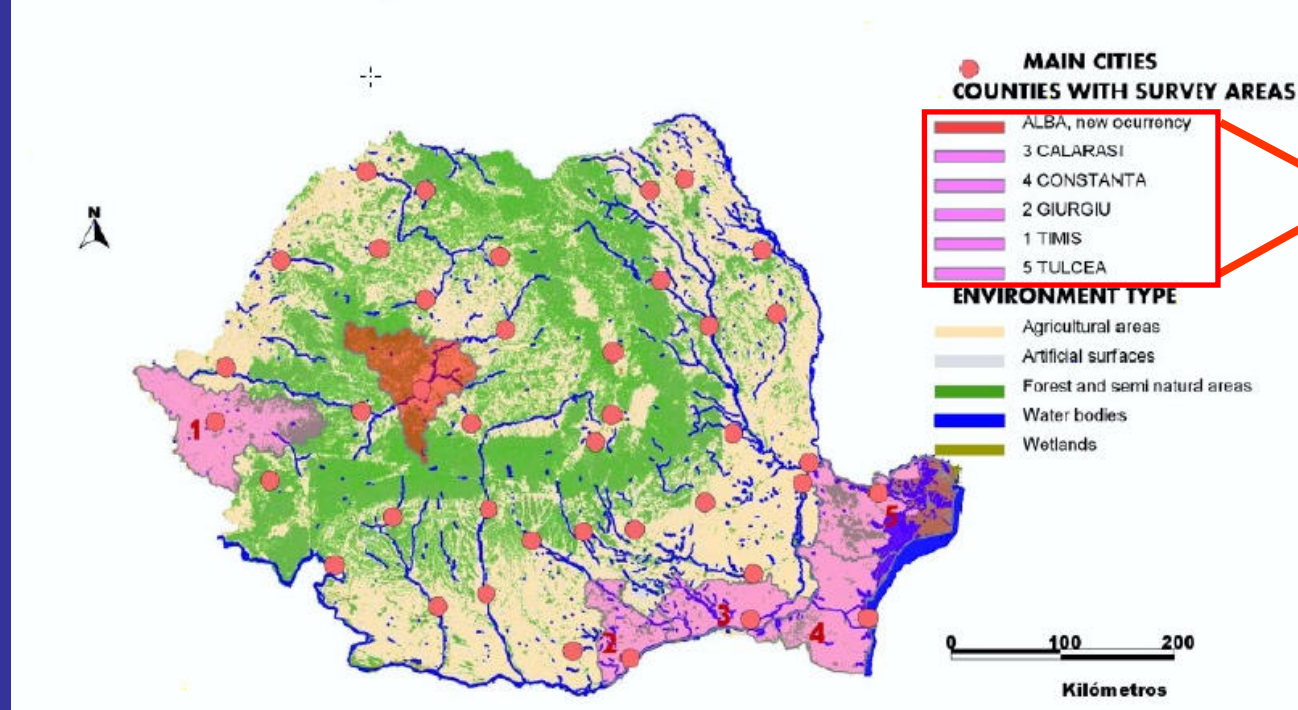
Source countries: Romania

The occurrence of the Jackal on the Walachian Plain (on the left bank of the Danube) was confirmed by Calinescu (1931), however, the status of the species in Romania has remained unclear for many years.

From the 1980s the golden jackal number increased, and now we know that in 2008, 1061 jackals were killed in different hunting sessions organized for other games. The population estimated in 2008 by the classical method was 2045. (from Banea, in press)

Counties with survey areas of golden jackal species in Romania Green Guard

Environmental Control Corp of the Youth NGO Sibiu



Romanian Counties where the presence of the golden jackal is surely ascertained

(from Banea, in press)

Source countries: Hungary

Extinct from the 50's of the XX Century, the golden jackal reappeared in Hungary in 1979, probably coming from Bulgaria.

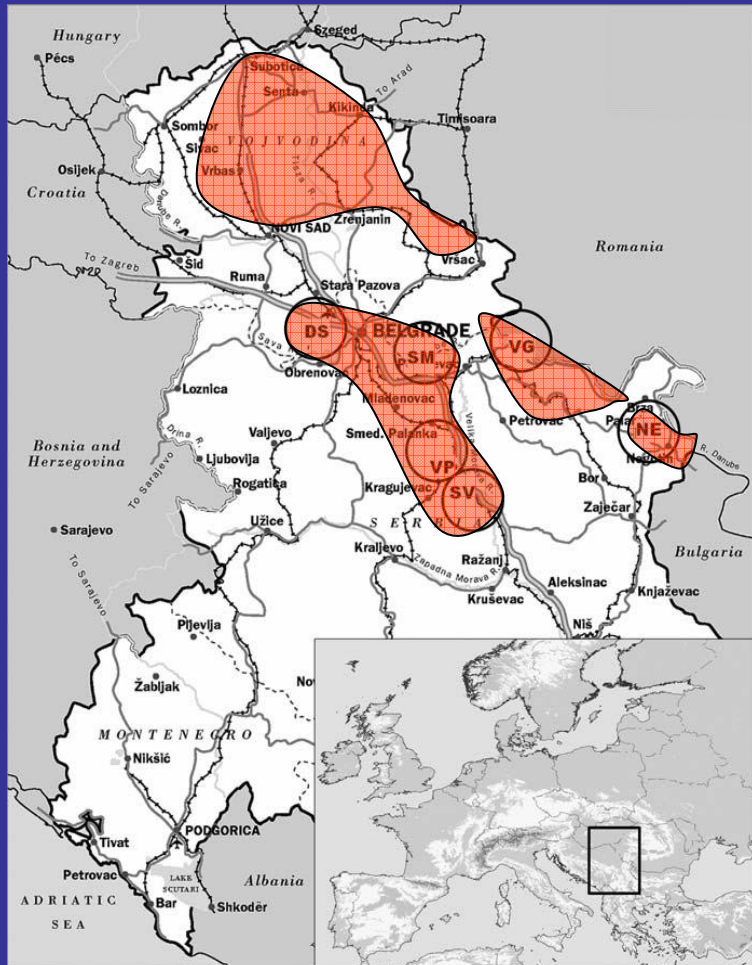
Its presence in Hungary became more common in 90's, showing a true invasive explosion in 2000's.

Years	Game bag data	Popul. estimates
1995	6	
1996	10	
1997	11	
1998	22	
1999	38	
2000	59	
2001	70	
2002	80	
2003	85	
2004	95	658
2005	140	926
2006	163	1510
2007	349	2075
2008	452	2763
2009	674	

Evolution of the Hungarian situation of the golden jackal in the period 1995-2009

(from Krystufek, 2011).

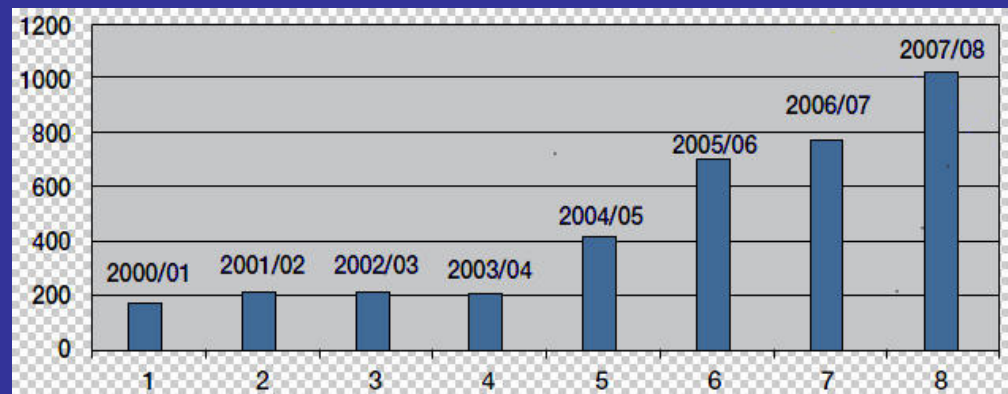
Source countries: Serbia



Approximate distribution of the golden jackal in Serbia.

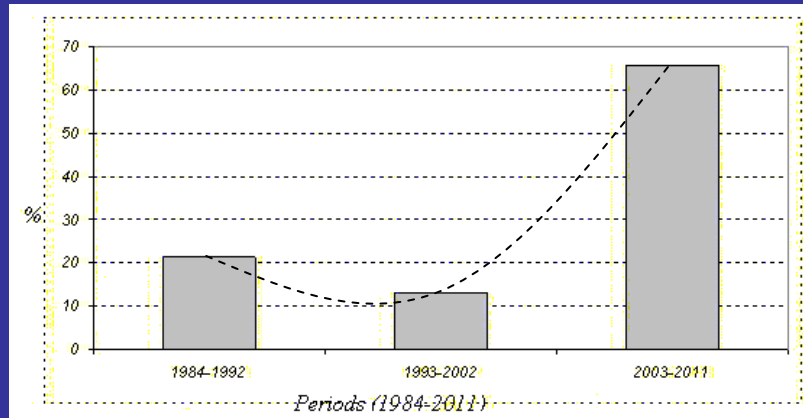
Sporadic or very rare in Serbia until the late 1970's, the golden jackal is now quite common in various areas, at present probably connected by low density populations (Zachos et al., 2009).

Serbian populations originates from Bulgarian ones and they are probably at the origin of the Hungarian population.



Evolution of the shooting records on the golden jackal in Serbia (from Krystufek, 2011).

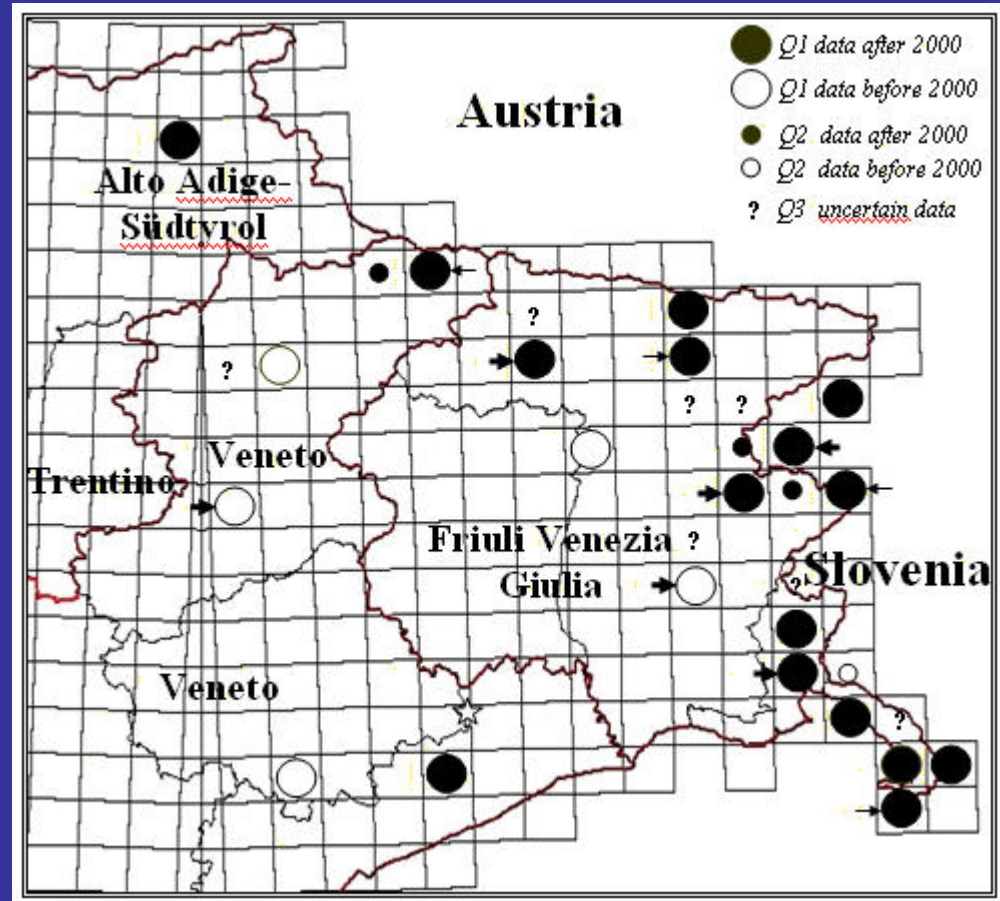
Recently established reproductive populations: Italy



Increase of the data on the golden jackal in Italy (1984-2011: Lapini et al., in press)



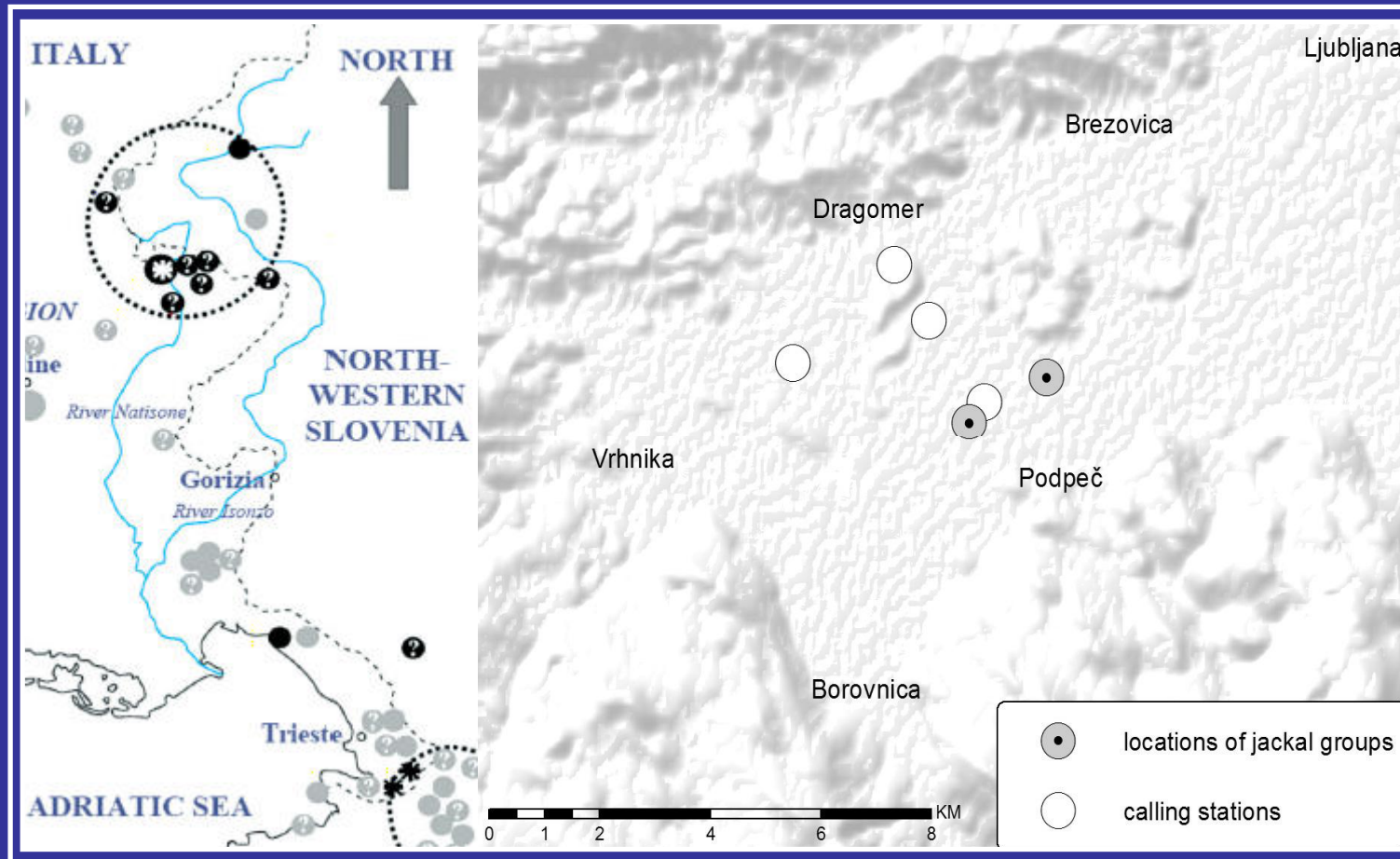
An Italian reproductive group (Udine Province, Photo D. Conte, from Lapini et al., in press)



Distribution of the golden jackal in Italy (from Lapini et al., in press).

Q1=Sure data; Q2=Good but not verified data;
Q3=Particularly uncertain data

Recently established reproductive populations: Slovenia



On left: Individuation of at least two reproductive groups shared with Italy in Western Slovenia (Lapini et al., 2009), located by means of photo-trapping and bio-acoustic methods.

On right: Individuation of two reproductive groups in the Ljubljansko Barje (Krofel, 2009), located by means of bio-acoustic methods.

Recently established reproductive populations: Austria (?)

Sporadically present in Austria from the late '80s of the XX century, the golden jackal occurs in this country mainly as vagrant (mostly sub-adult males).

The species, however, very recently has started to reproduce also in Austria (Herzig-Straschil, 2008).

A first reproductive group was checked in the Neusiedlersee park, probably coming from Hungary. In this zone were born at least three cubs, but at present it is not clear if their reproductive group still survives in the same locality.

It seems to be quite probable that the present Austrian situation might be under-estimated.



**Three young from Neusiedlersee Park
(From Herzig-Straschil, 2008)**

Sink countries: Germany

Möckel (2000) reported the first evidence of golden jackals in Germany.

A male golden jackal had been confirmed in southern Brandenburg from 1996, until it was shot in 1998.

There are no further confirmed records of golden jackal from Germany (Arnold et al., 2011).

Sink countries: Czeck Republic

An adult male of the golden jackal (*Canis aureus*) was found dead close to the road near Podolí (Uherské Hradiště District, southern Moravia) on 19 March 2006. The species determination was confirmed by the presence of characteristic morphological and craniological traits (length of tail, connate balls of medial fingers on forelimbs, the shape of orbital protuberances, etc.). Detailed photographs of the finding are available. This has been the first documented record of the golden jackal in the Czech Republic.

Based on the location of records of the golden jackal in Austria and Slovakia (near the border with the Czech Republic), occurrence of this species in the Czech Republic has been considered very likely and it was only a matter of time before it would be confirmed (ČERVENÝ et. al. 2006). **(from Banea, in press)**



A dead adult male of golden jackal (*Canis aureus*) from Podolí, southern Moravia; photo by J.NOVOTNÝ.
(Petr KOUBEK1 & Jaroslav ČERVENÝ, 2007)

Sink countries: Slovakia

Four jackals were shot between 1989 and 2001, near Cierna, near Tisou and Lucenec, not far from the Hungarian border.

In 2008, there were unconfirmed sightings from Banska Bystrica. If these can be confirmed, they are the first jackal records from central Slovakia (Arnold et al., 2011).

Sink countries: Moldova

In 2010, the golden jackal was not regarded as part of the Moldavian carnivore fauna (Munteanu & Lozanu 2004).

However, as the population in Romania is spreading it can be expected that vagrant animals will appear in near future.

Sink countries: Ukraine

There have been reports of golden jackals in southern Ukraine (Rozhenko & Volokh 2000). In 2010, approximately 70 jackals roamed in the Odessa region.

Recent accounts suggest that jackals occur up to the reserve

Biletskiy Plavni (Poltava region, Ruzhilenko 2008) (Arnold et al., 2011).

Sink countries: Bosna-Herzegovina

Data on the Bosnian situation are very poor and fragmentary.

The country seems to be frequented only by vagrants, but the situation might be easily under-estimated.

Declining populations: Greece

Greece, one of the region's strongholds for the species, experienced large-scale population declines in the last 30 years. Causes of decline are related to the limited habitat availability due to changes of human agro-pastoral activities during the past 25–30 years in lowland Greece, which resulted mainly in reduced day-cover availability and probably to a reduced food base (Giannatos 2004). (from Banea, in press)

Jackal distribution in the '70s



Jackal distribution in 2004



Distribution of the golden jackal at the end of 20th century, 70's years (left) and 2004 (right), Greece (Giannatos et al, 2004)

Declining populations: Albania

Data on the Albanian situation are very poor.

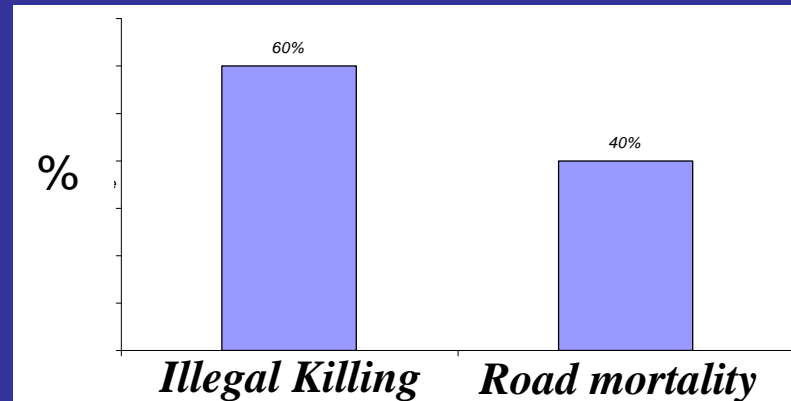
The current opinion indicates a crash down of the local population.

The population seems to be declining, but still present along the West coasts of the country.

What problems for the jackal in Europe?

Poaching. Road mortality.

An example: Mortality of the golden jackal in Italy (1984-2011).



Doberdò del Lago (Gorizia), Italy, 1994.



Sistiana (Trieste), Italy, 2009.

What problems for the jackal in Europe?

Fox hunting.



Fox hunting (photo on left) is surely the main problem for the golden jackal conservation all over Europe.

This is due to frequent mistakes during the culling-operations directed to the foxes

(From Lapini, 2009-2010).

What problems for the jackal in Europe?

Game Management.

- In all the European countries where there are great populations of golden jackal the species is actively managed.
- In these countries it is very important to maintain a level of game management compatible with the conservation of the species.

On right: 10 foxes and 10 jackals hunted in Serbia, during routinary game hunting operations

(Photo D. Cirovic, from Krystufek, 2011)



The “Golden Jackal Group Europe” (GOJAGE)

- Has recently born an European Jackal Study Group, named GOJAGE.
It has primarily coordination finalities between researchers, but also public-awareness purposes, that in many new colonized European countries are very important for the conservation of the species.
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