The Past

the Present

and the Future

of

Golden Jackal in Hungary

László Szabó, Miklós Heltai, József Lanszki
What is it?

A "Sacred" animal, or a "feared" Predator, or ...?
Introduction

• The golden jackal became extinct in Hungary and the most part of the Balkans and Central Europe by the middle of the 20th century.

• Settled down again in the southern region of Hungary in the nineties.

• The southern and eastern parts of the Balkan Peninsula seem to hold the largest populations of jackals.

• Greece, one of the region’s strongholds for the species, experienced a large-scale population decline in the last 3 decades.
The current distribution of the Golden Jackal and the possible directions of further spreading

Questions

– What were the earlier occurrences of the golden jackal in Hungary like?

– What factors help its intensive spreading?

– Unlimited spreading? What is the limiting factor?

– Is there any impact on wildlife?

– What can be expected in the future?
Materials and Methods

- Studied the available and dominant food resources
  - small mammal trapping (2001 - 2004)
- Diet composition (fox - jackal)
  - scat – collecting and analysis (1997 - 2009)
- Studied the directions of spreading
  - mail questionnaire survey (1997 - 2006)
  - hunting bag data
  - collected proof specimen (2000 - 2009)
- Post mortem examination (2000 - 2009)
  - body measurements (fox - jackal)
  - reproduction (placental scar)
The occurrences of the Golden Jackal between 1800 and 1920

- golden jackal ○ - probably jackal □ - questionable

The occurrences of the Golden Jackal between 1920 and 1945

- golden jackal  ○ - probably jackal  □ - questionable

The occurrences of the Golden Jackal between 1945 and 1995

- golden jackal ○ - probably jackal □ - questionable

Hunting bag data
(source: Game Management Database, Gödöllő)

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<tbody>
<tr>
<td>Transdanubia</td>
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<td>East from river Danube</td>
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- Transdanubia: $R^2 = 0.93$
- East from river Danube: $R^2 = 0.91$
Acoustic survey...
Density

- The most answers: uncultivated lands, woodlands, bushy areas, cultivated lands

- Stable population against fluctuation

- *Highest estimated density: 13.6 sp / 1000 ha in Hungary (Hajós-Szentgyörgy 2005 autumn)*

Habitats

Rivers' vallies as green corridors for jackals

## Body size

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<thead>
<tr>
<th></th>
<th>Jackal</th>
<th>Fox</th>
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<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Body weight (kg)</td>
<td>11.7±1.5</td>
<td>10.2±1.4</td>
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<td>(n=19)</td>
<td>(n=14)</td>
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<tr>
<td>Body length (cm)</td>
<td>84.8±8.0</td>
<td>79.0±3.8</td>
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<tr>
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<td>(n=17)</td>
<td>(n=12)</td>
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<tr>
<td>Tail length (cm)</td>
<td>23.9±3.3</td>
<td>24.0±3.3</td>
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<td>(n=16)</td>
<td>(n=12)</td>
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<tr>
<td>Leg length (cm)</td>
<td>43.3±2.7</td>
<td>41.8±3.1</td>
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<td>(n=16)</td>
<td>(n=10)</td>
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Basic data of reproduction

- Placental scar examination:
  - Fox \( x: 4.9 \)
  - Jackal \( x: 5.75 \)

- Reproductive females
  - 67% \( n = 438 \)
  - 29% \( n = 14 \)

- More inactive jackal females (than inactive fox females) \( \rightarrow \) alpha female


IF: 1.119
# Feeding habits

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<tr>
<th>Food</th>
<th>Jackal</th>
<th>Fox</th>
<th>Δ</th>
<th>P</th>
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<tbody>
<tr>
<td></td>
<td>77,2</td>
<td>68,1</td>
<td>9,1</td>
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<td>1,4</td>
<td>2,7</td>
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<td>0,1</td>
<td>0,5</td>
<td>-0,4</td>
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<td>5,6</td>
<td>18,2</td>
<td>-12,6</td>
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</tbody>
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Feeding Habits

Generalist, adapting to local abundance of food resources

- Birds: 36%
- Domestic animal: 37%
- Plant materials: 6%
- Ungulates: 6%
- Small mammals: 6%
- Predator: 3%
- R, A, F: 1%
- Hare: 4%
- Invertebrates: 1%

Questions and Answers

– What were the earlier occurrences of the golden jackal in Hungary?
  • Sporadic occurrences

– Is there any impact on wildlife?
  • Eating small mammals, but...

– What factors help its intensive spreading?
  • No competitors; stronger than the red fox, better reproduction strategy; habitat and food generalist

– Unlimited spreading? What is the limiting factor?
  • Habitat without hiding place – intensive agricultural areas

– What can be expected in the future?
  • Common predator species with countrywide occurrence