

Preliminary determinants of (long distance) dispersal behaviour in Golden jackal

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NATURAL HISTORY TRAITS

Sexual maturity	> 11 months
Time to independency	after 75 days
Gestation	63 days
Litter size	2 - 8
Number of litters/y	monoestric
Birth period	late March- April
Body mass	10 - 16 kg

- Food generalist
- Adaptable to human presence
- Good runner, swimmer
- Swift expansion, dispersal of young animals

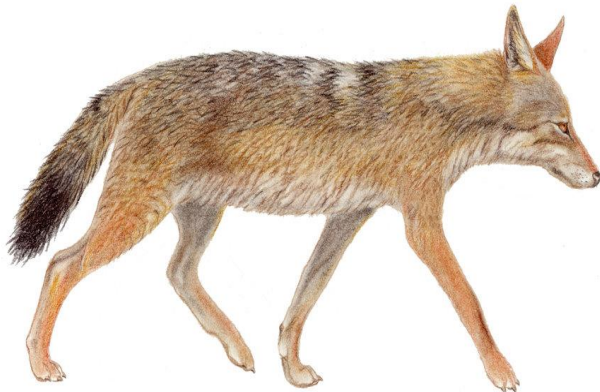


Foto: Tarman J.

• HABITAT GENERALIST

• Semi-opened:

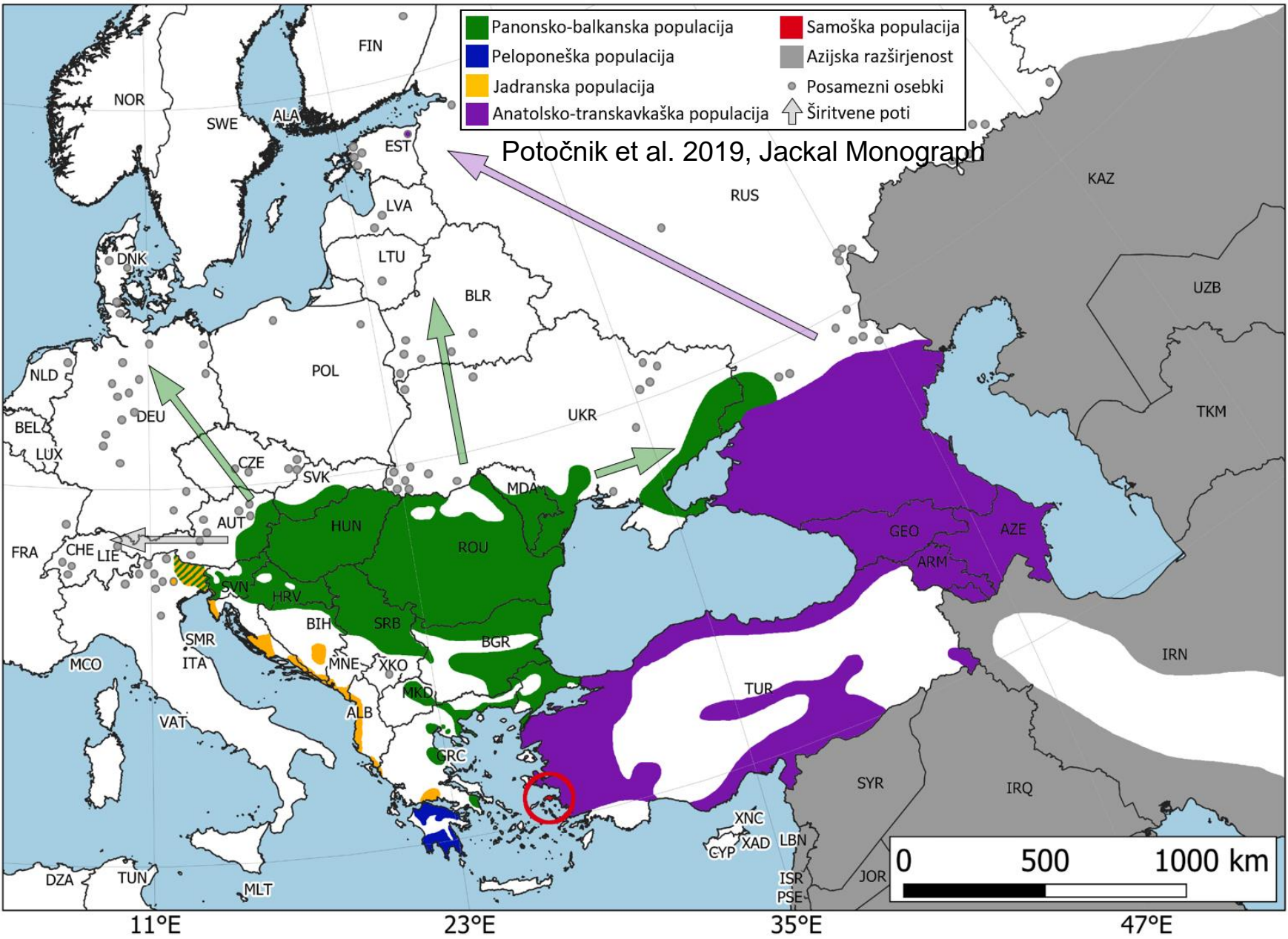
- savanas (Asia, Middle East),
- Mediterranean costal, shrubby vegetation
- Temperate shrublands
- Wetlands (bogs, marshes,peatlands...)
- mangroves (Indija, Bangladeš),
- Fragmented or new growing temperate broadleaved/mixed forests



• Human dominated landscapes:

- **Mosaic of agricultural landscapes.**
- Semi-urban habitats





New frontlines...



December, 2021,
Montemurlo,
Tuscany (Italy)

Italy24 News, GOJAGE Blog





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Montemurlo,
Tuscany (Italy)

Italy24 News, GOJAGE Blog

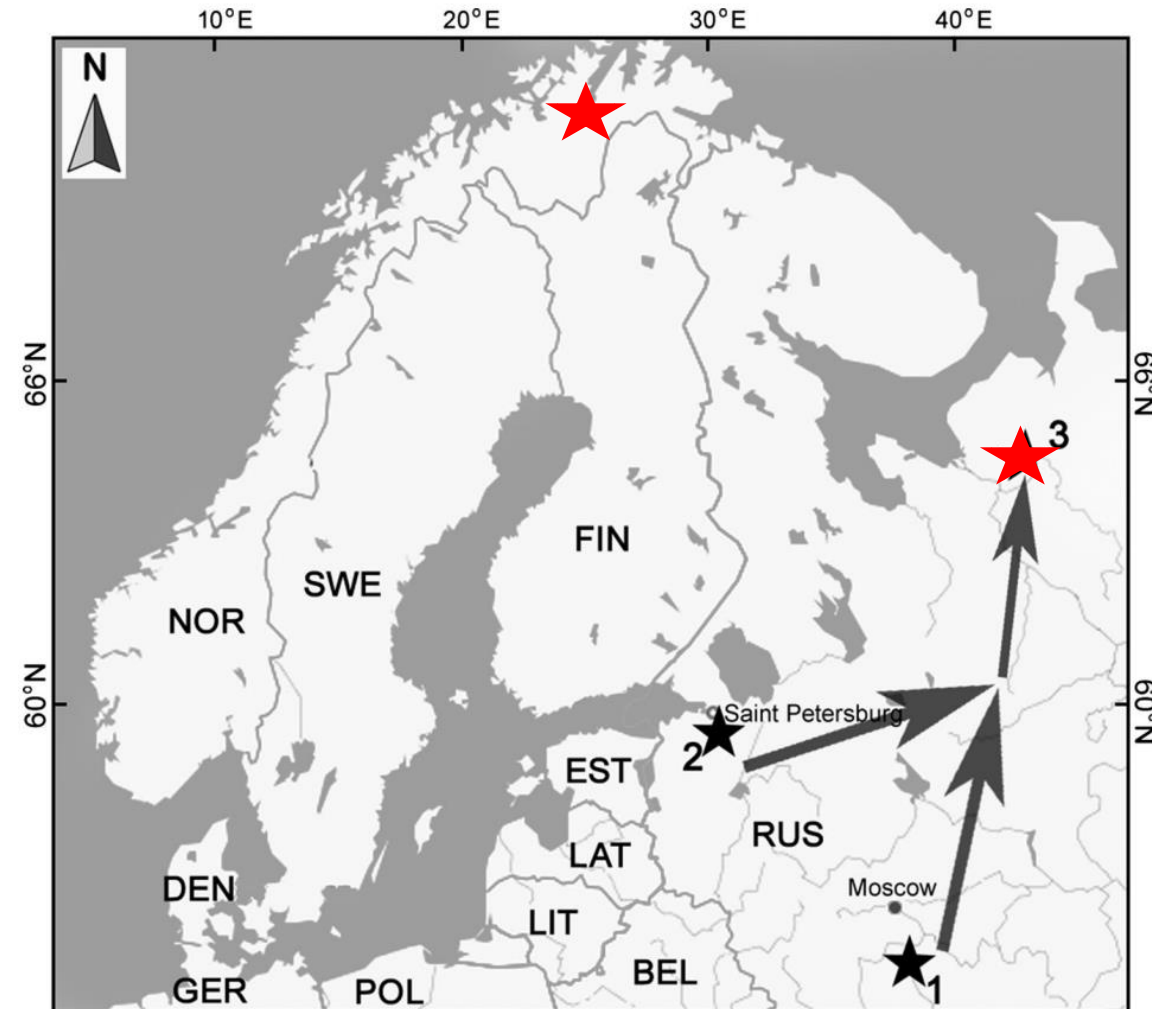
(13.03. 2021) Dolomiti (Italy), Val Gardena
monte Seceda (at 2300 m a.s.l.)

Data and photo: Davide Rihetti



(Sub)arctic range

Troms og Finnmark, (Norway) Lakselv
 (70°04'03" N) 14. 7. 2020 (NRK news, Ree 2021;
 Sørensen & Lindsø 2021)



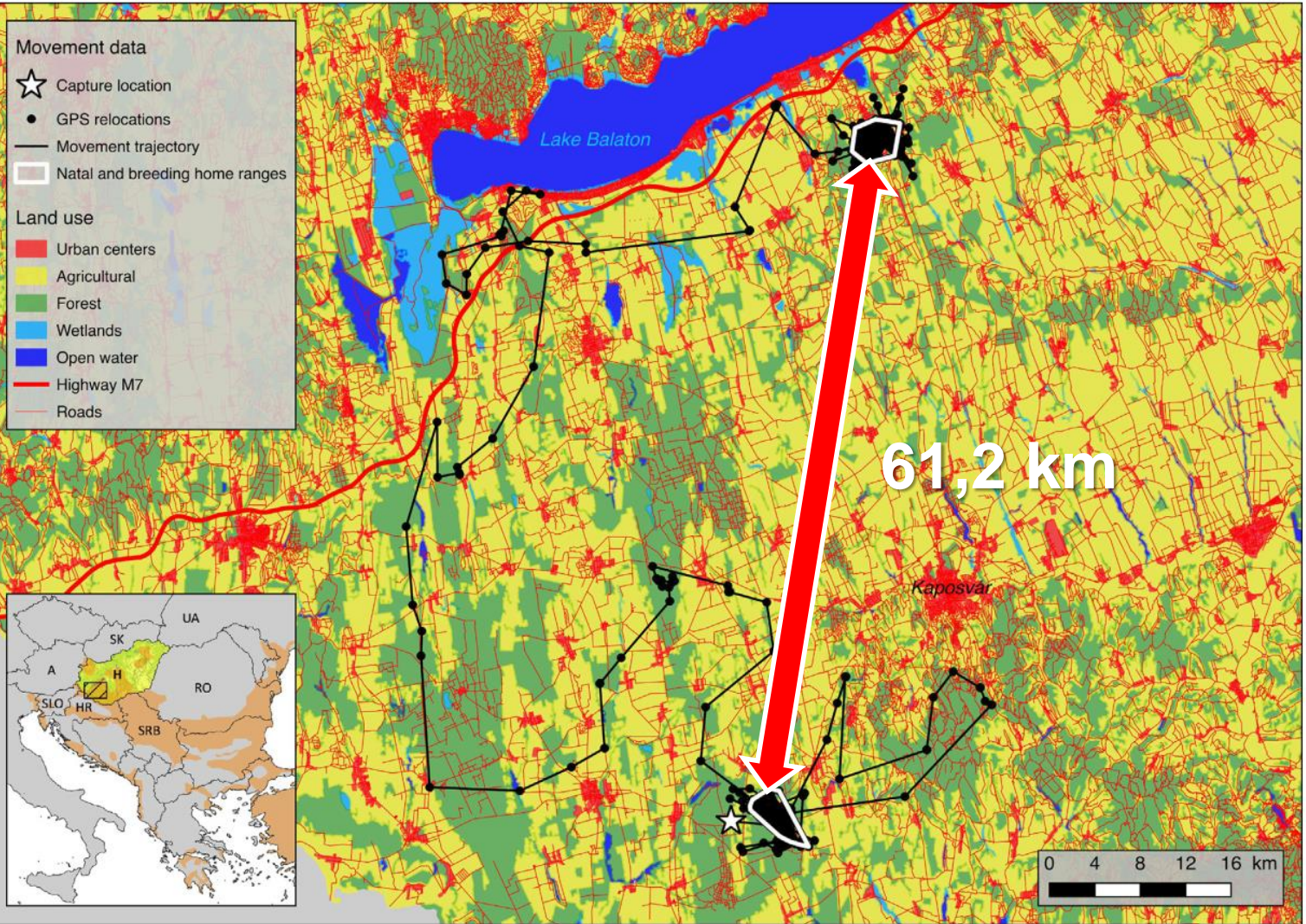
Arkhangelsk Region (Russia),
 Tsimola Village
 (64°40'20" N) 24. 2. 2021

Rykov et al. Polar Biol. 2022



First telemetry evidence

Lanszki et al. Mammalian Biol. 2018



Minimum cumulative distance: 223,7 km



Study sites



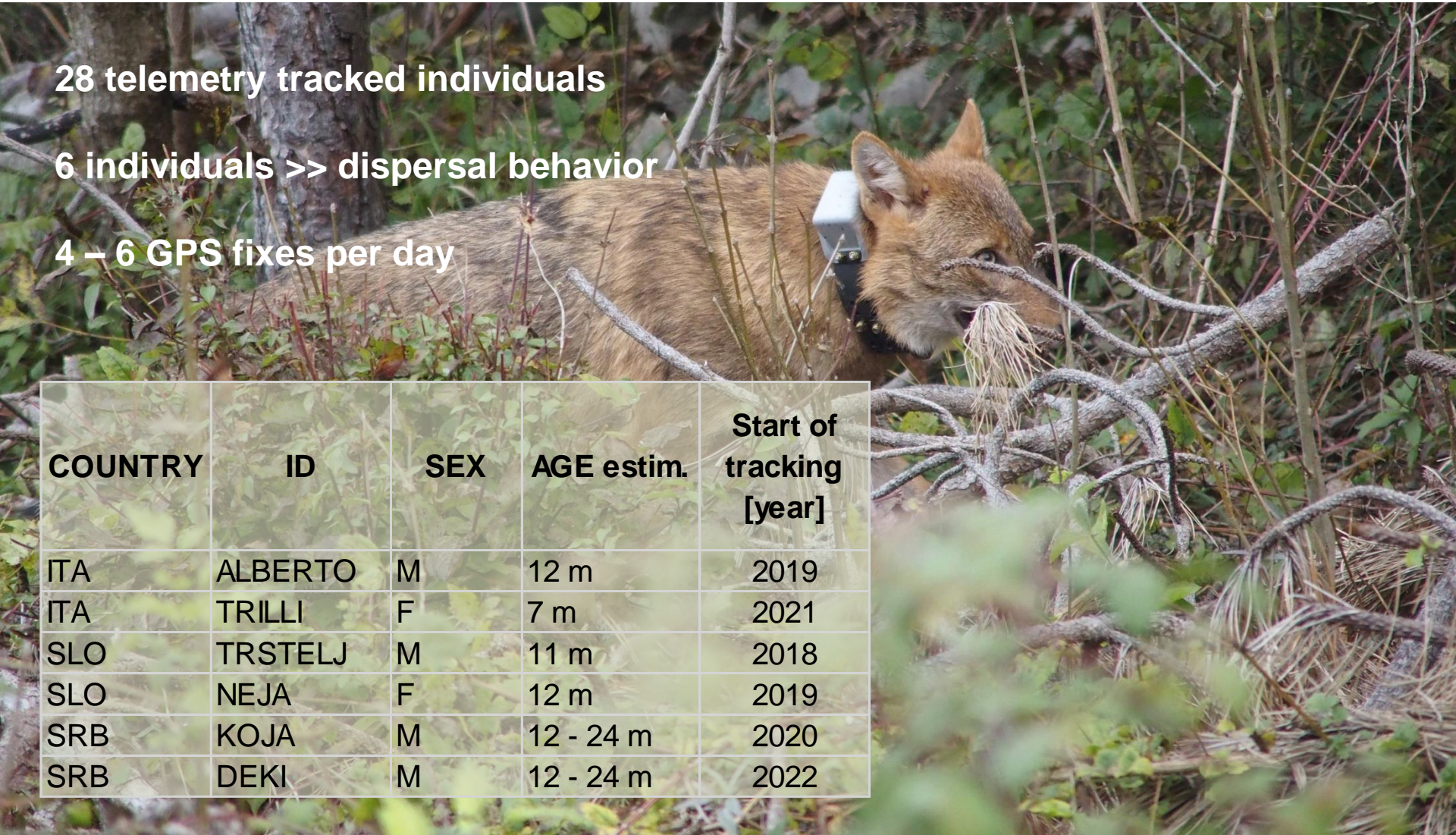
GPS-telemetry tracked individuals

28 telemetry tracked individuals

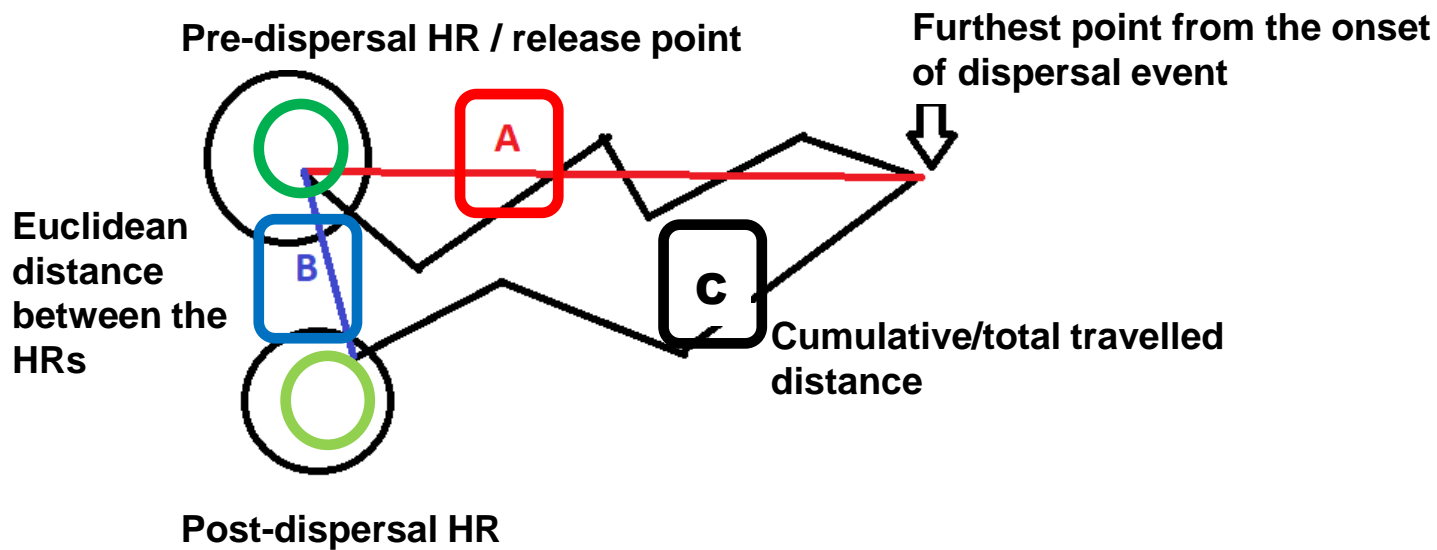
6 individuals >> dispersal behavior

4 – 6 GPS fixes per day

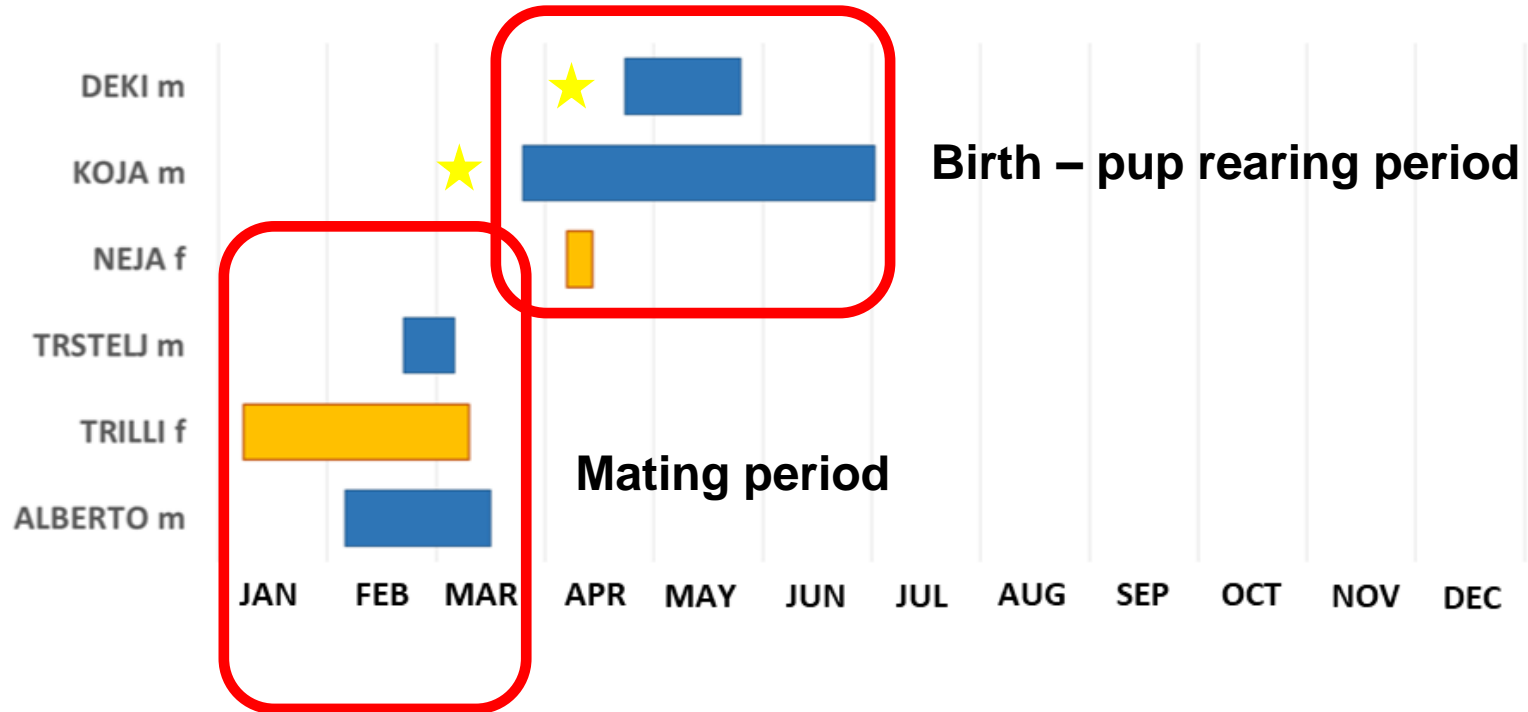
COUNTRY	ID	SEX	AGE estim.	Start of tracking [year]
ITA	ALBERTO	M	12 m	2019
ITA	TRILLI	F	7 m	2021
SLO	TRSTELJ	M	11 m	2018
SLO	NEJA	F	12 m	2019
SRB	KOJA	M	12 - 24 m	2020
SRB	DEKI	M	12 - 24 m	2022



Dispersal route measures



Dispersal period



Dispersal routes

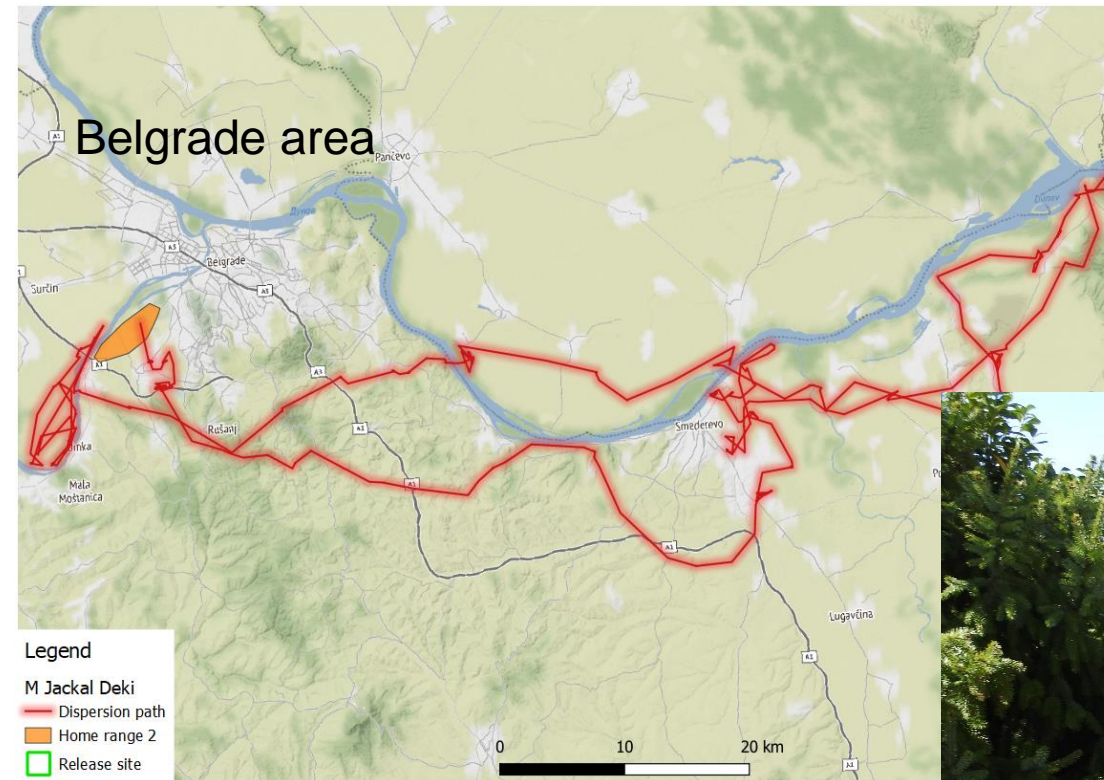
Male jackal Deki

Duration: 62 days

Total travelled: 438,5 km

HR's Euclidean dist: 6,5 km

Max distance: 82,6 km



Dispersal routes

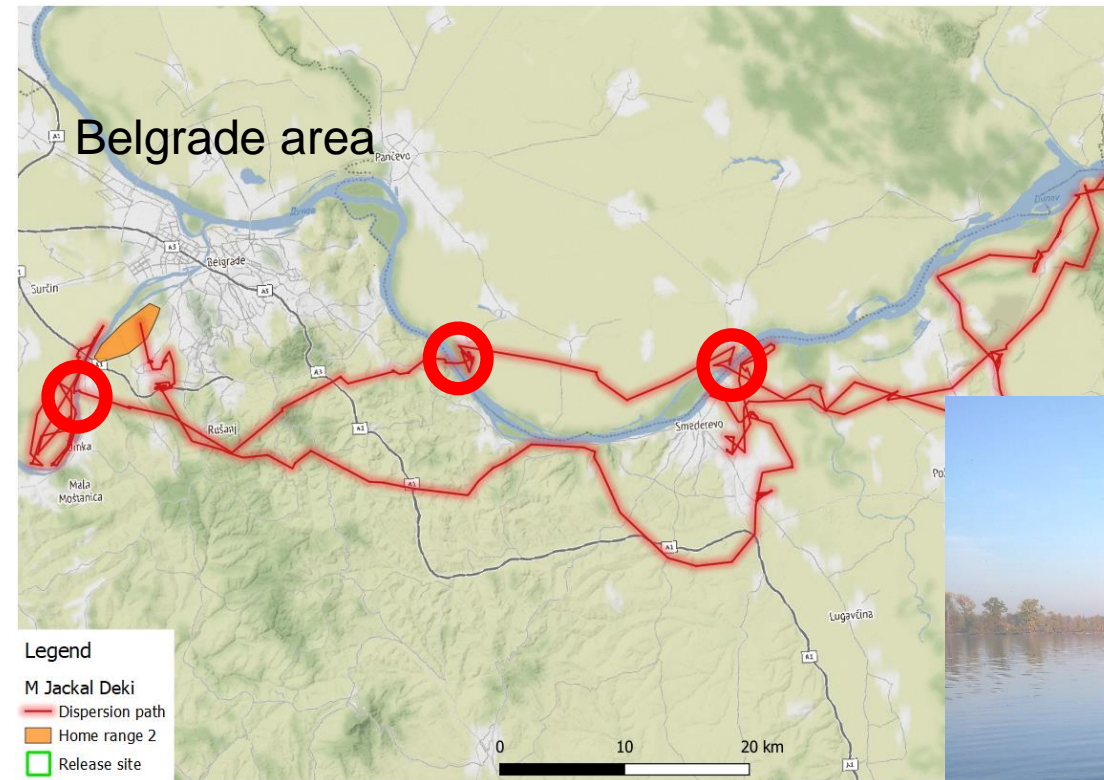
Male jackal Deki

Duration: 62 days

Total travelled: 438,5 km

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Max distance: 82,6 km



Crossing Sava river \approx 300 m width (1x),
Danube river \approx 600 m width (2x)

50+ highway crossings!

Dispersal routes

Male jackal Koja

Duration: 97 days

Total travelled: 627,8 km

HR's Euclidean dist: 7,4 km

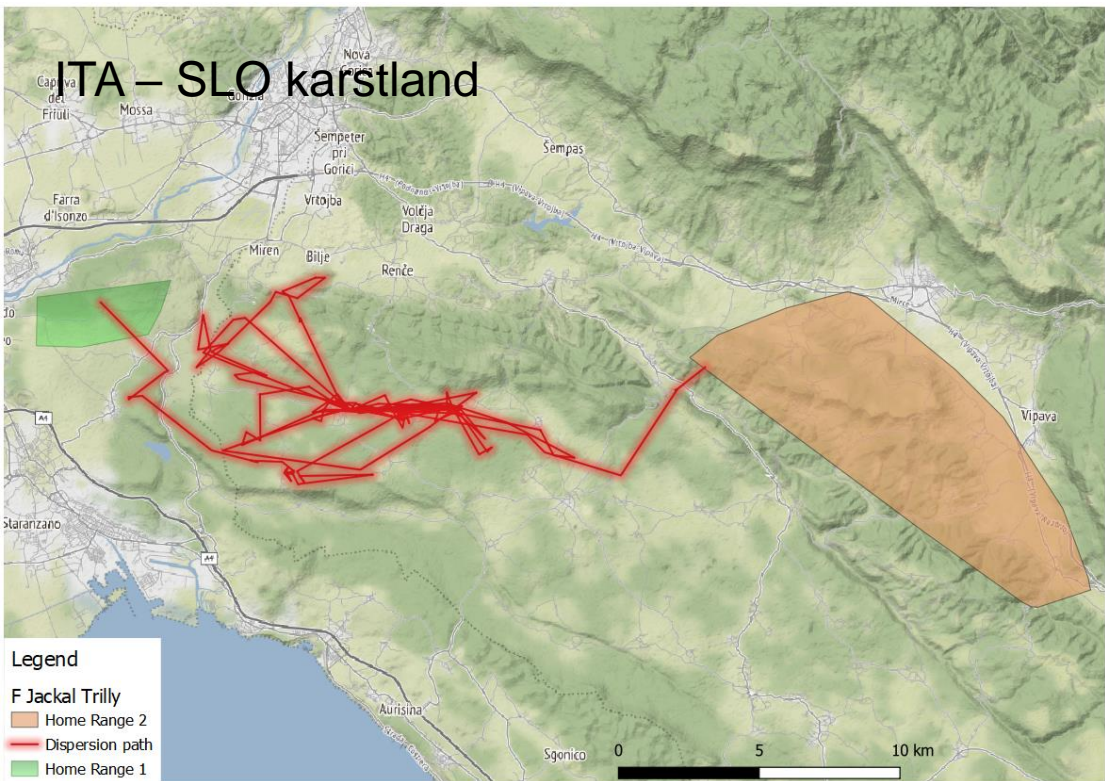
Max distance: 94,2 km



Crossing Sava river \approx 300 m width (1x),
Occasionally staying within urban areas
settlements, industrial zones
50+ highway crossings!



Dispersal routes



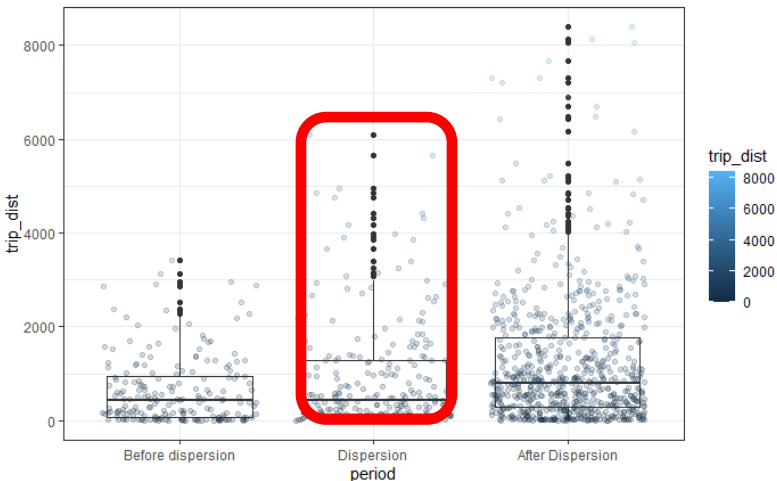
Female jackal Trilly

Duration: 61 days

Total travelled: 151 km

HR's Euclidean dist: 29 km

Max distance: 41 km

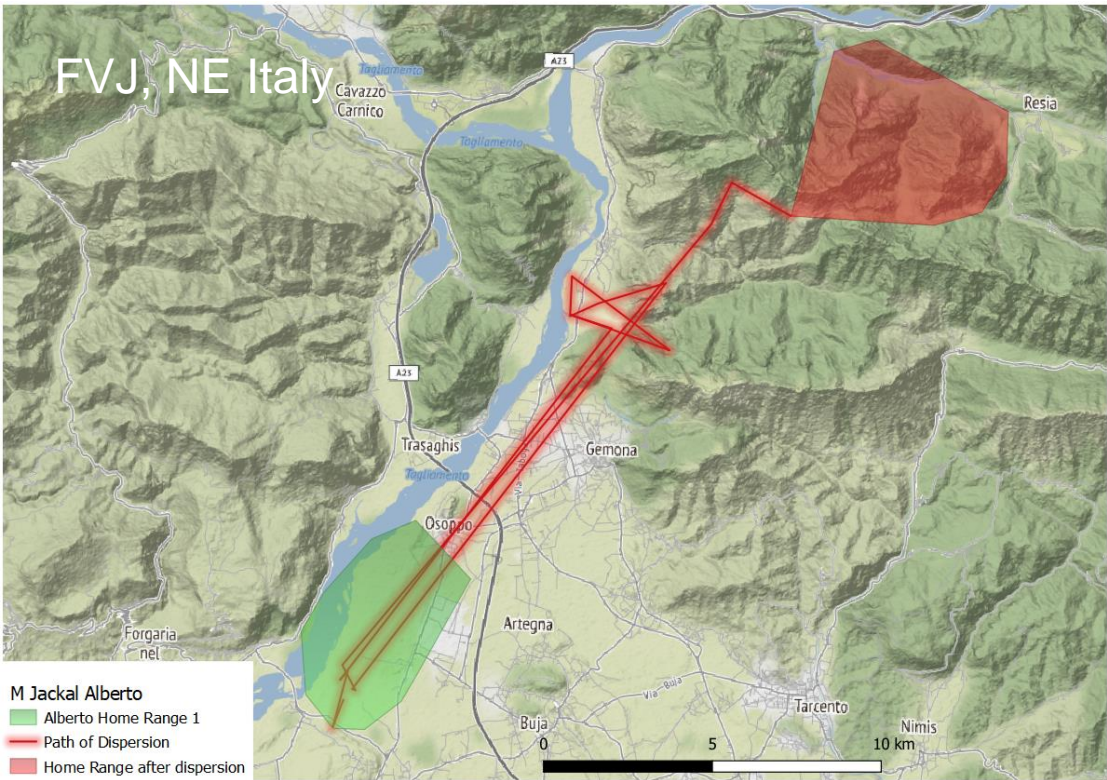


Transversed karstland in Slovenia

Settled in Vipava valley –agricultural-shrub-forest landscape mosaic



Dispersal routes



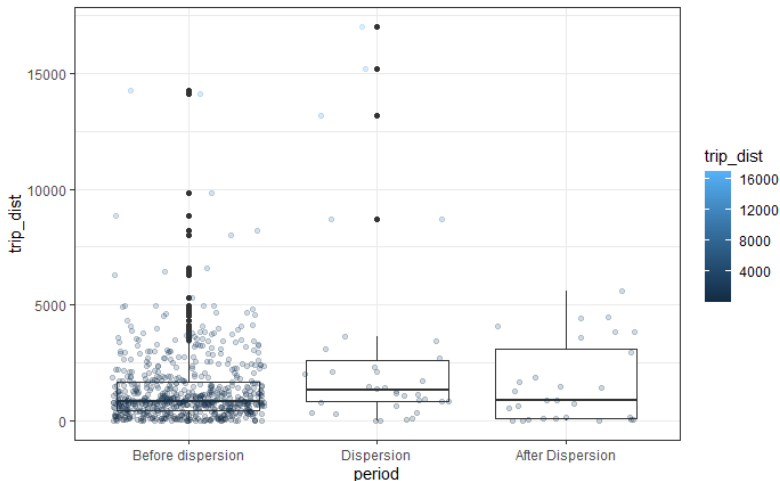
Male jackal Alberto

Duration: 40 days

Total travelled: 202 km

HR's Euclidean dist: 22 km

Max distance: 23,6 km



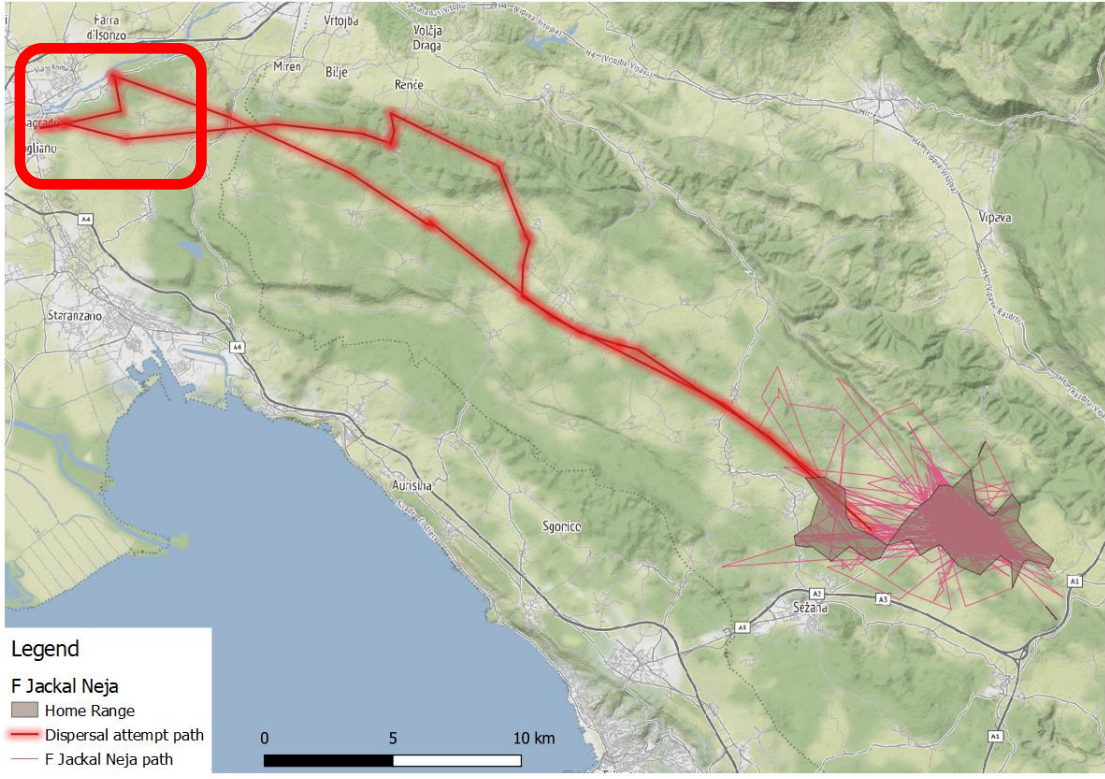
3 subsequent attempts – „excursions“ before reached new area

crossed Tagliamento river

Highly urbanized-cultivated area >> prealpine natural broadleaved, coniferous woodland



Dispersal routes



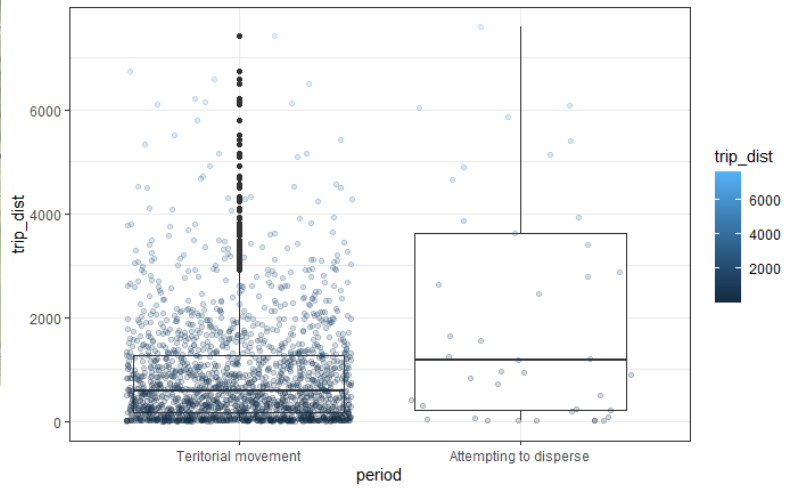
Female jackal Neja

Duration: 7 days

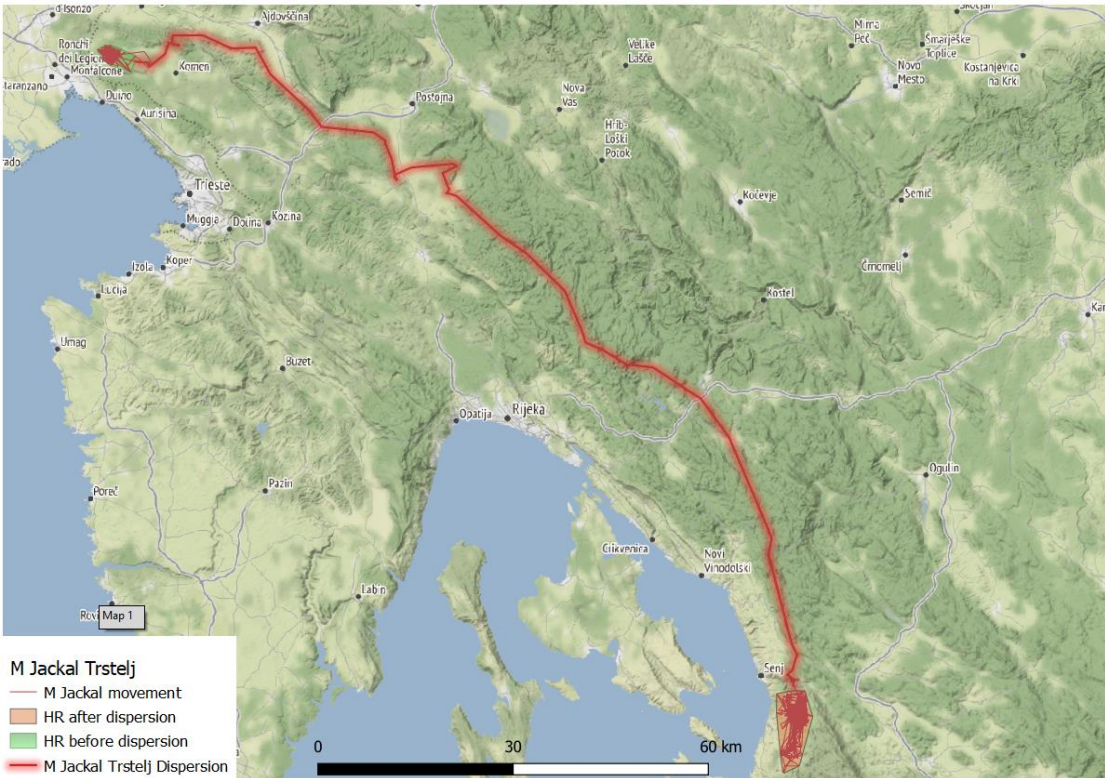
Total travelled: 87,5 km

HR's Euclidean dist: adjacent

Max distance: 35 km



Dispersal routes



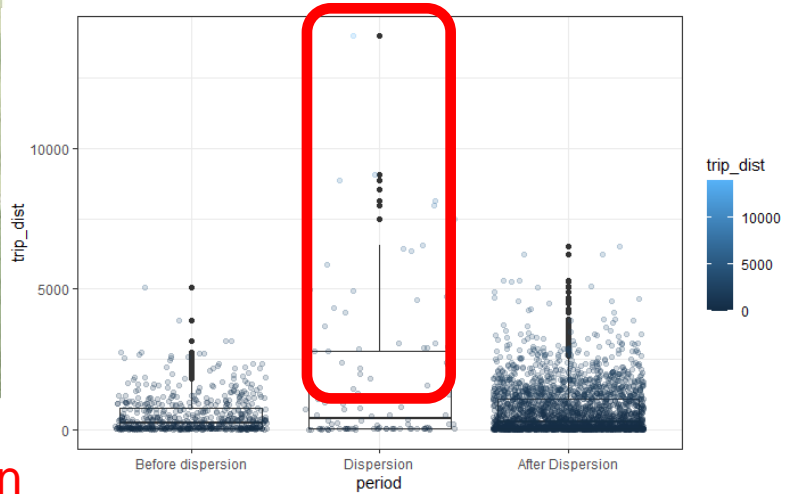
Male jackal Trstelj

Duration: 7 days

Total travelled: 215 km

HR's Euclidean dist: 151 km

Max distance: 176 km



Pannonian genetic origin >> Dalmatian population

(Stronen et al. Global Ecol. & Cons. 2021)

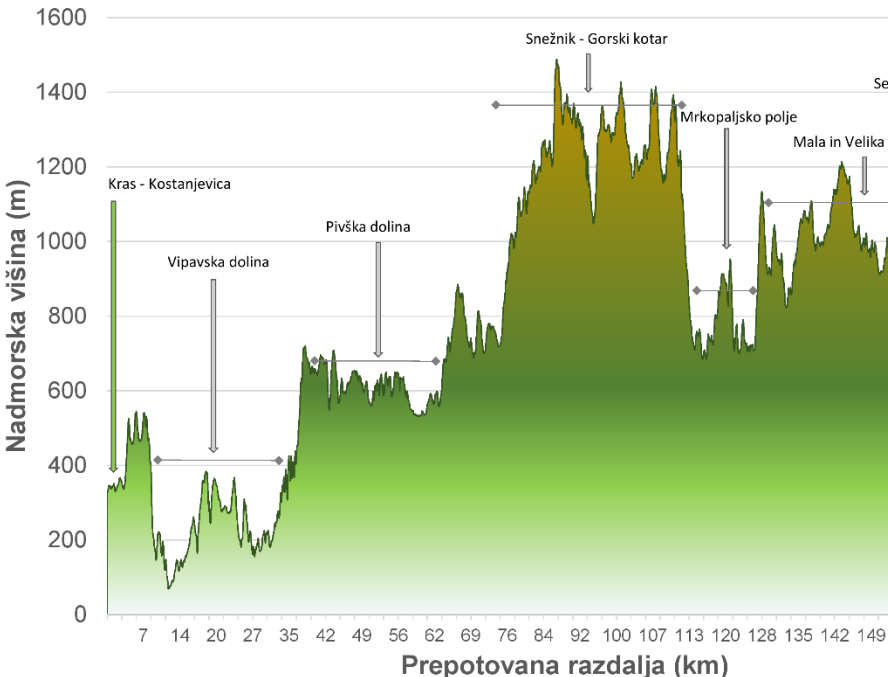
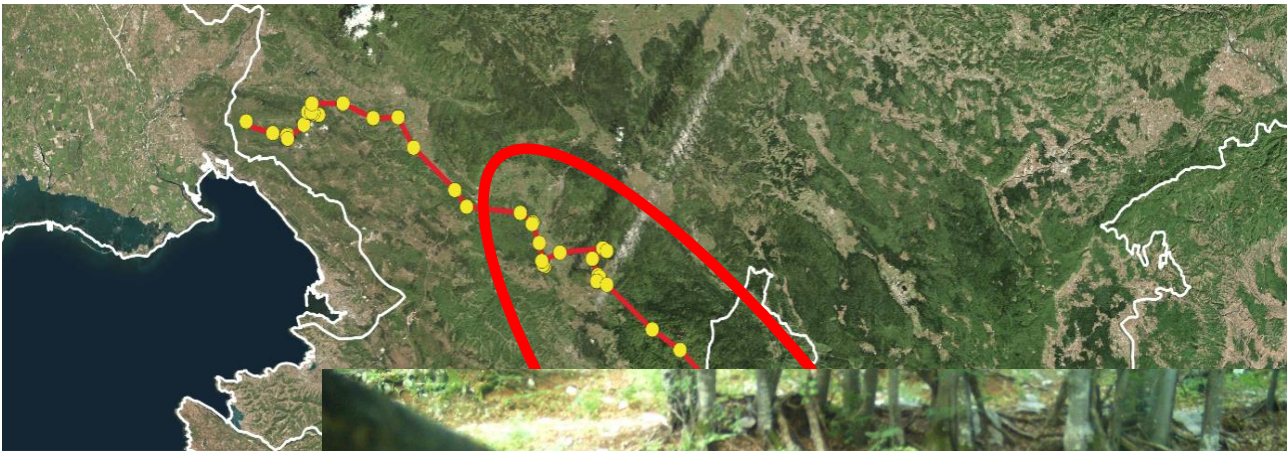


Dispersal routes

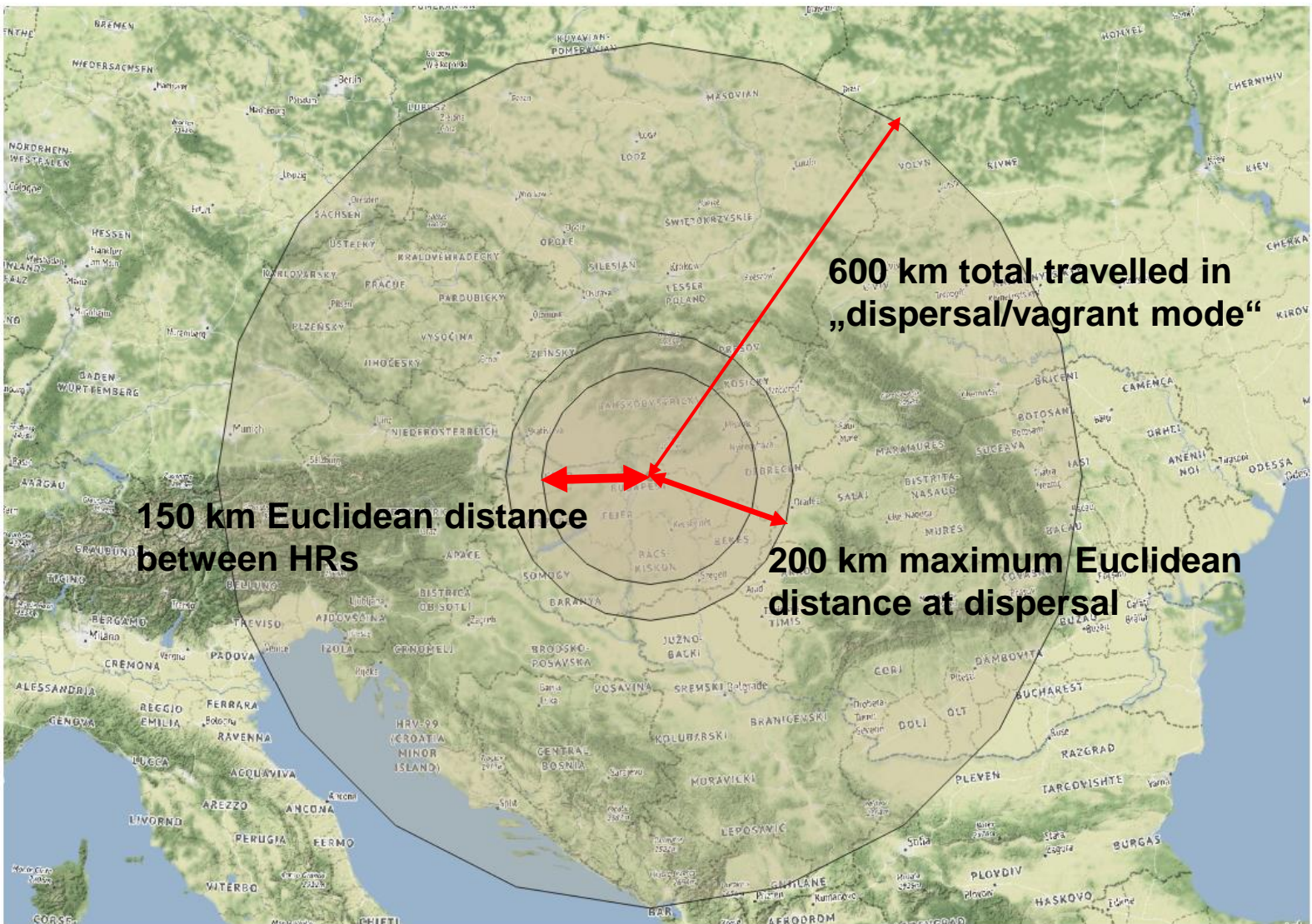
Male jackal Trstelj

Crossed 2 fenced highways (underpasses)

Transversed vast continuous dinaric forests within at least 7 wolf territories



Conclusions



**150 km Euclidean distance
between HRs**

**600 km total travelled in
„dispersal/vagrant mode“**

**200 km maximum Euclidean
distance at dispersal**

Conclusions

Adaptability and ability of the species to disperse rapidly across human-dominated landscapes

Traverse through contiguous forested areas

to cross major linear barriers such as large rivers, fenced highways, and mountain ridges

Explains the past and ongoing rapid expansion of the golden jackal in Europe

May expand to large parts of still unoccupied Europe in the near future.



**THANK YOU FOR YOUR
ATTENTION!**

KÖSZÖNÖM A FIGYELMET!

