First comparison of the lifespan and spatial behavior between rehabilitated jackals and those captured in the wild with baits

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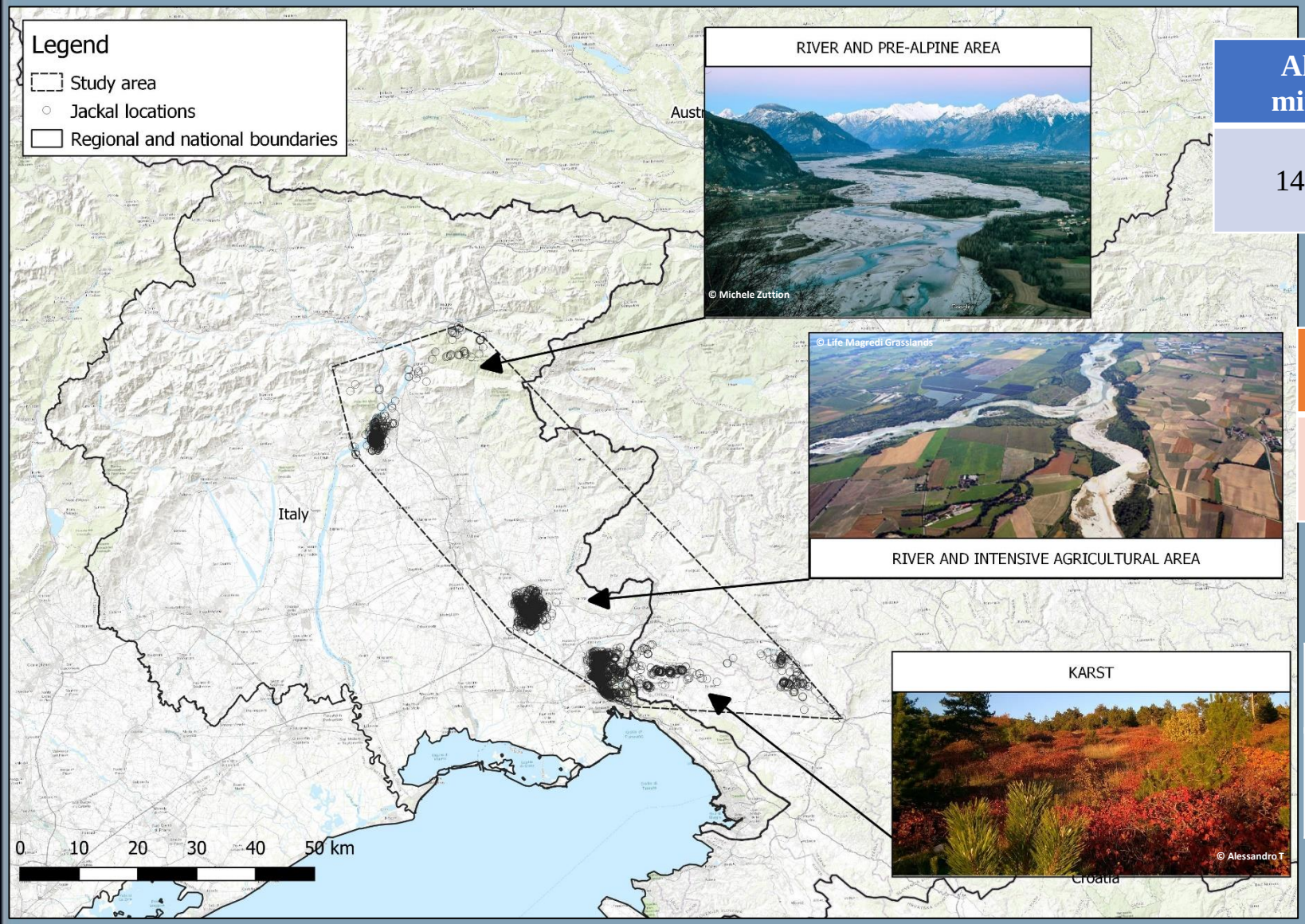
Purpose/Objective

Radiotelemetry represents a key tool to study the behavioural ecology of wild species. However, trapping systems and the history of collared animals (as well as the predisposition of the collar itself), could influence the lifecycle and behaviour of the individuals.

The purpose of this study is to compare the life expectancy and spatial behavior of golden jackals (*Canis aureus*) (hereafter, jackals) captured in the wild with those of animals injured and released after treatment and rehabilitation

Study area



Altitude minimum	Altitude maximum	Main landcover types
141 m asl	1870 m asl	• Broad-leaved vegetation (43%) • Mixed forests (19%)

Altitude minimum	Altitude maximum	Main landcover types
25 m asl	63 m asl	• Urban areas (14%) • Arable lands (38%) • Complex cultivations (29%)

Altitude minimum	Altitude maximum	Main landcover types
0 m asl	616 m asl	• Broad-leaved vegetation (52%) • Mixed forests (10%)

Material/Methods

Our research was carried out in North-Eastern Italy, from 2019 to 2022. We have monitored seven jackals (five males, two females) with GPS/VHF/GSM collars (Vertex Lite, Vectronic): Two were captured with snares (1 M, 1 F), and one using a box trap (1 M) (Captured).

Baits were used at capturing sites.

The other four were released (3 M, 1 F) with collar after treatment and rehabilitation (Treated) at the wildlife, a a rescue center of the University of Udine. The latter were recovered by the regional forestry service and animal rescue centers after being hit by car (n=3) or found sicked (n=1).

The periods of treatment and rehabilitation varied from three to fourty days. All the animals were released at the recovery/capture place. We compared Captured and Treated groups, for apparent survival time (LSA, days from release to the last observation or fix collected) and home-range (HR) through autocorrelated kernel density estimation, after the first and second month from release.

Material and methods

- Collared individuals (GPS, n = 7)
  - Captured (n = 3)
    - Belisle foot-snares (n = 2)
    - Box trap (n = 1)
  - Rehabilitated (n = 4)

Collar Type	Brand	GPS location schedule	Acceleration burst
GPS	Vectronic – Vertex Lite	3-4 fixes per day	Every 5 minute on 2 axes

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3 jackals captured with Belisle snares or wood cage, with baits (fish, dog food and sausages)

Pepe, male, captured on 20-12-2020, 1-2 year old

Isabella, female, captured on 8-11-2019, 1-2 year old

Yama , adult male, captured on 14-8-2019


11 °C 51 °F 09/29/2020 22:48:21 0222


20 °C 68 °F 10/02/2020 05:01:29 0450

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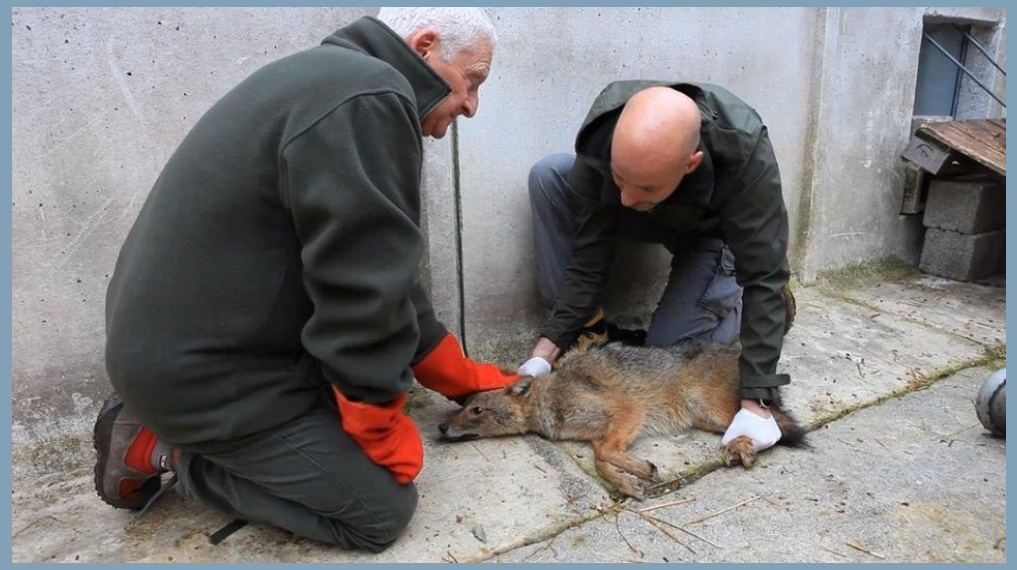
4 jackals released after rehabilitation in the wildlife rescue center of University of Udine

Sergio, male, 2-3 years , released after 3 days of care



Alberto, male, 1 year old, released after 7 days of care

Trilly, female 6-7 month, released after 40 days of care

Torre, male, 2-3 years old, released after 4 days of care

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hic sunt futura

Results

Jackals captured

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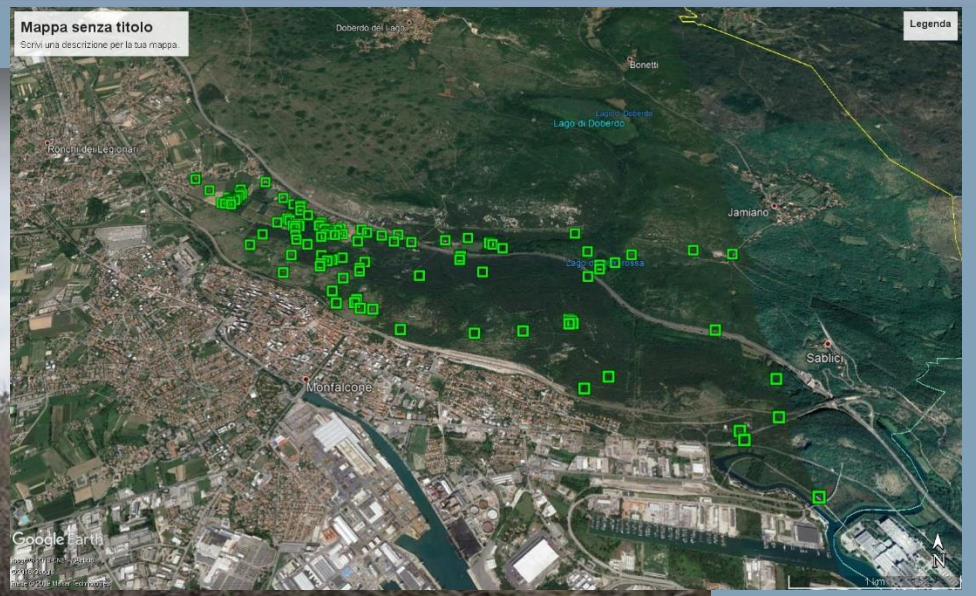
Yama , was captured with Belisle snares

Yama, after 36 days from capturing was hit by track



High use of roads for feeding

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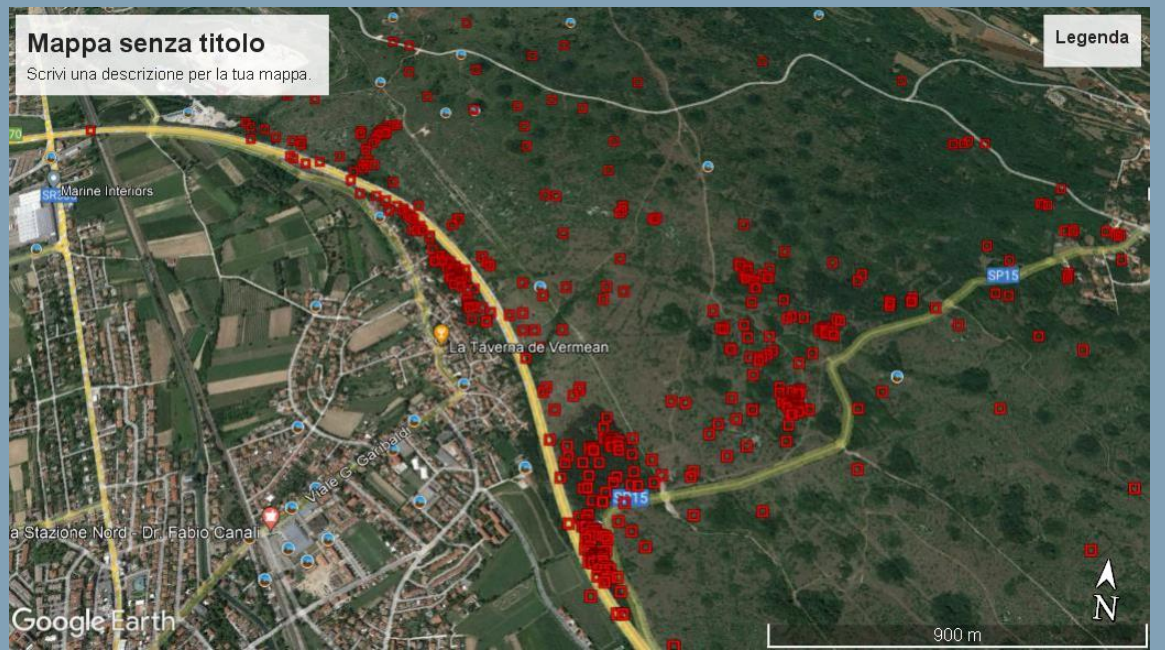
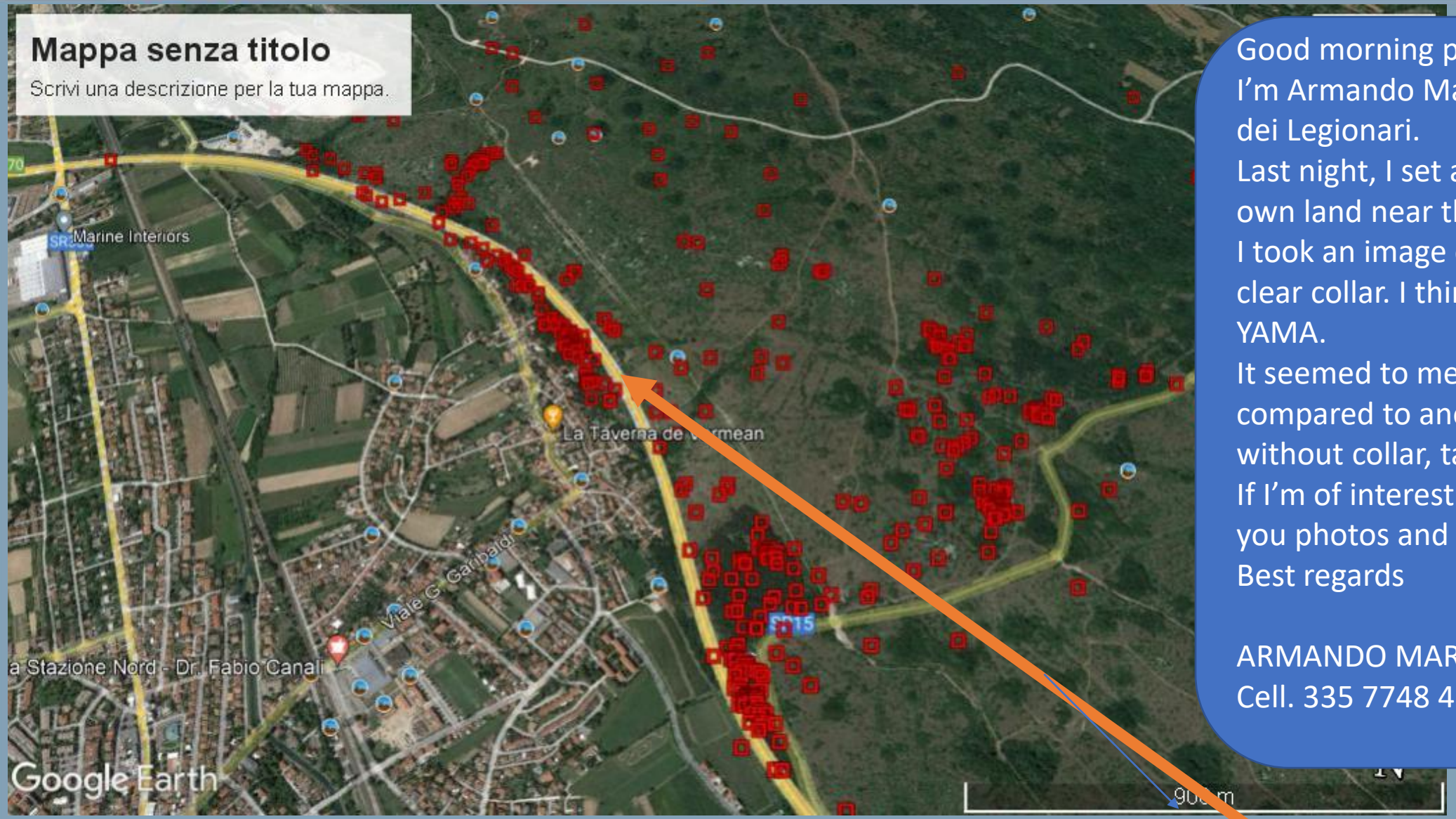
Isabella was captured with Belisle snares

Isabella, after 186 days was hit by car in high way after Corona virus lock down





Good morning prof. Filacorda,
I'm Armando Marotti from Ronchi dei Legionari.
Last night, I set a photo trap in my own land near the A4 highway.
I took an image of a jackal with a clear collar. I think it's "your" YAMA.
It seemed to me very decayed compared to another animal, without collar, taken in October.
If I'm of interest to you, I can send you photos and videos.
Best regards

ARMANDO MAROTTI
Cell. 335 7748 437

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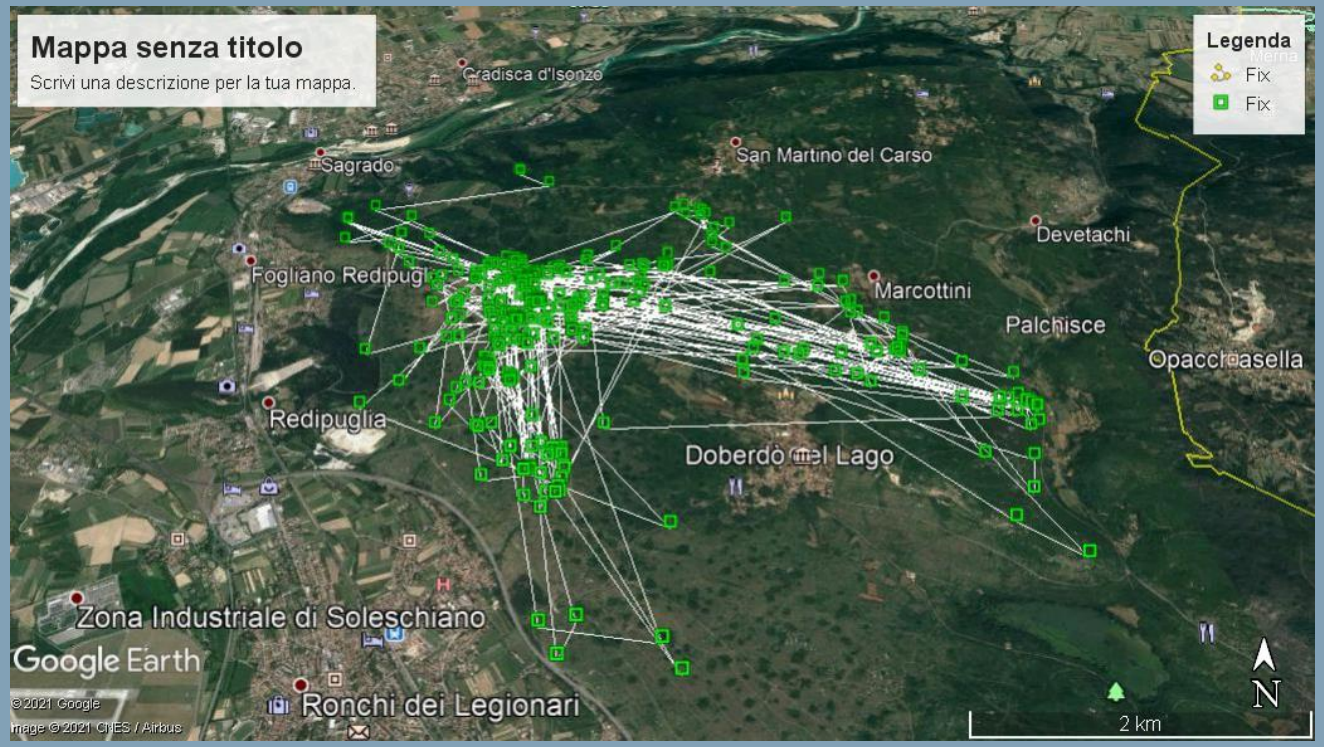
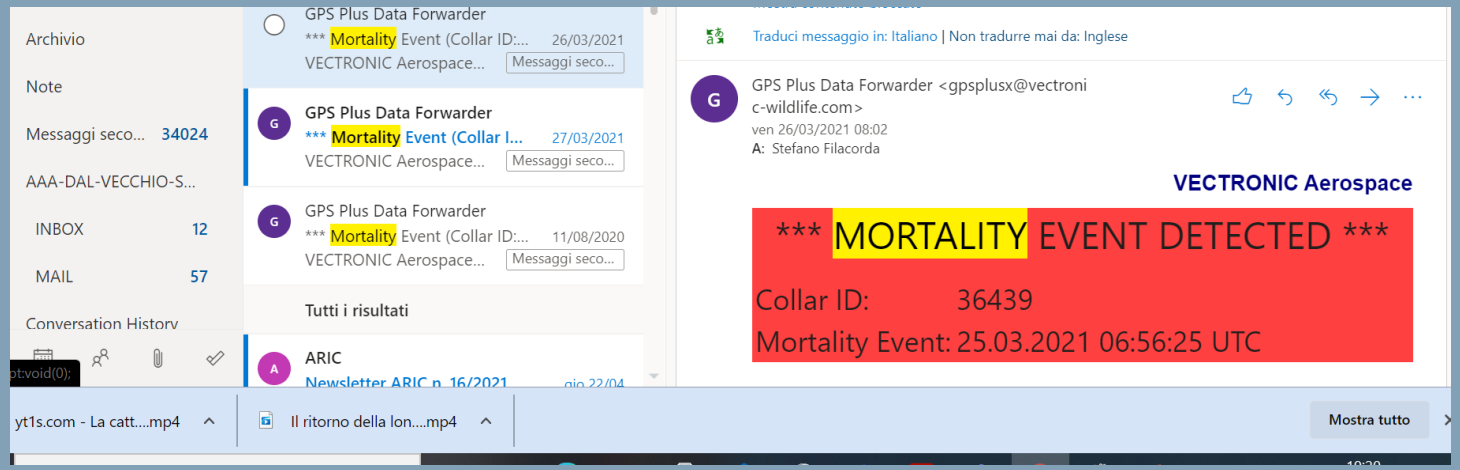
Pepe was captured with wood cage



Pepe, 101 days after capturing , we received a mortality signal



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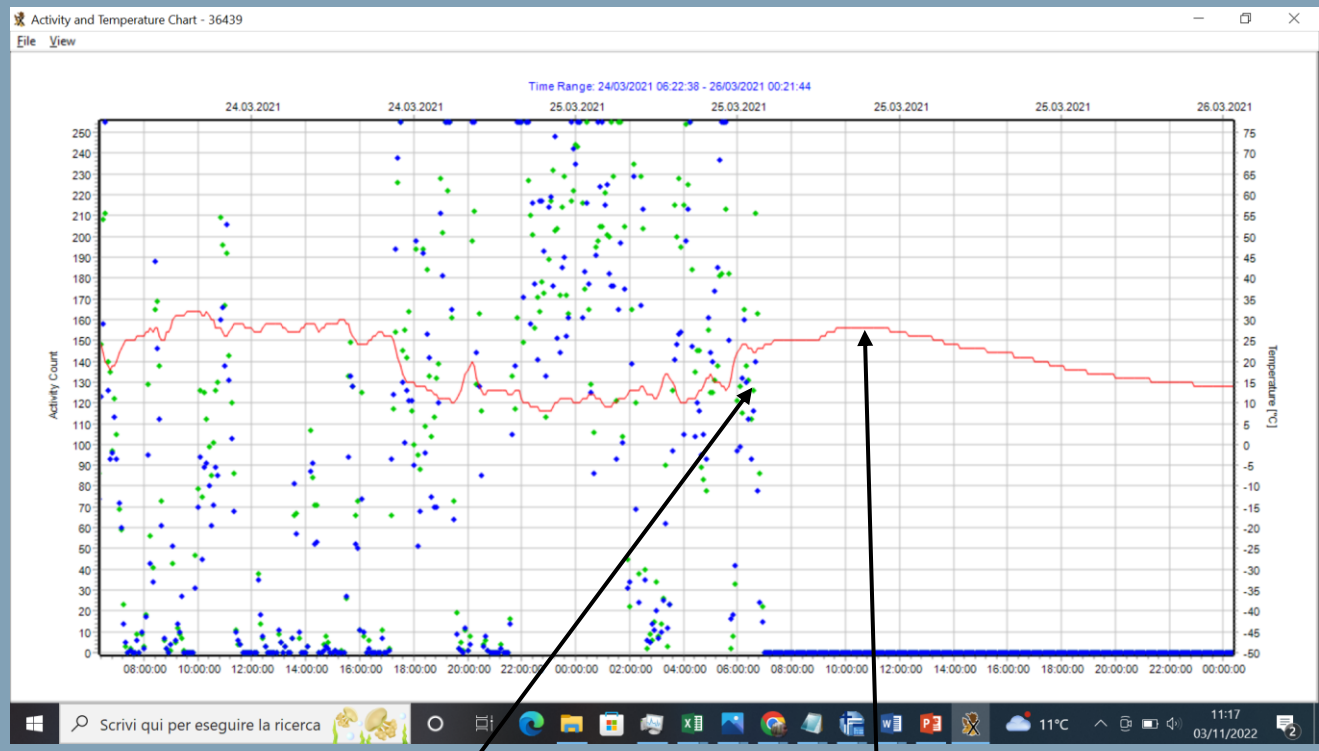
In the last locations, we found the Pepe the jackal, died



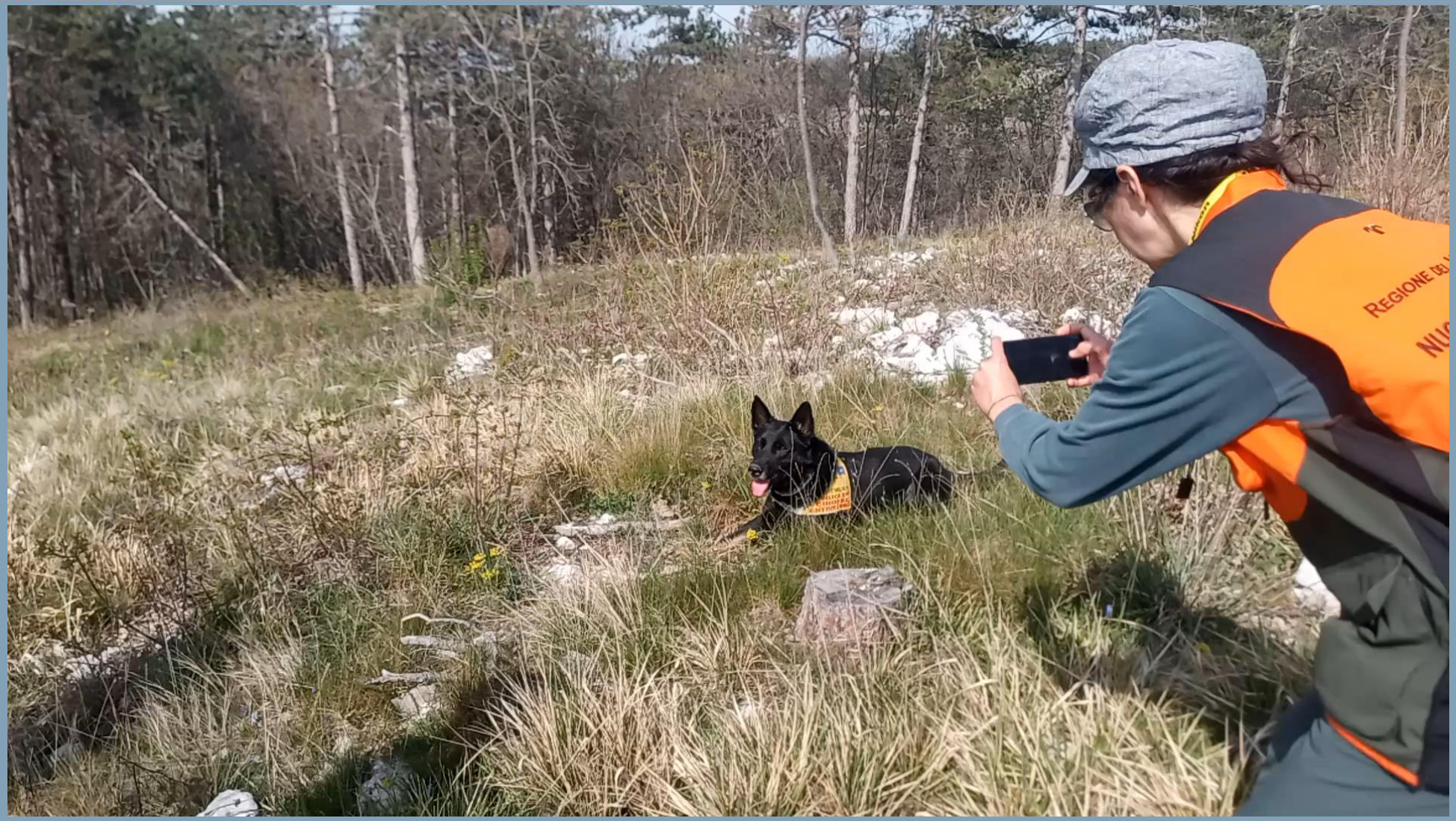
Stop pf movements

died

During the necropsy the veterinarians have found metaldehyde poison

We combined the necropsy data, that is the amount of poison present, the GPS points, and the analysis of the rhythms of activity and the body temperature, to reconstruct the last hours of the life of the animal and where it could have swallowed the poison

The regional authority has requested the intervention of a bait detection dog unit to find other baits near the place of dying



12 baits were found (and a dead badger), 200 meters from the place of the poisoned jackal and near the farm with donkeys

Jackals released

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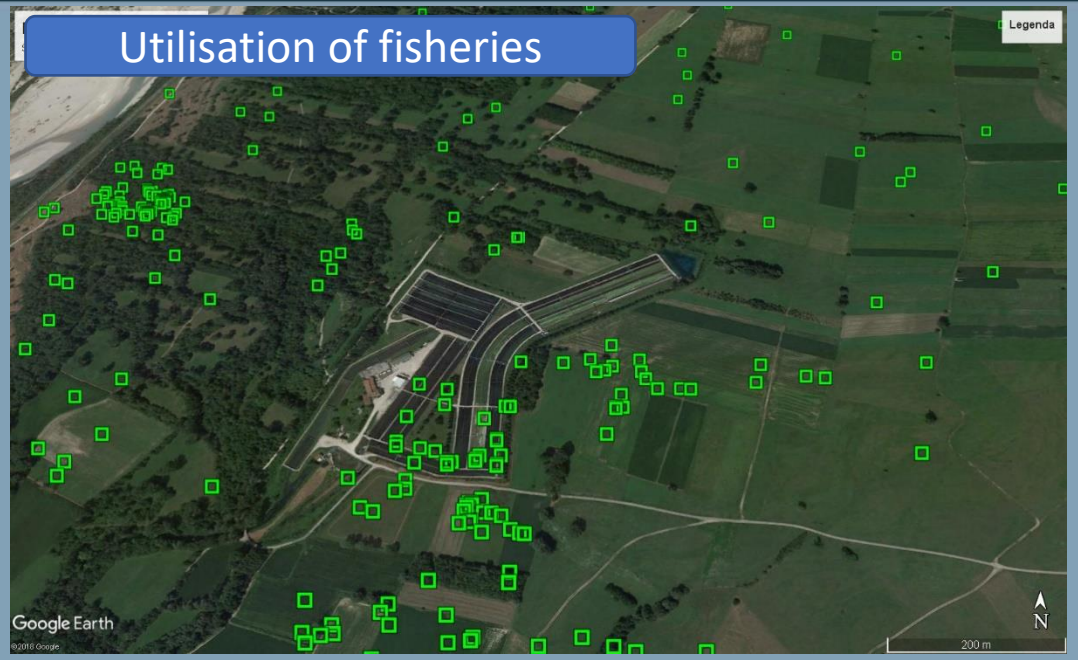
Rehabiitated

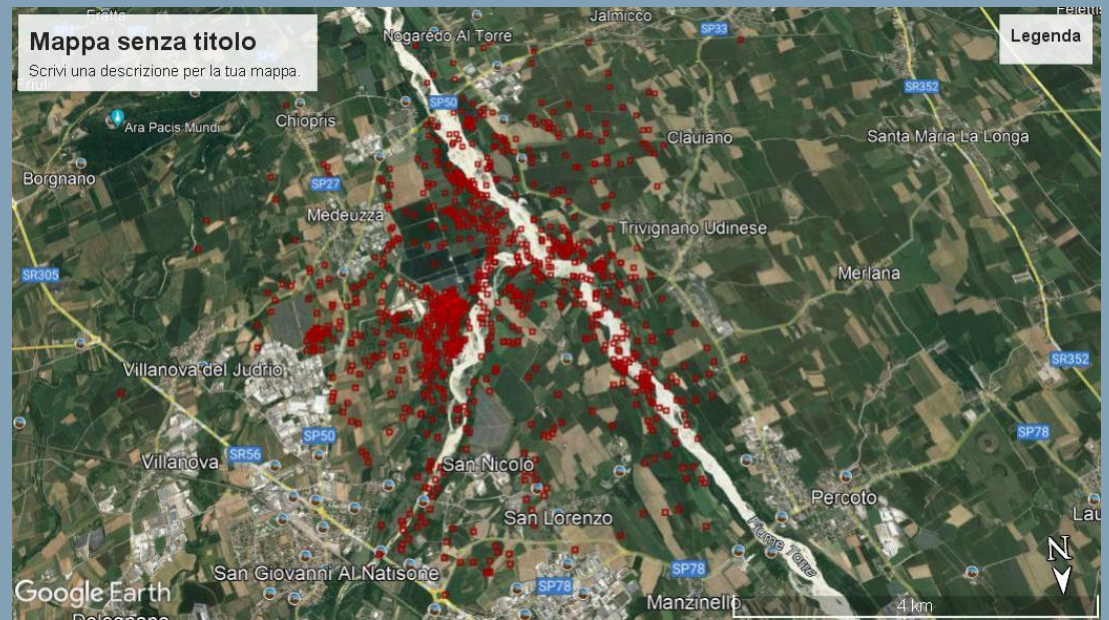
Alberto, 343 working days and then GPS finished , but camera trapped him after two years

Utilisation of fisheries



Dispersion from plane to alpine region (triggered by wolf ?)

Torre, is now alive, 525 GPS working days, he has mated and shows residential behavior



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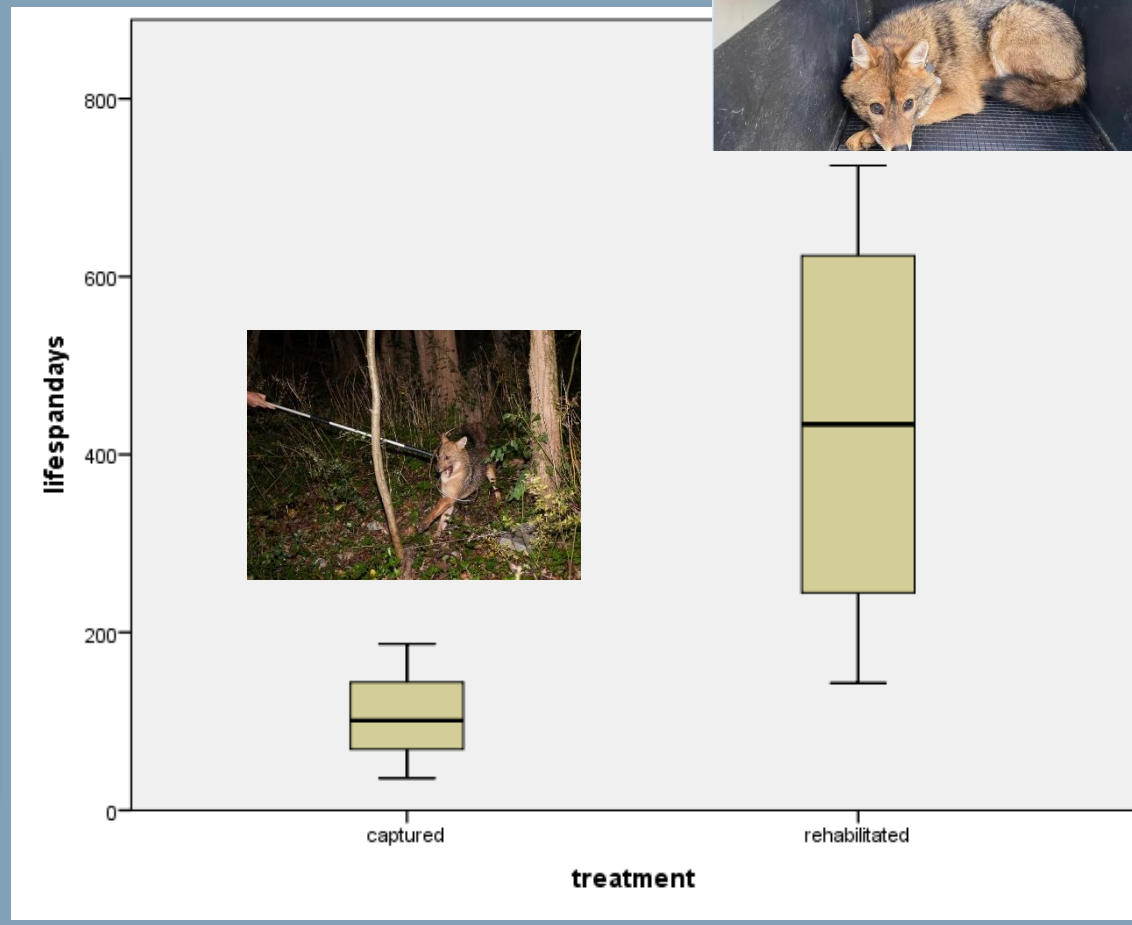
Days of working and lifespan for the jackals rehabilitated and captured

Days of monitoring

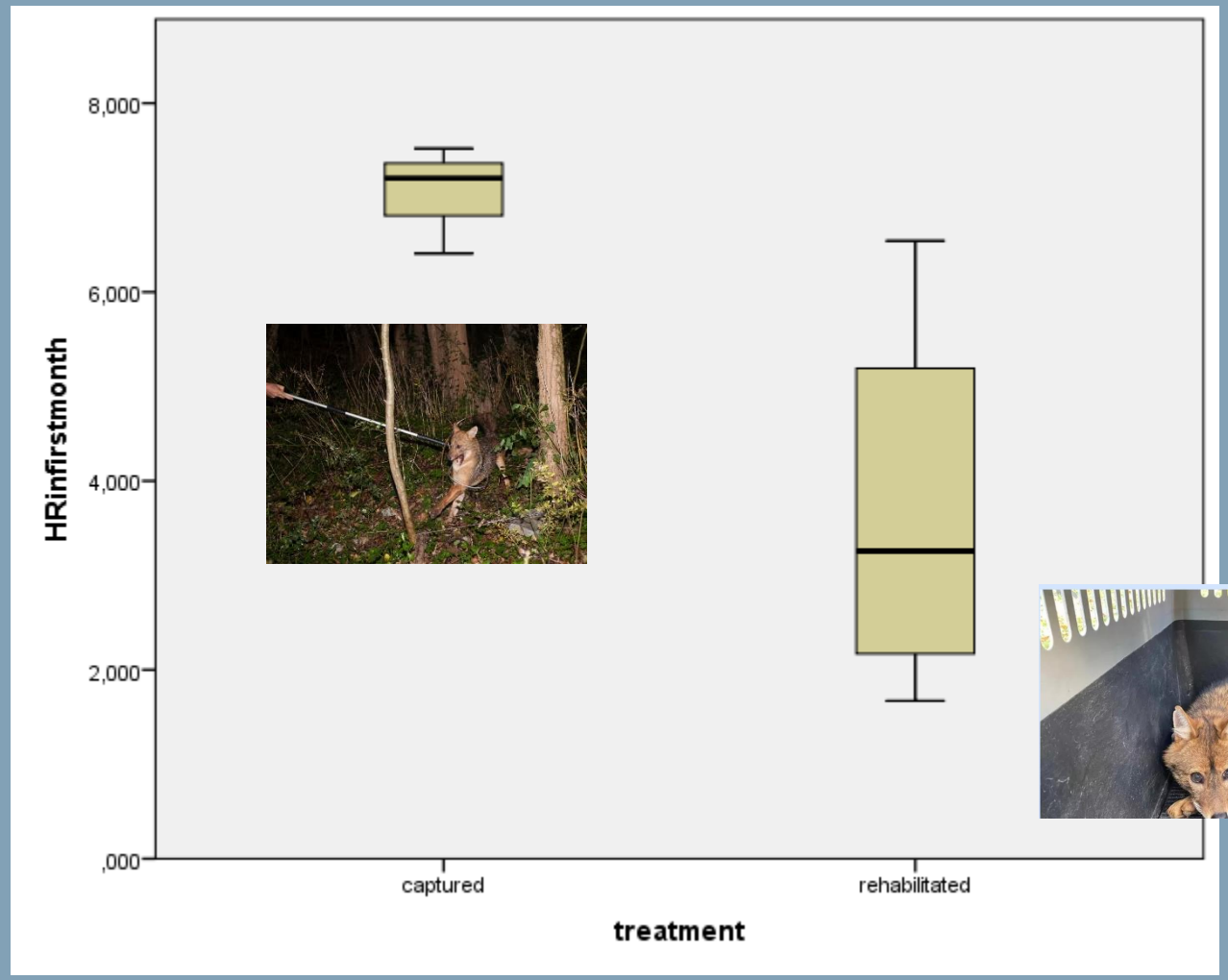
Lifespen



The rehabilitated jackals showed a higher life span and GPS working period compare to captured

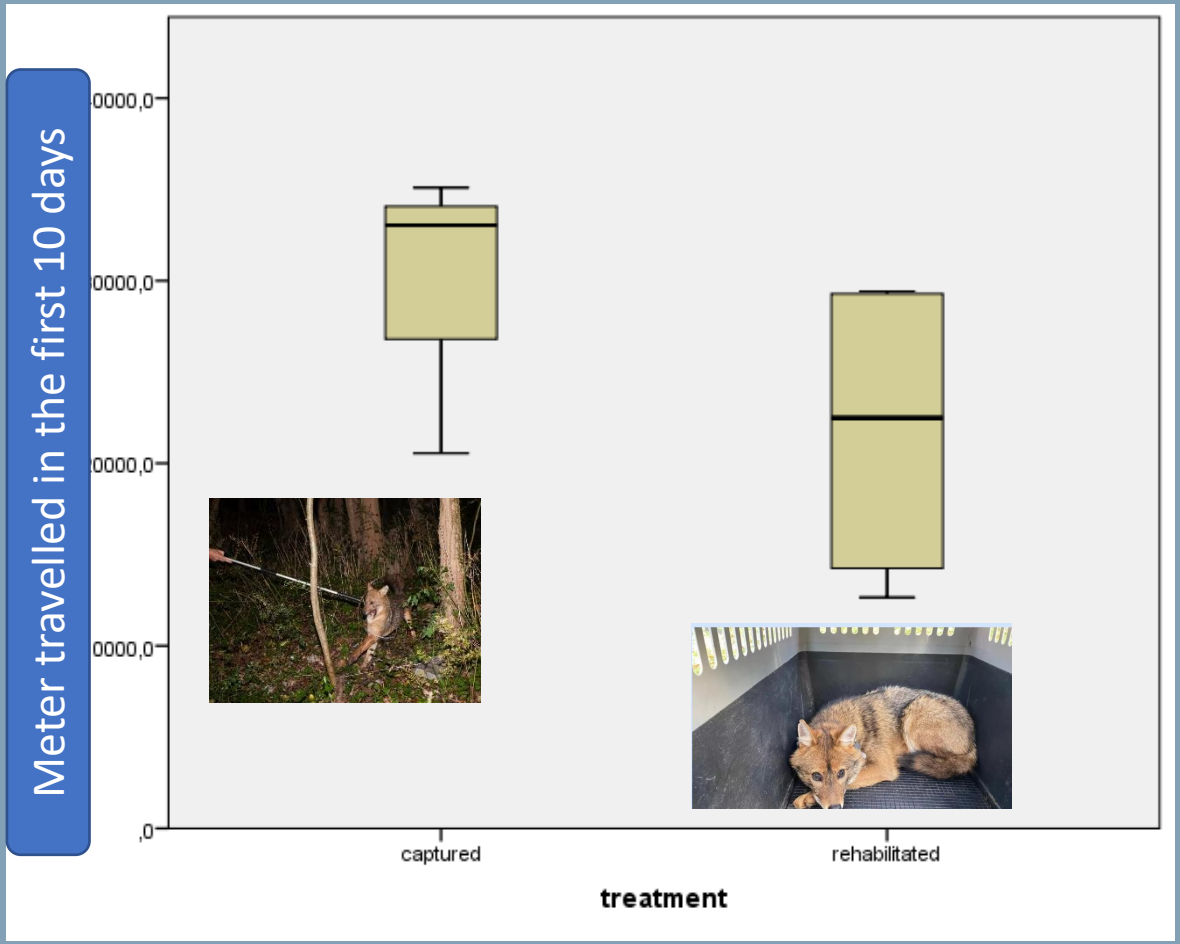
Home range in first month (Kernel 95%)

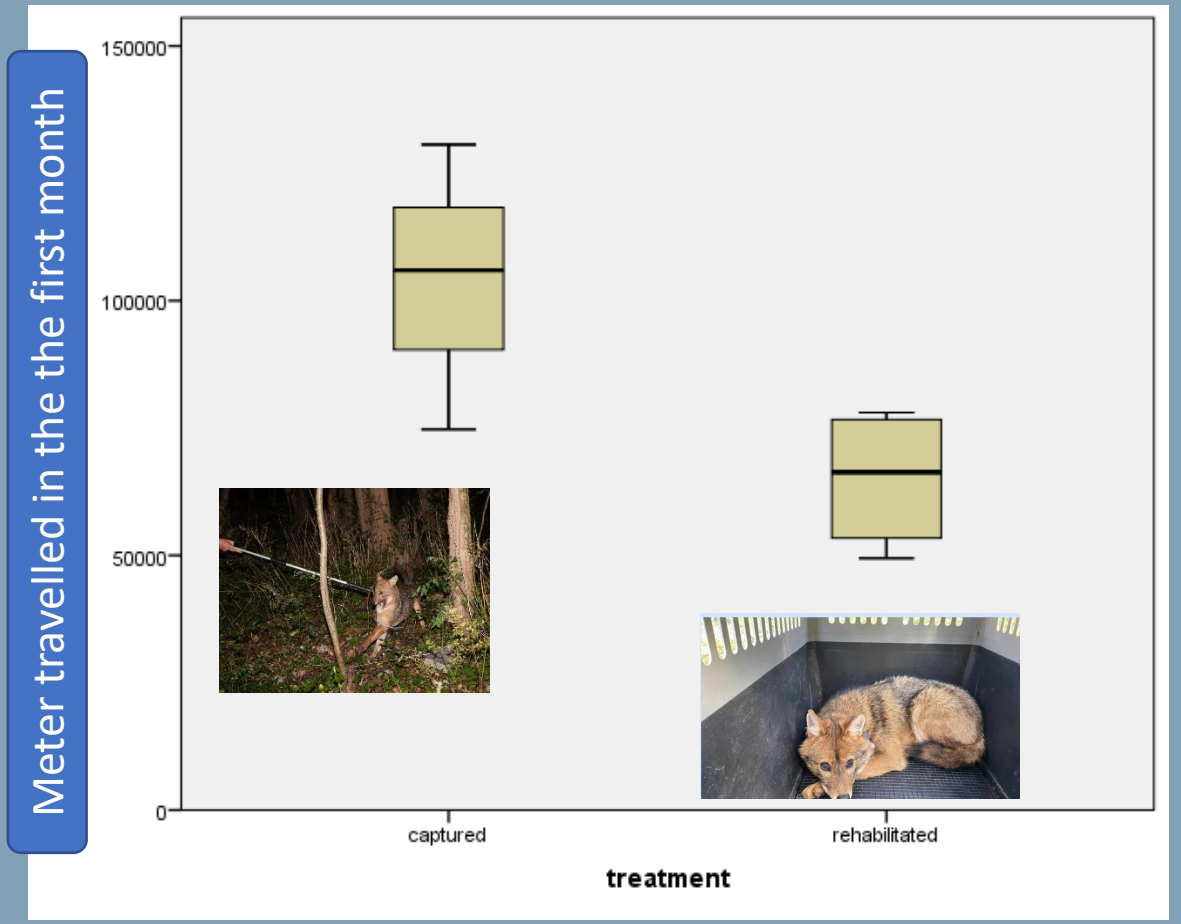
HR KM2



In the first month the HR is higher for the captured animals compare to rehabilitated animals

Meter travelled in the first 10 days and in the first month, after releasing or capturing





The distance travelled was higher for the captured animals in the first ten days after capturing or releasing and also after one month

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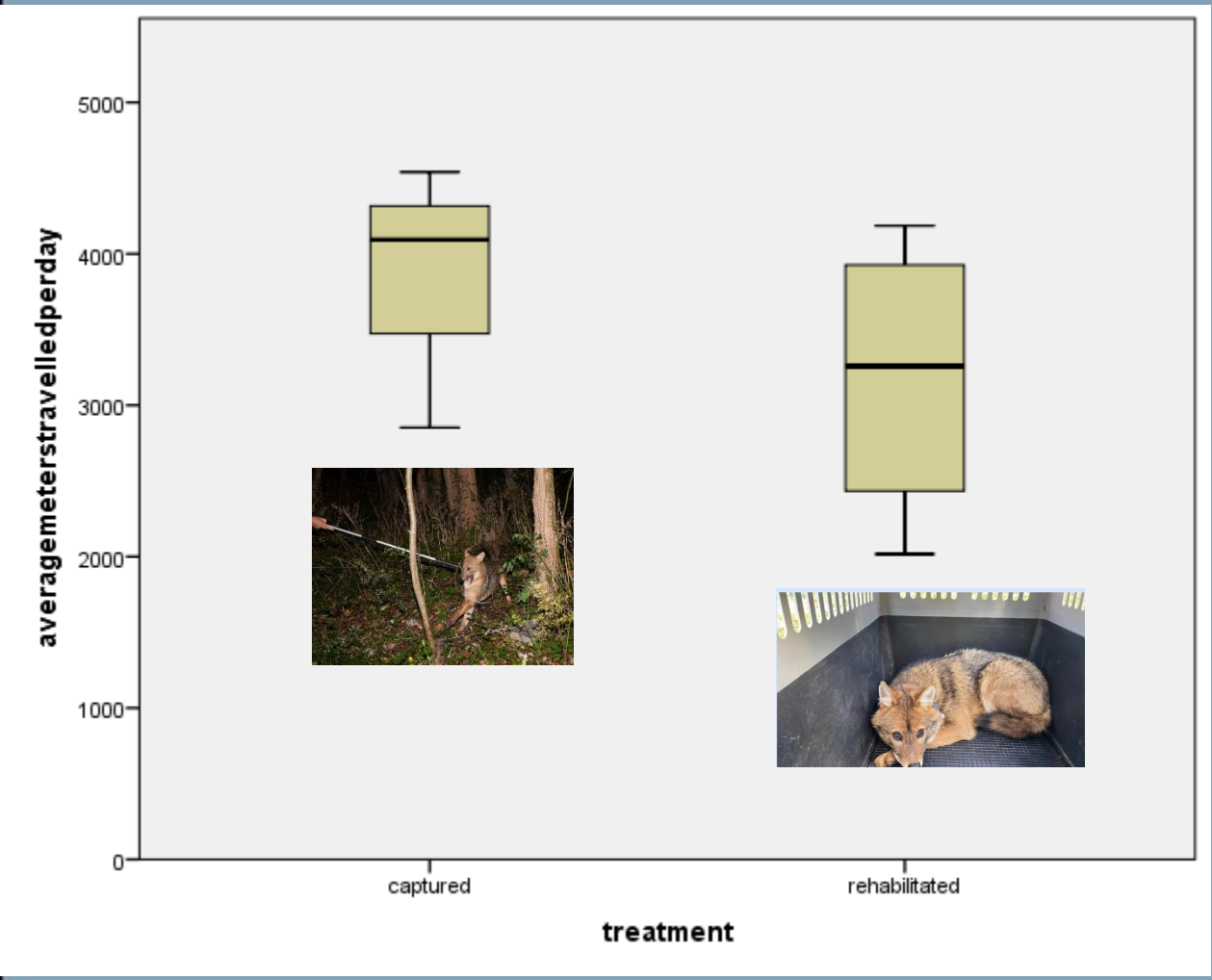
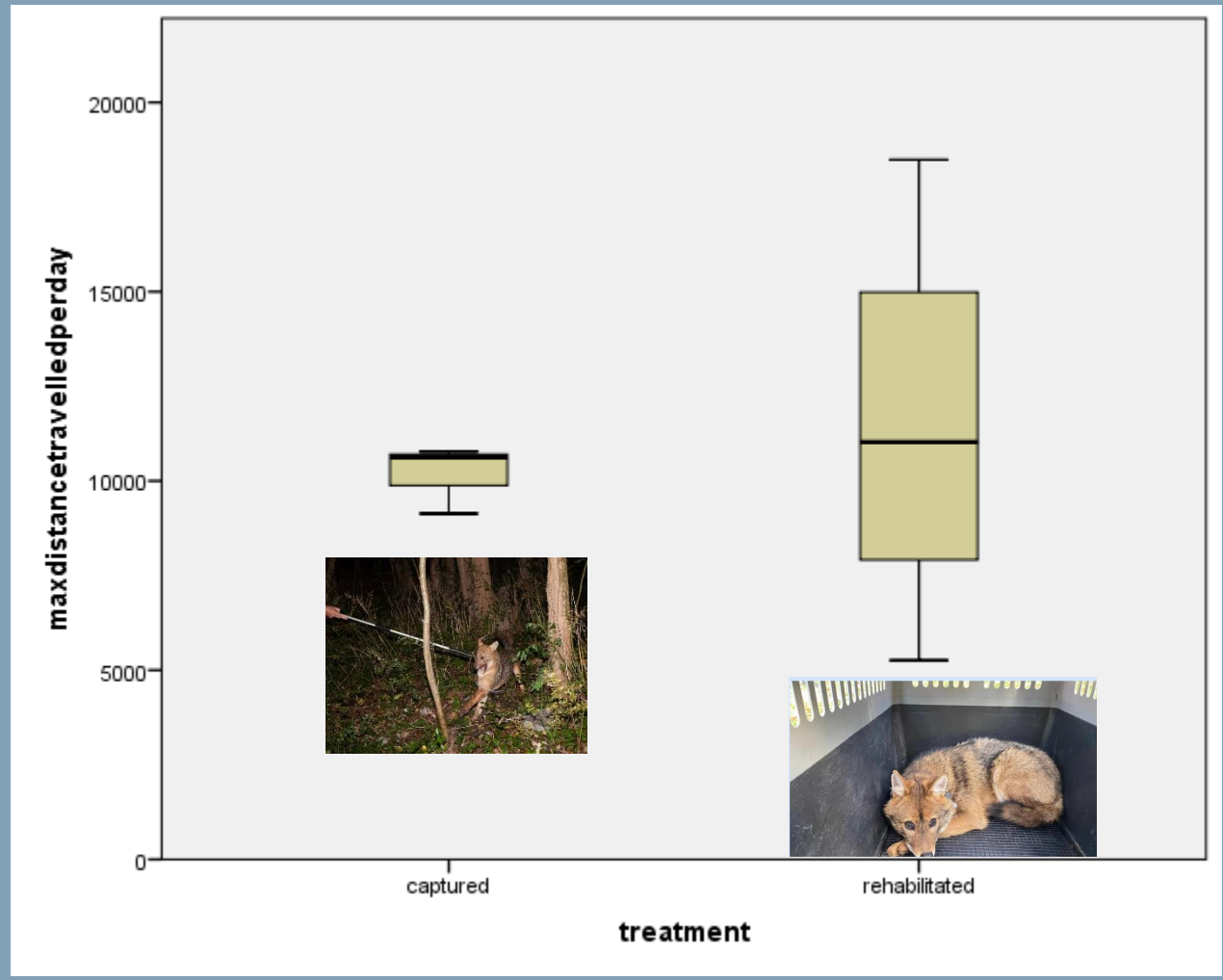
Meters travelled in all study period

Average meters travelled per day



Maximum meters travelled per day

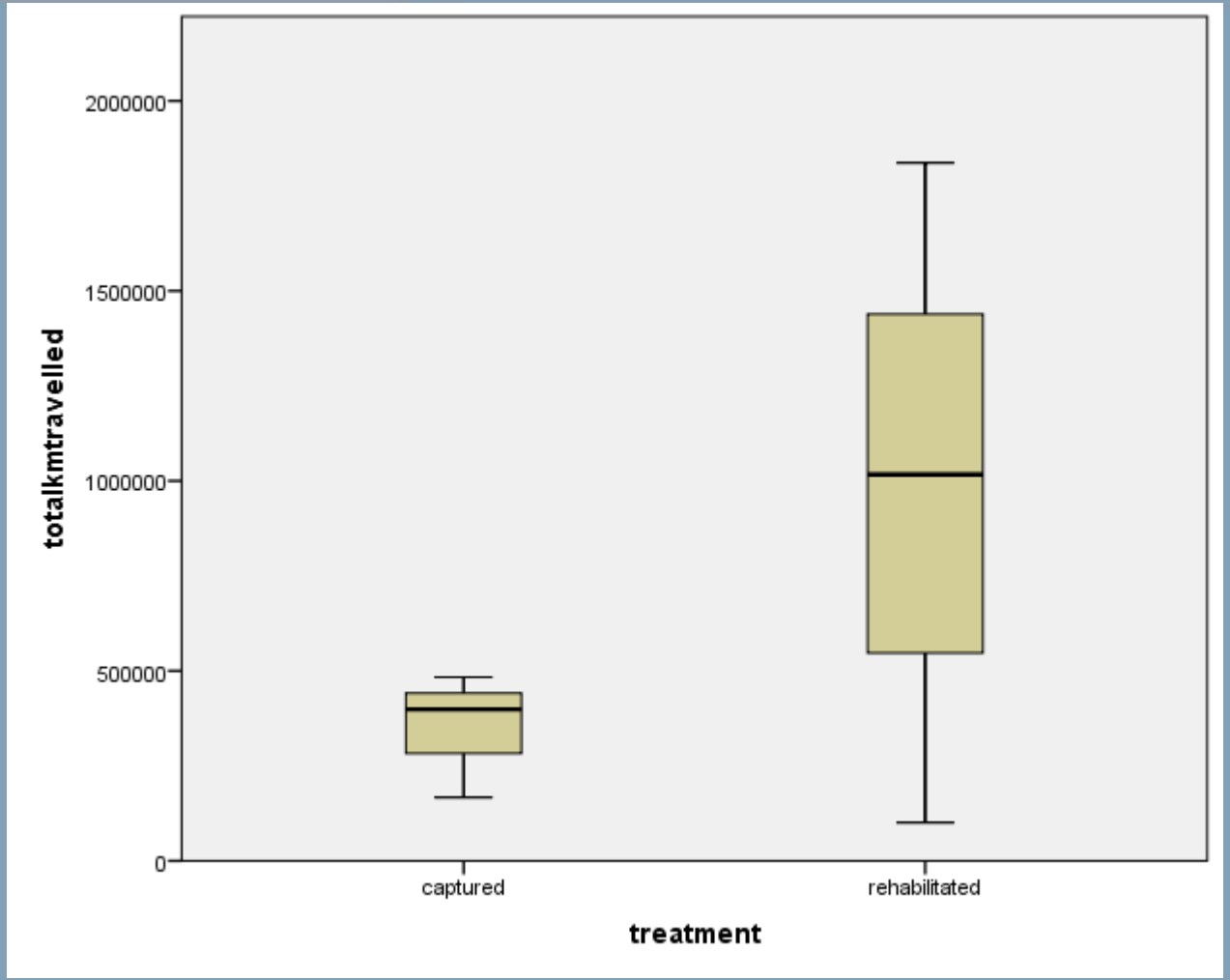


The jackals captured showed higher level of movements (searching and feeding ?)

Two individuals with dispersal behaviour

Total km travelled in the entire study period

Total km travelled

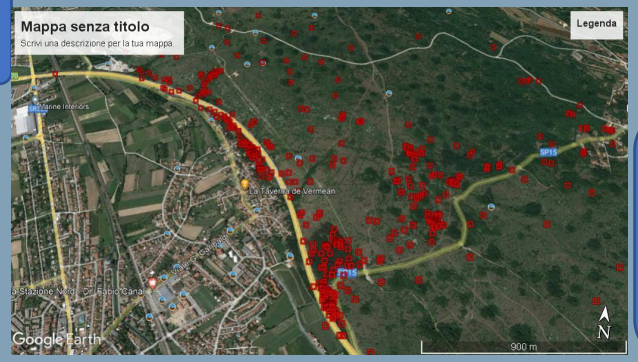


The jackals rehabilitated and released have showed longer distance travelled (two jackal released showed dispersal behavior and for the longer life)

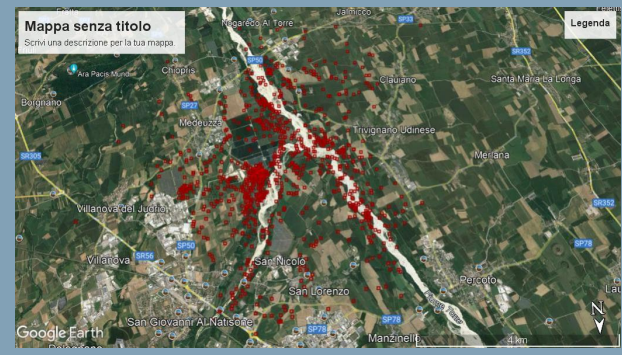
Habitat use

Percentage of urban areas in HR

Percentage of arable land areas in HR



The captured jackals used more urban areas and less arable land compare to the released animals, it can depends also on the different study period



Conclusion

The sample is very small and is not representative, but opens some important questions.

Animals captured using animal baits seem to be very dependent on human food resources

The use of appropriate care and rehabilitation techniques seem to give back to nature animals able to survive and with "natural" roles and behaviors

Open questions

How and how much the use of food baits for capturing affect the behavior of jackals ?

Vice versa: Which “kind” of jackal we capture when we use food baits? Are these jackals “representative” of the behavior of the population ?