

BREEDING MALES MONITORING

Evento finale
Life PERDIX
28-29.11.2024

ECOMUSEO IMPIANTO IDROVORO DI MAROZZO (FE)

Gaia De Luca ISPRA

Coordinatore beneficiario



Beneficiari associati



Cofinanziatore

BREEDING MALES MONITORING

- Males are highly territorial and utilize vocalizations and postural displays to delineate and defend their territories.
- Counting calling males in the period of their highest vocal activity
- Using playback to stimulate vocalizations
- Playback based on territorial behaviour



BREEDING MALES MONITORING

- Playback method (recordings, mp3 player, speaker)



Years

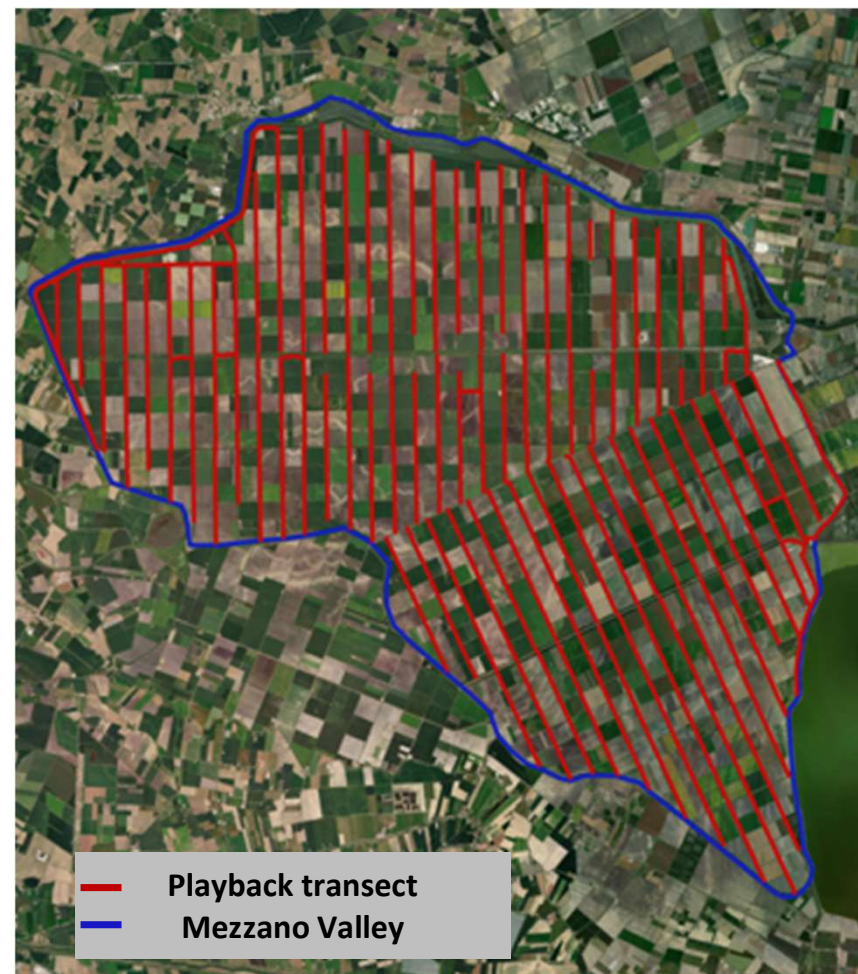
- 2022
- 2023
- 2024

Transects

- Playback by car
- More observers simultaneously
- From sunrise to around 11am
- Favorable weather

March - April

- 1st session in March
- 2nd session in April



- A listening point was placed every 200 meters in each transect.



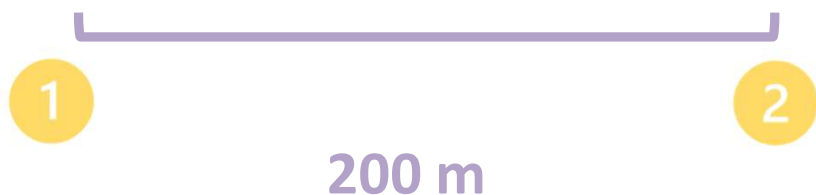
- A listening point was placed every 200 meters in each transect .

In total

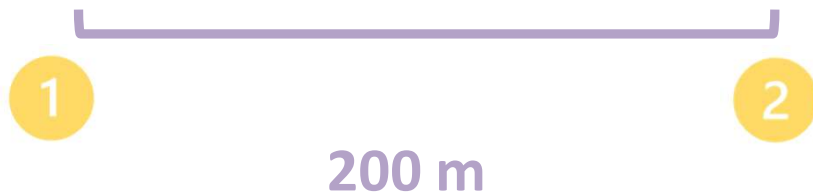
- 186 transects
- 1933 listening points
- 338 Km covered



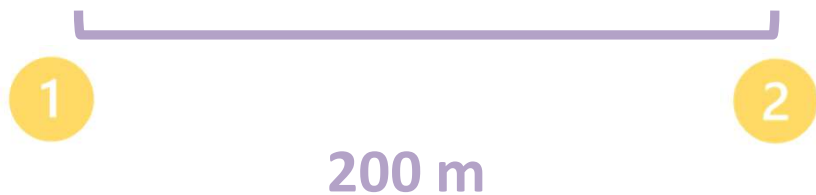
- A listening point was placed every 200 meters in each transect.



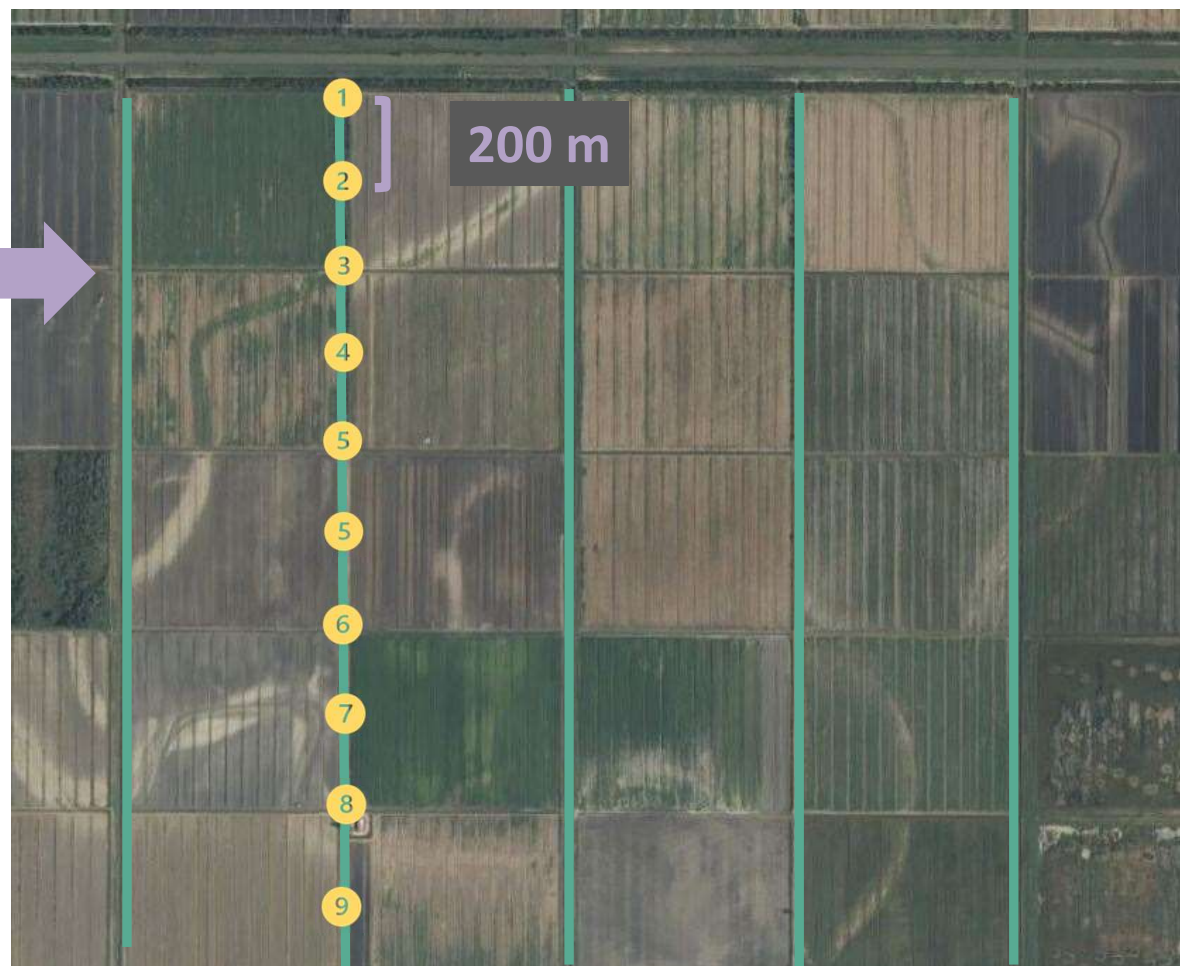
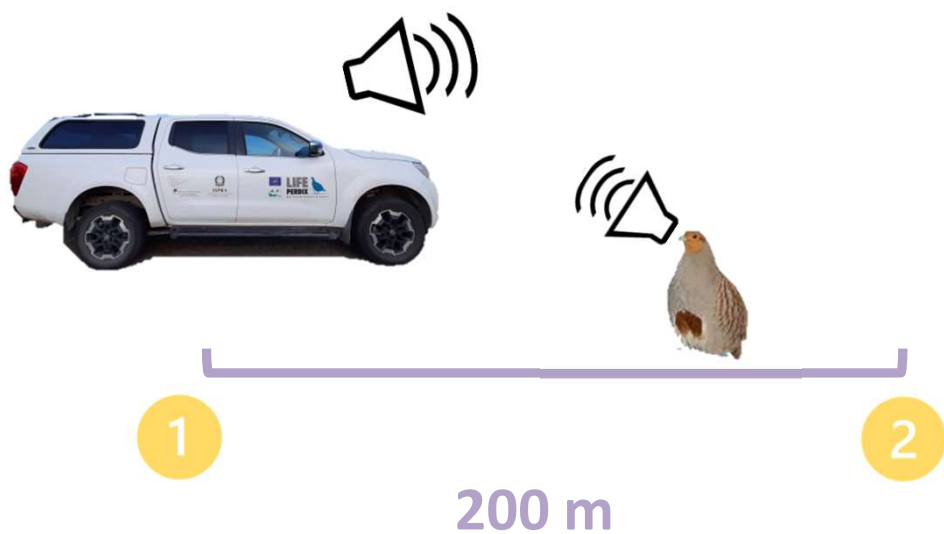
- Direct observation with binoculars
- Listening to spontaneous vocalizations
- Playback



- Playback

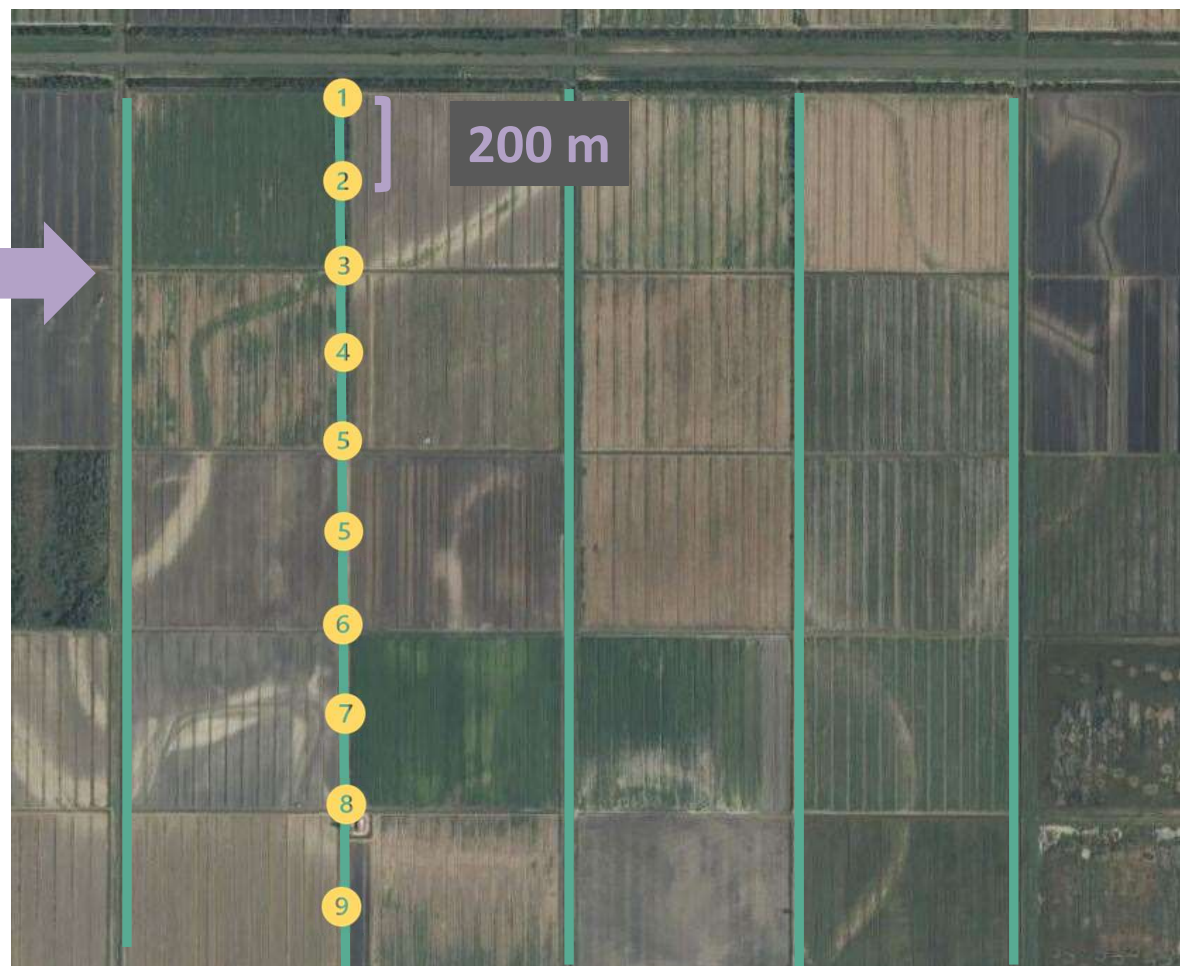
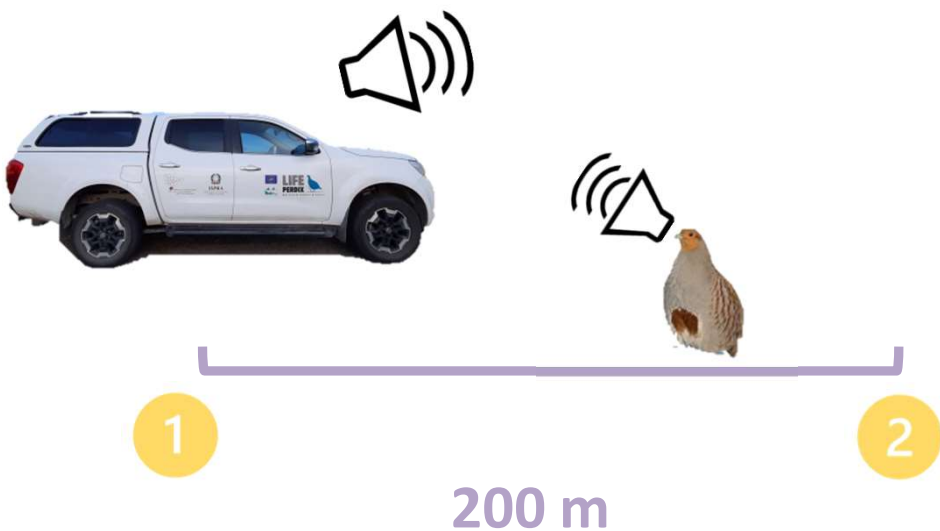


- Playback



- Playback

Maximum 3 times



- Date/Time
- Meteorological conditions
- Survey details
- Contact type (individuals seen or heard, sex, pairs)
- Geographic position (Geographic coordinates with GPS)

SCHEDA DI MONITORAGGIO PRIMAVERILE DELLA STARNA ITALICA

SCHEDA N.	COMUNE (PROV.)	UNITA' DI GESTIONE	PERCORSO N. (es. T15)
		ZPS Valle del Mezzano	T

DATA	ORA INIZIO	ORA TERMINE	ALTITUDINE (MIN - MAX)

CONDIZIONI METEOROLOGICHE

CIELO (0=sereno - 8=coperto)	VENTO (A=assente D=debole M=moderato F=forte)	TEMPERATURA DELL'ARIA	PRECIPITAZIONI (A=assente P=presente)

condizioni orografiche (grado di acclività)	condizioni del suolo: roccioso, argilloso, ghiaioso, medio impasto, sabbioso ecc.	condizioni di umidità del terreno: asciutto, umido, bagnato	tipo di ambiente (%): incolto roccioso, incolto erbaceo, bosco, macchia, seminativo, frutteto, oliveto, vigneto ecc.
0 (pianeggiante)			

REGISTRAZIONE DEI CONTATTI

ORA	ID PUNTO DI ASCOLTO (da 1 a n)	N. EMISSIONI RICHIAMO (minimo 4)	N. MASCHI UDITI	N. MASCHI VISTI	N. COPPIE VISTE	N. ESEMPLARI INDET.	COORDINATE X-Y (Animali contattati)



RESULTS

April 2022

Calling males	Males observed	Pairs observed	Indeterminate
63	16	101	4

April 2023

Calling males	Males observed	Pairs observed	Indeterminate
40	19	112	3



RESULTS

APRIL 2022

Potential breeding pairs: 182
Density: 2,04/100 ha

APRIL 2023

Potential breeding pairs: 172
Density: 1,90/100 ha

- The total investigated area, for density calculation, was the **sum of 125 m buffer zones** around the listening stations (effective range of acoustic calls).



2024 MONITORING

Distance sampling

- Two new variables were incorporated
- Exact distance from the listening point to the animal(s)
- Azimuth of the sighting



SCHEDA DI MONITORAGGIO PRIMAVERILE DELLA STARNA ITALICA

SCHEDA N.	COMUNE (PROV.)	UNITA' DI GESTIONE	PERCORSO
		ZPS Valle del Mezzano	N. (es. T15) T
DATA	ORA INIZIO	ORA TERMINE	Rilevatore

CONDIZIONI METEOROLOGICHE

CIELO (0=sereno - 8=coperto)	VENTO (A=assente D=debole M=moderato F=forte)	TEMPERATURA DELL'ARIA	PRECIPITAZIONI (A=assente P=presente)

condizioni del suolo: roccioso, argilloso, ghiaioso, medio impasto, sabbioso ecc.	condizioni di umidità del terreno: asciutto, umido, bagnato

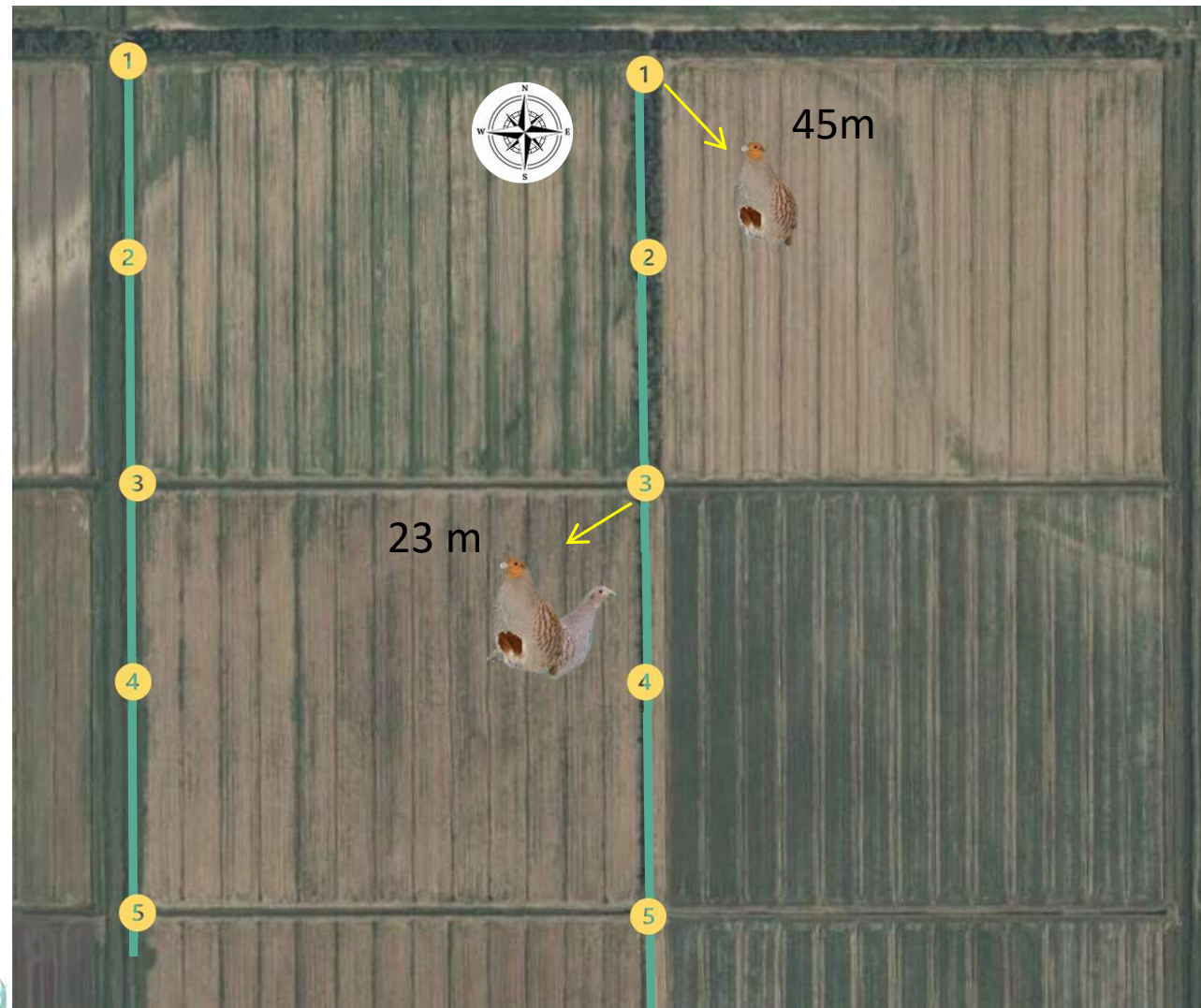
ORA	ID PUNTO DI ASCOLTO (da 1 a n)	N. MASCHI UDITI	N. MASCHI VISTI	N. COPPIE VISTE	N. INDET.	DIST.	ANG.	HABITAT (coltivazione, grado di copertura..)



2024 MONITORING

Distance sampling

- Exact distance from the listening point to the animal(s) (telemeter)
- Azimuth of the sighting (compass)



2024 MONITORING

Distance sampling

- Encounter rate
- Probability of observation was influenced by several factors, including tall grass, cryptic plumage, and areas far from the transect (field center).



2024 MONITORING

Distance sampling

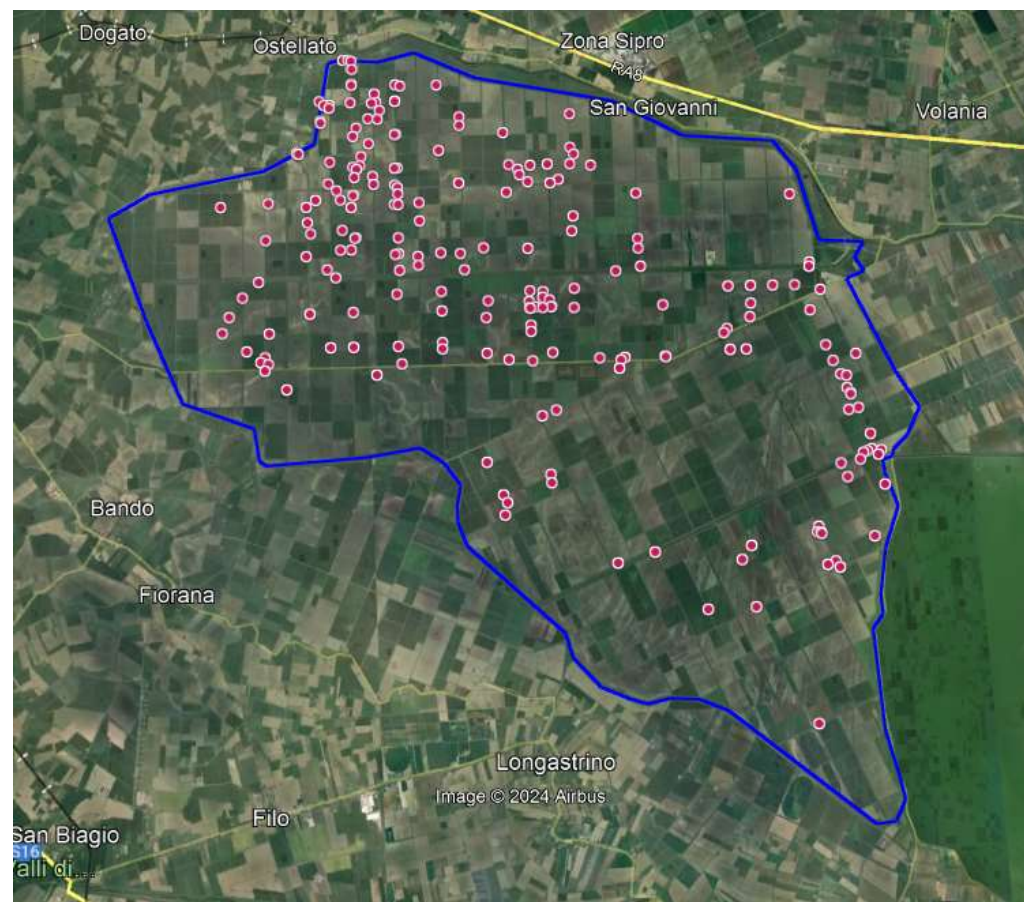
- More accurate estimation of animals density considering the entire area of the Mezzano Valley (17.910 ha)



RESULTS

April 2024

Calling males	Males observed	Pairs observed	Indeterminate
61	30	165	3



Distance sampling

Data processing using *Distance* software: two analysis

1. Pairs density
2. Males density (couple and individuals)



Distance sampling: Pairs density

Total pairs 160 (PD=0,39 of pairs present)

- Mean density was **19.1 pairs per km²**
- Extrapolating this value to the reference area, an estimated population of **3415** pairs was obtained.

N° pairs analyzed	160
Probability of observing pairs	0,39 ± 0,03
Estimated pairs density per kmq	19,1 ± 2,3
95% confidence interval of density	15 – 24,3
Coefficient of variation	12,43%
Estimated pairs population size	3.415



Distance sampling: Males density

Total males 251 (PD= 0,31 of males present)

- Mean density was **23,8 per km²**
- Extrapolating this value to the reference area, an estimated population of **4256** potentially breeding males obtained.

N° males observed analyzed	251
Probability of observing males	0,31 ± 0,02
Estimated male density per kmq	23,8 ± 2,5
95% confidence interval of density	19,33 – 29,21
Coefficient of variation	10,54%
Estimated male population size (potential mates)	4.256



CONCLUSIONS

- The estimated density is between 3000 and 4000 pairs throughout the reintroduction area



