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► **To cite this version:**

Grégory Deso, Théo Dokhelar, Jean-Marie Ballouard, Gonzalo Del Barrio, Aloys Crouzet, et al.. Spatial ecology of the snakes *Malpolon monspessulanus* in a periurban plain in southern France. Le 50ème congrès de la Société Herpétologique de France (SHF), Oct 2023, Erquy, France. hal-04256136

HAL Id: hal-04256136

<https://hal.science/hal-04256136v1>

Submitted on 24 Oct 2023

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Spatial ecology of the snakes *Malpolon monspessulanus* in a periurban plain in southern France

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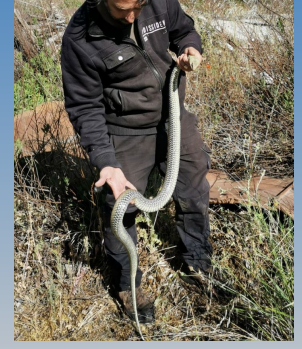
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INTRODUCTION

The Montpellier snake is a large protected species found in the Mediterranean regions of southern France, classified Near Threatened in the Provence-Alpes-Côte d'Azur region. Knowledge of its spatial ecology is currently very fragmentary. For the first time in France, we regularly monitored six individuals by radiotracking in an artificial wasteland bordered by highways, peri-urban and agricultural areas (Bédarrides commune, Vaucluse).

Radiotracking method :

The snakes were fitted with VHF transmitters at a veterinary clinic; they were released and then precisely located using a Garmin MAP GPS in 2020 and 2022. With several students involved in the monitoring, we compiled up to 100 fixes per individual.

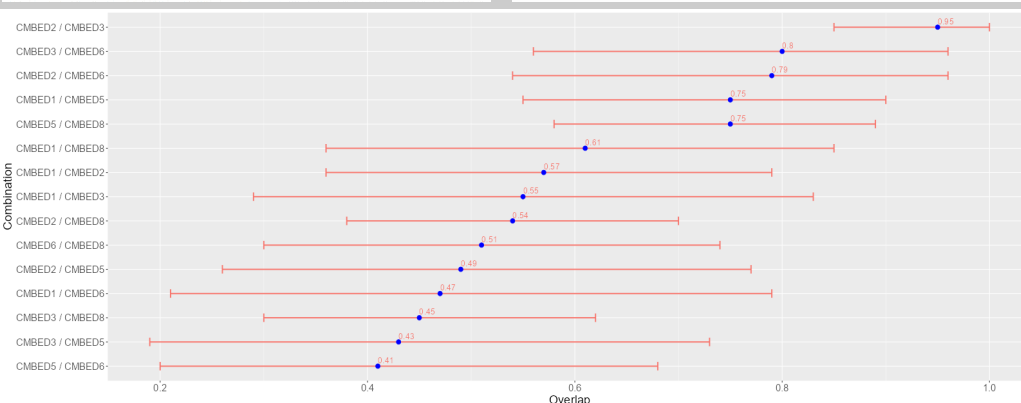
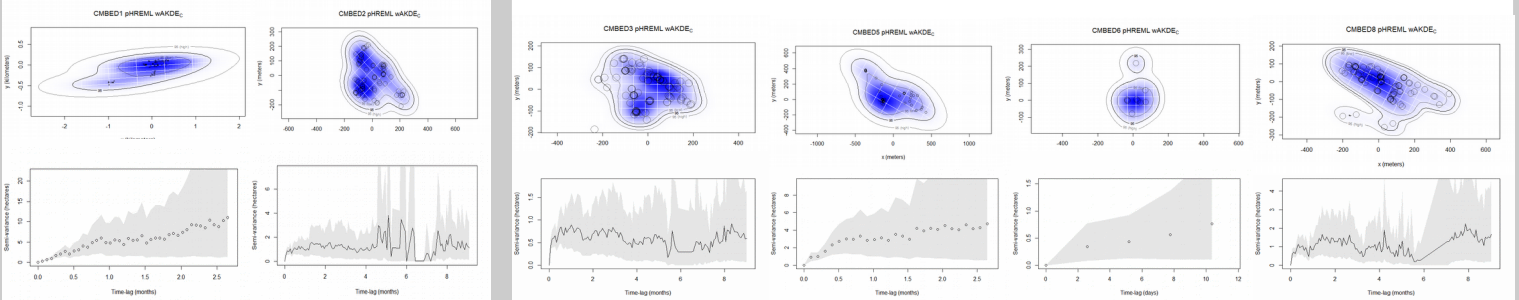
Fig 3: CMBED1 and Xavier Bonnet ; Fig 4-7: snake monitoring by Aloys Crouzet, Fabian Berthot, Valentin Lafond and Dorian Sausse

Home Range :

Home ranges were estimated using weighted auto-correlated kernel density estimates (w-AKDE). In our dataset, neither the number of observations nor the duration of monitoring explained home range size (Spearman Rank Order Correlations $-0.086 < R_s < 0.086$, $P > 0.95$). Home range size varied greatly with strong overlapping among individuals.



ID	N effectif	AKDE 95% ha	CI AKDE 95% ha	ID (CMBED: <i>Malpolon monspessulanus</i>)	Sexe	LT (cm)	Mass (g)	Nb obs	Start of follow-up	End of monitoring	Duration of follow-up (months)	Minimum interval (days)
CMBED1	4.65	180.96	[55.69 – 378.72]	CMBED1	♂	171,5 cm	1540 gr	80	2021-05-09	2022-02-24	9.85	2.14
CMBED2	43.20	17.18	[12.44 - 22.67]	CMBED2	♂	137,5 cm	560 gr	81	2021-01-03	2022-10-29	22.46	2.21
CMBED3	70.15	10.81	[8.43 – 13.48]	CMBED3	♂	163 cm	1135 gr	102	2021-01-05	2022-10-29	22.4	2.12
CMBED5	9.08	53.42	[24.53 – 93.37]	CMBED5	♂	116 cm	410 gr	47	2021-05-09	2021-10-24	5.69	3
CMBED6	9	6.28	[2.87- 10.99]	CMBED6	♀	118,5 cm	343 gr	10	2021-05-28	2021-06-19	0.77	2.59
CMBED8	86	16.63	[12.16 – 27.77]	CMBED8	♂	188 cm	1590 gr	87	2021-01-06	2023-02-16	26.11	2.91



CONCLUSION

The industrial wasteland studied fully hosts the home range of most of the individuals. The large adult males monitored largely shared the space; the absence of any sightings of fighting suggests that cohabitation was common.

Several individuals passed under highways to reach gardens via drainage channels; some even crossed a fast-flowing river.

Remerciement : Nous tenons à remercier pour leur accompagnement sur le terrain Dorian Sausse, Thomas Scarpari, Valentin Lafond, Fabian Berthot, Paul Simar Bayet et Tony Genova pour leur aide au radio tracking de 2020 à 2023

