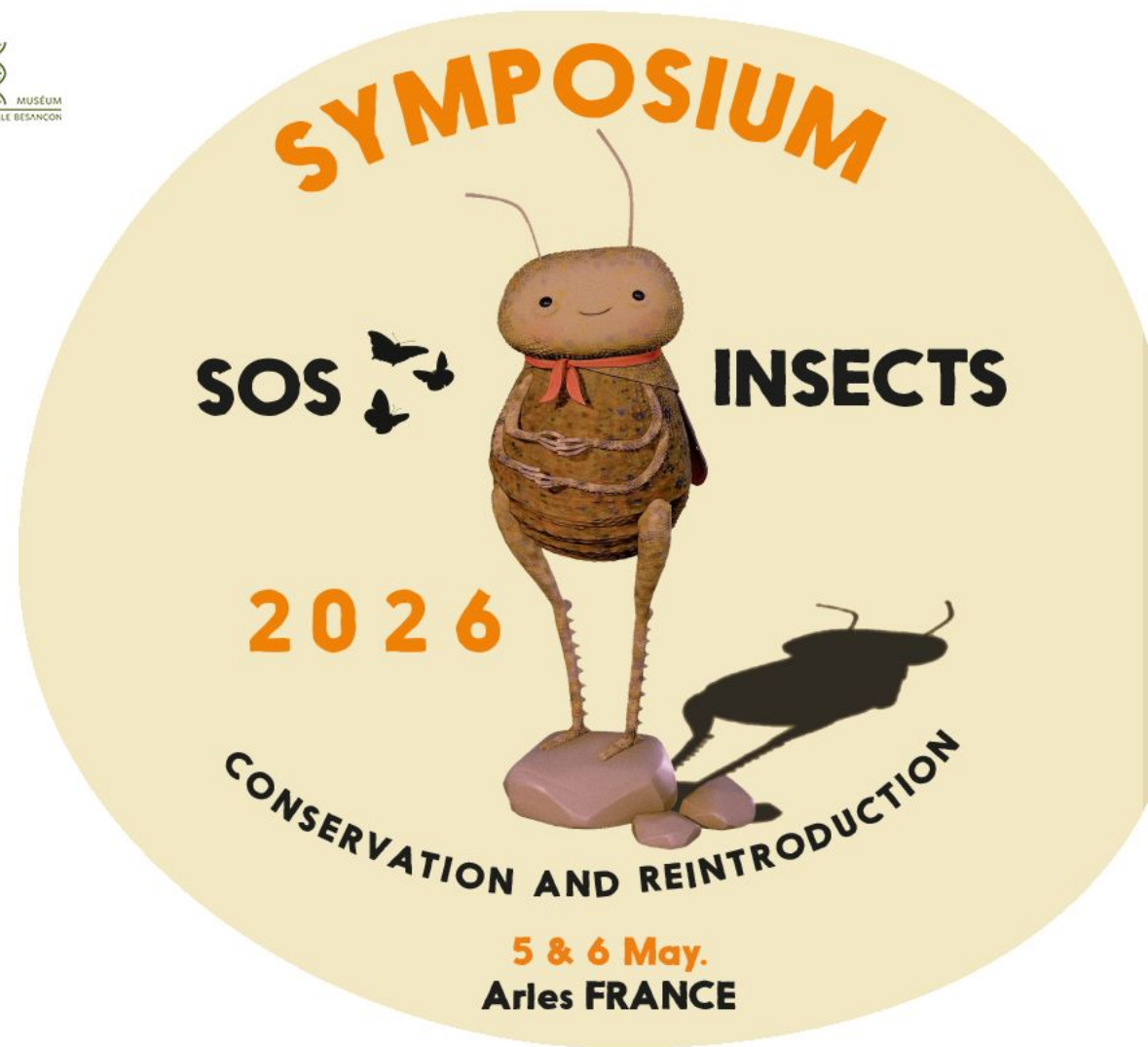




Overcoming Challenges in Insect Conservation Using Detection Dogs



Quels défis et comment y faire face ?

De l'exemple du Crique de Crau aux insectes menacés en Europe et Méditerranée.

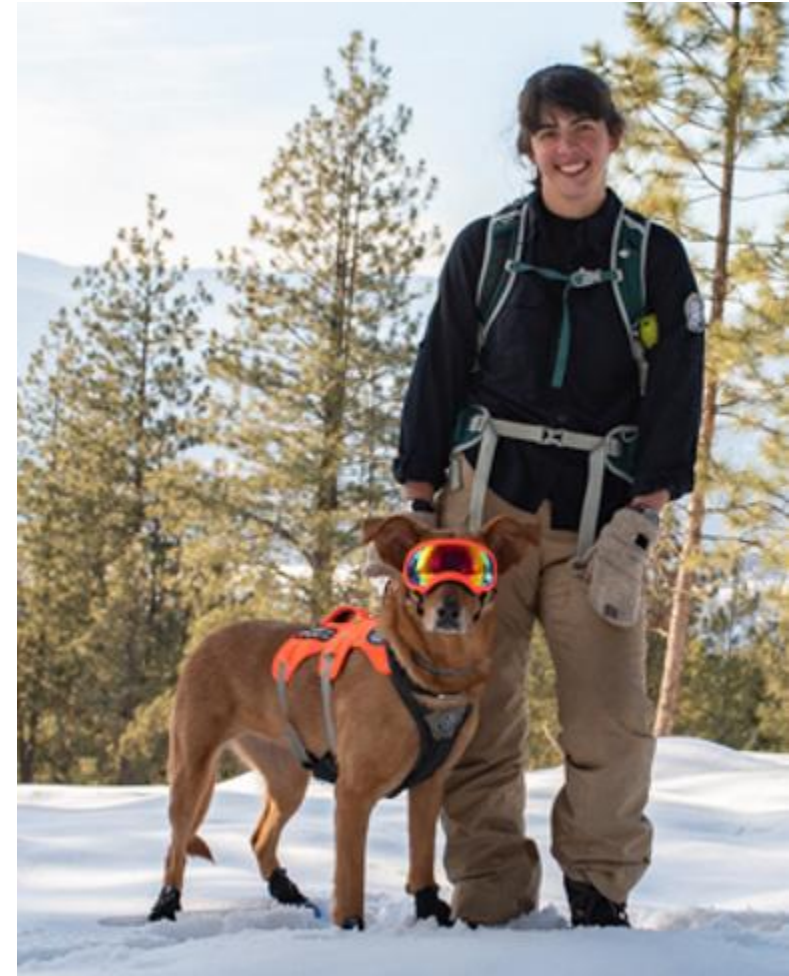
SOMMAIRE

1. The Team
2. Establishing Olfactory Feasibility for *Prionotropis rhodanica*
3. Comparative Performance: Canine Scent Detection vs. Visual Human Surveys
4. Bayesian Occupancy Modeling
5. Tracking the Life Cycle



1. The Detection Team

- Graduated as Conservation Detection Dog Handler from University of Washington in 2014
- Veterinary Care at Escola Superior Agrária de Santarém Portugal
- Internship at Hospital Veterinário da Arrábida, Portugal
- Worked for: Cen Paca, University of Kent, Cestmed, Grupo Lobo, Lord Howe Island Board, Savannah Lithium Resources, many more...
- Volunteer at: Conservation Detention Dog Program Rogue Detection Teams, Animal shelter Focinhos e Bigodes, Iberian Wolf Recovery Center
- Dogs for Nature



1. Hera

- Rescued at 2 years old
- 11 years, 9 operational
- Imprinted on 21 different scents

Scats: Iberian Wolf, Italian Wolf, Ocellated Lizard, European Badger, Brown Bear, Little Bustard, Malaysian Tiger, Clouded Leopard, Polecat, Iberian Lynx.

Live individuals: Plain-Crau Grasshopper, Green Turtle, Little Bustard, Mediterranean Tortoise, French Stone Grasshopper.

Nests: Green Turtle and Little Bustard.

Carcasses

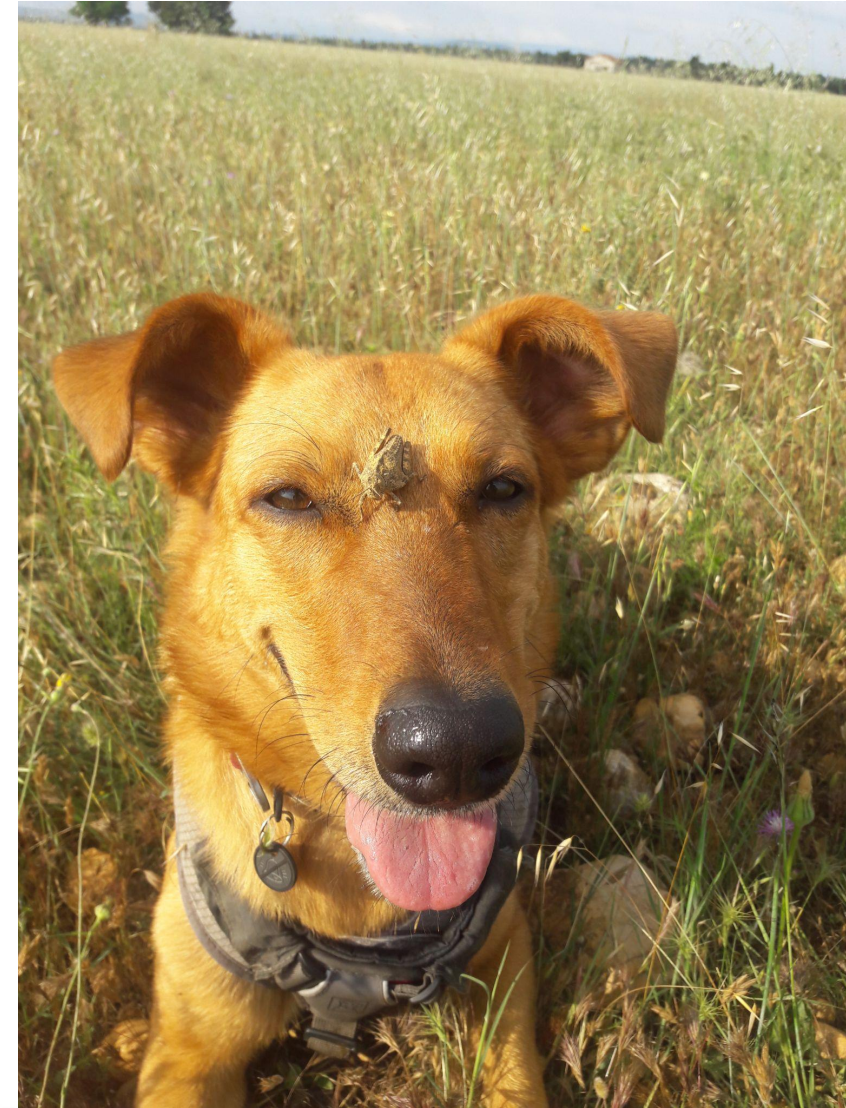
Ootheca: Plain Crau Grasshopper

- Imprints a new scent within less than a week
- 11 Contries



2. Establishing Olfactory Feasibility for *Prionotropis rhodanica*

Can trained detection dogs detect the Crau Plain Grasshopper?



2. Establishing Olfactory Feasibility for *Prionotropis rhodanica*

- **Targeting the Individual:** We confirmed that the dogs can pinpoint live, individual grasshoppers rather than just general areas of interest.
- **Beyond the Living:** The dogs also successfully located "signs" of the species, including molts (discarded shells), remains of predated individuals, and naturally deceased grasshoppers.
- **Species Discrimination:** Most importantly, the dogs demonstrated the ability to distinguish the Crau Plain Grasshopper from other common grasshopper species found in the same field.



3. Comparative Performance: Canine Scent Detection vs. Visual Human Surveys

Methodology

- Controlled trials in a 25m² enclosure.
- with 16 randomized releases.
- 1 Detection Dog Team (1 dog + 1 handler) vs 4 experienced humans.
- 10min per survey.

Results: The dog-handler team achieved an 87% success rate, compared to 58% for visual observers.



3. Comparative Performance: Canine Scent Detection vs. Visual Human Surveys

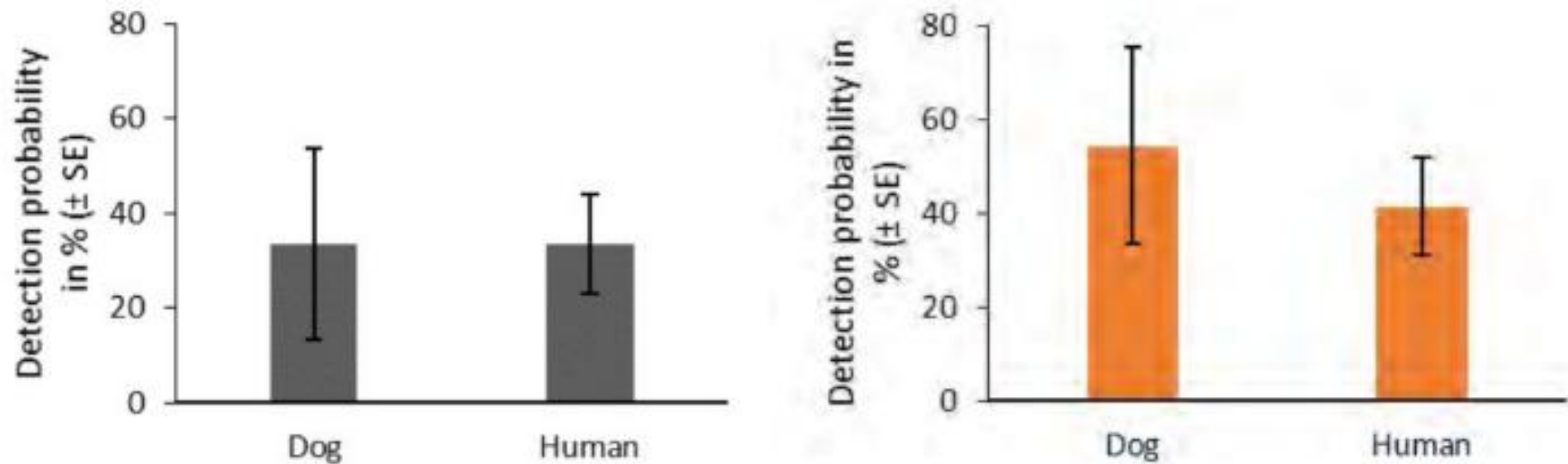


Figure 23 : Détection à la fois par le chien et le maître-chien (à gauche) ; détection par le couple et uniquement par le chien (à droite).

4. Bayesian Occupancy Modeling

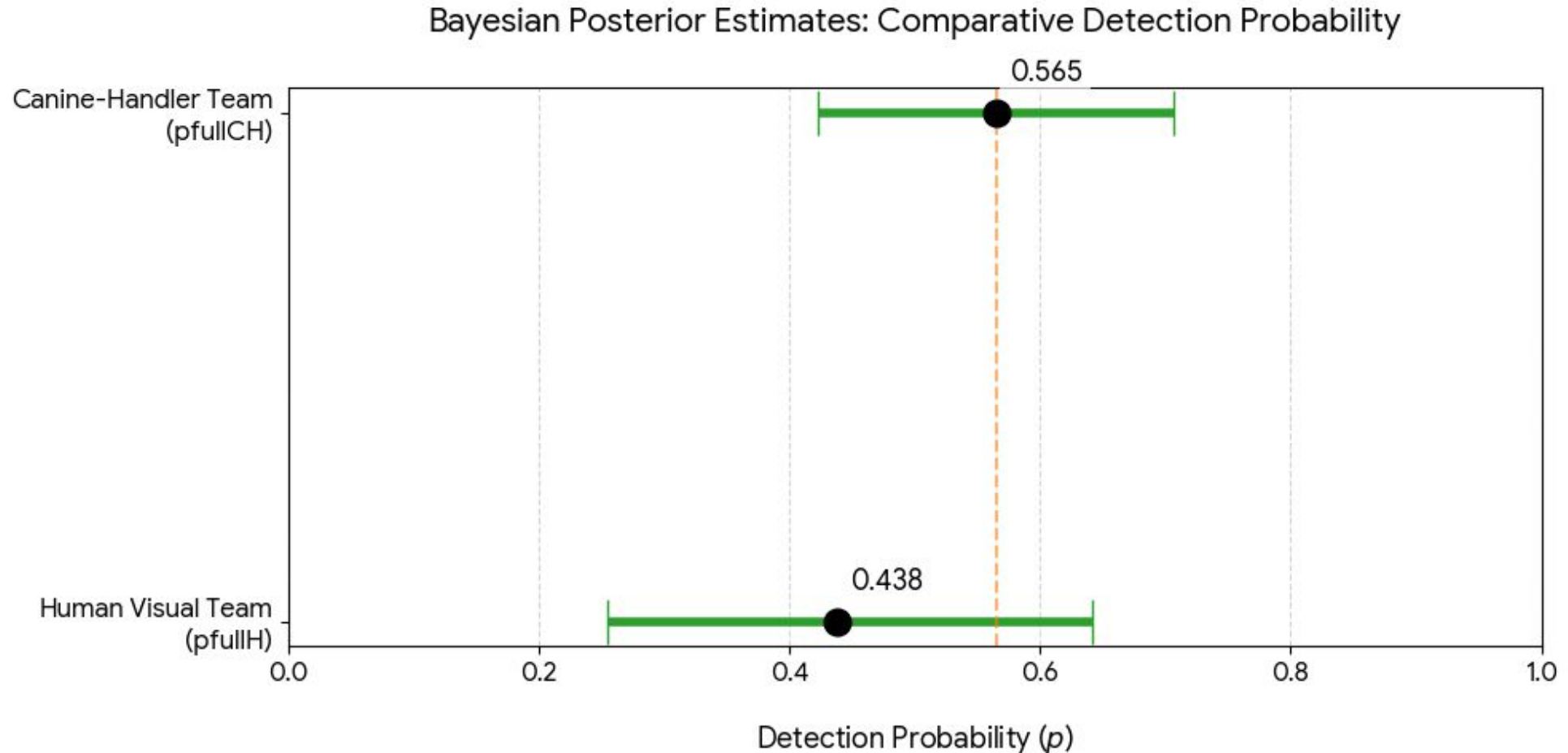
Counting the "Misses": We used the Bayesian model to account for the grasshoppers that were definitely there but were missed by the searchers.

Testing Reliability: We checked if the dog was just "lucky" or if they were consistently better across the whole Calissane site.

The Gold Standard: The math confirmed that the dog is a more precise and reliable tool for this job than a human team.



4. Bayesian Occupancy Modeling



5. Tracking the Life Cycle



Can the dogs find the Plain Crau Grasshopper Oothecas?

5. Tracking the Life Cycle





Merci pour votre participation et votre investissement dans la conservation des insectes !



Charlie Hebdo © Flooz