



Arma dei Carabinieri



## *Trail camera use in Vallombrosa Forest*

Ten. Col. Giuliano SAVELLI  
Mar. Ord. Giovanni Galipò  
App. Sc. Celeste Di Cesare

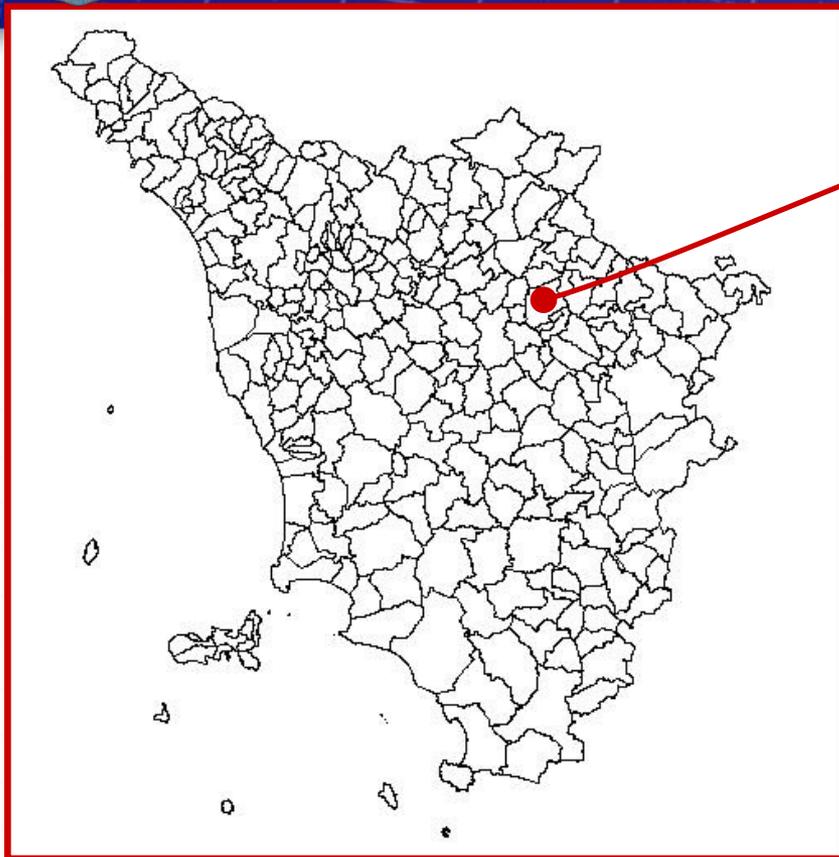
Reparto Carabinieri Biodiversità di Vallombrosa

**Rincine, 14 marzo 2024**





# Where and what is Vallombrosa Natural Reserve?

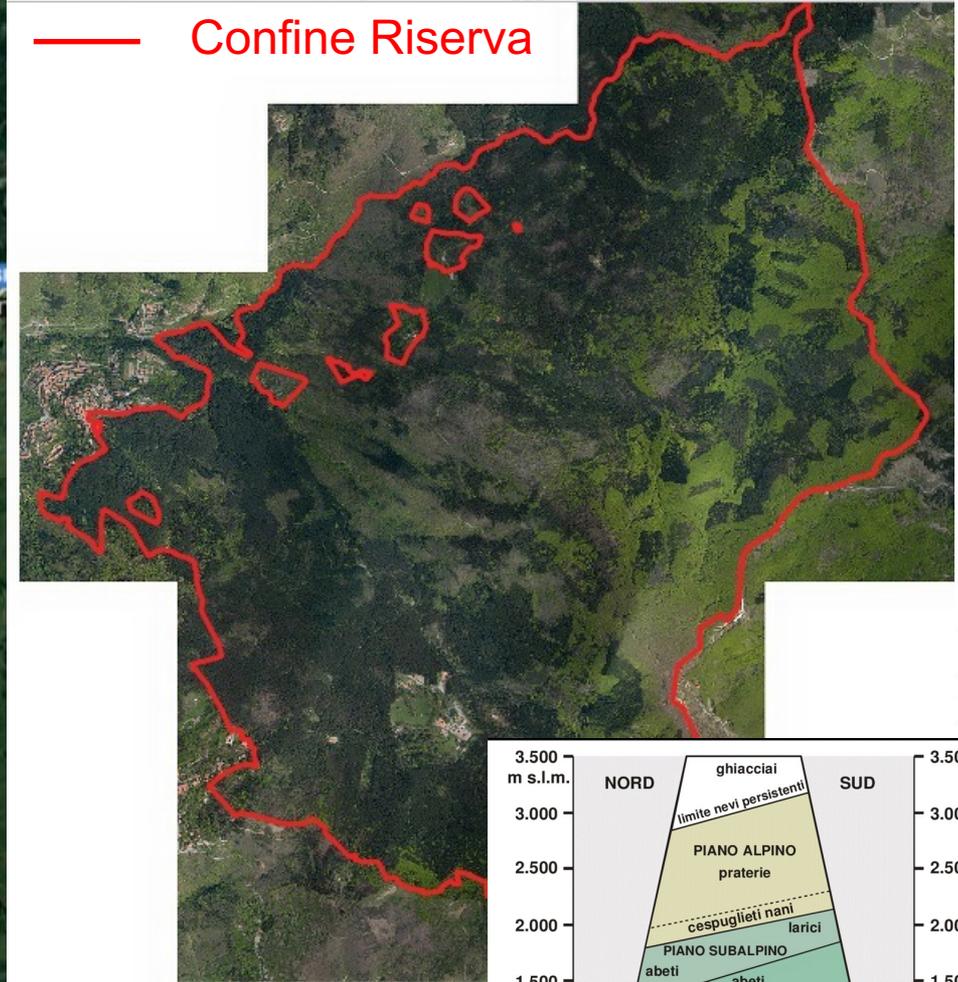


**PROVINCIA DI FIRENZE**

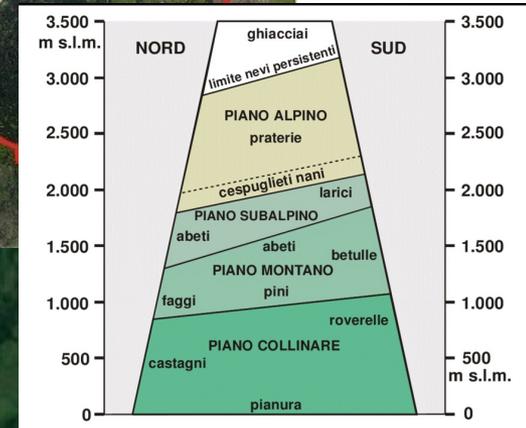
**COMUNE DI REGGELLO**



# Where and what is Vallombrosa Natural Reserve?



from 500 to 1400 m. above sea level





# Forest management





# Forest management... and what else??

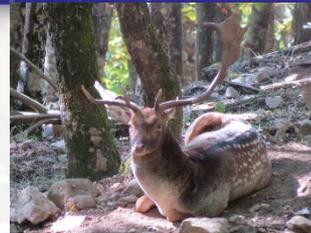


## FOREST RESEARCH SPOT

Universities, Research Institutes, BGCI

Developing of an innovating management plan

Natura 2000 site



## OTHER USE OF FOREST

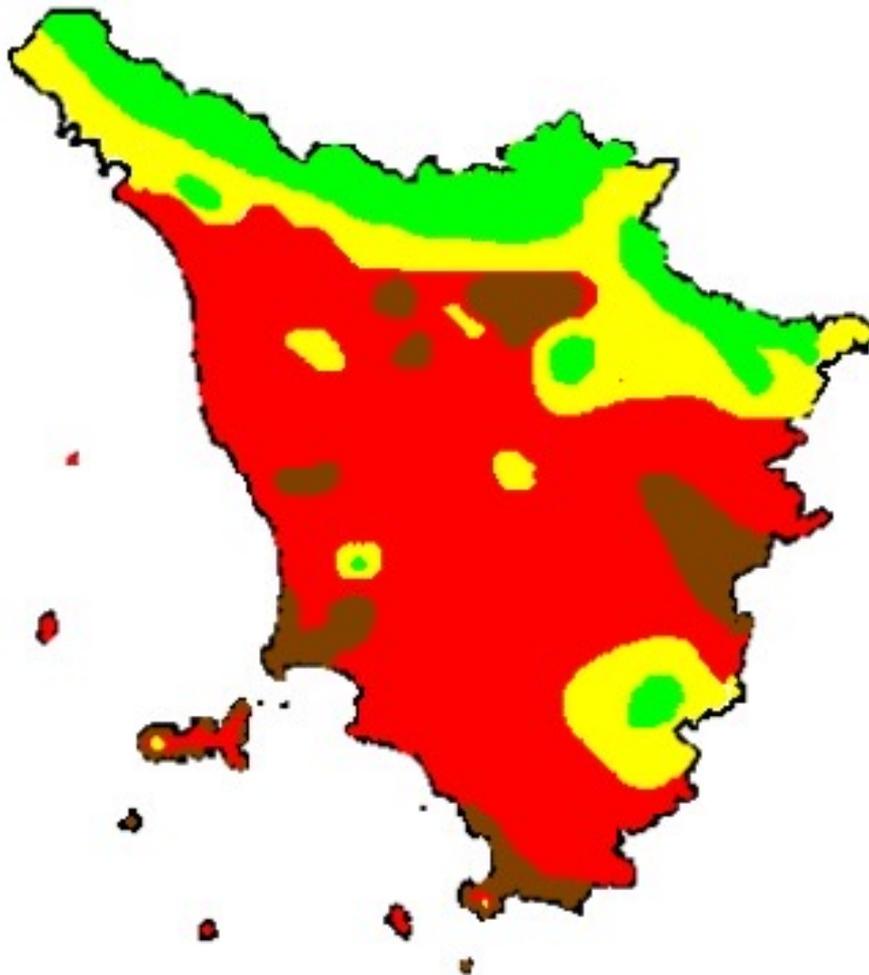
Tourism (wheather conditions, abbey, highest plants in Italy..)

Sports (trekking, bike etc..)

Forest bathing (For.Sa.)



# Why so much tourism?



Carta della temperatura media di luglio

	<20 °C		22-24 °C
	20-22 °C		>24 °C





# Where and what is Vallombrosa Natural Reserve?





Why am I using a trail camera?

**OUR EXPERIENCE IN VALLOMBROSA 3 MAIN PURPOSES:**

Nature 2000 or generally scientific monitoring

Surveillance

Material to promote the image of the Reserve or our activities



# Nature 2000 and ecosystem monitoring



Monitoring or scientific purpose  $\neq$  single use of a trail camera

Lot of work before the use of the camera:

scientific protocol to validate and to analyze the datas:

many cameras involved,  
distribution net,

camera checking: who, how and how often,  
data collecting and control

**USUALLY NOT ONLY ONE CAMERA**



# Surveillance

Phenomenon

(e.g. a damage on a tree root, a sign of passage in shrubs, wasted materials...)



CLUE of what is the **TARGET** I am trying to video/photo capture  
(footprints/carprints, animal feces, waste, traces of human activities...)

known

unknown

Human?  
Animal?  
Other?

Tips on:

- choose the right instrument (battery, memory...);
- choose the right settings (only video? pictures? both?)
- where and how to place (hypotesis on size, behaviour, movement speed, ...)



what is the **AIM** of the video/photo capture

(just presence? Recognize species (or people)? Count the presence number?)



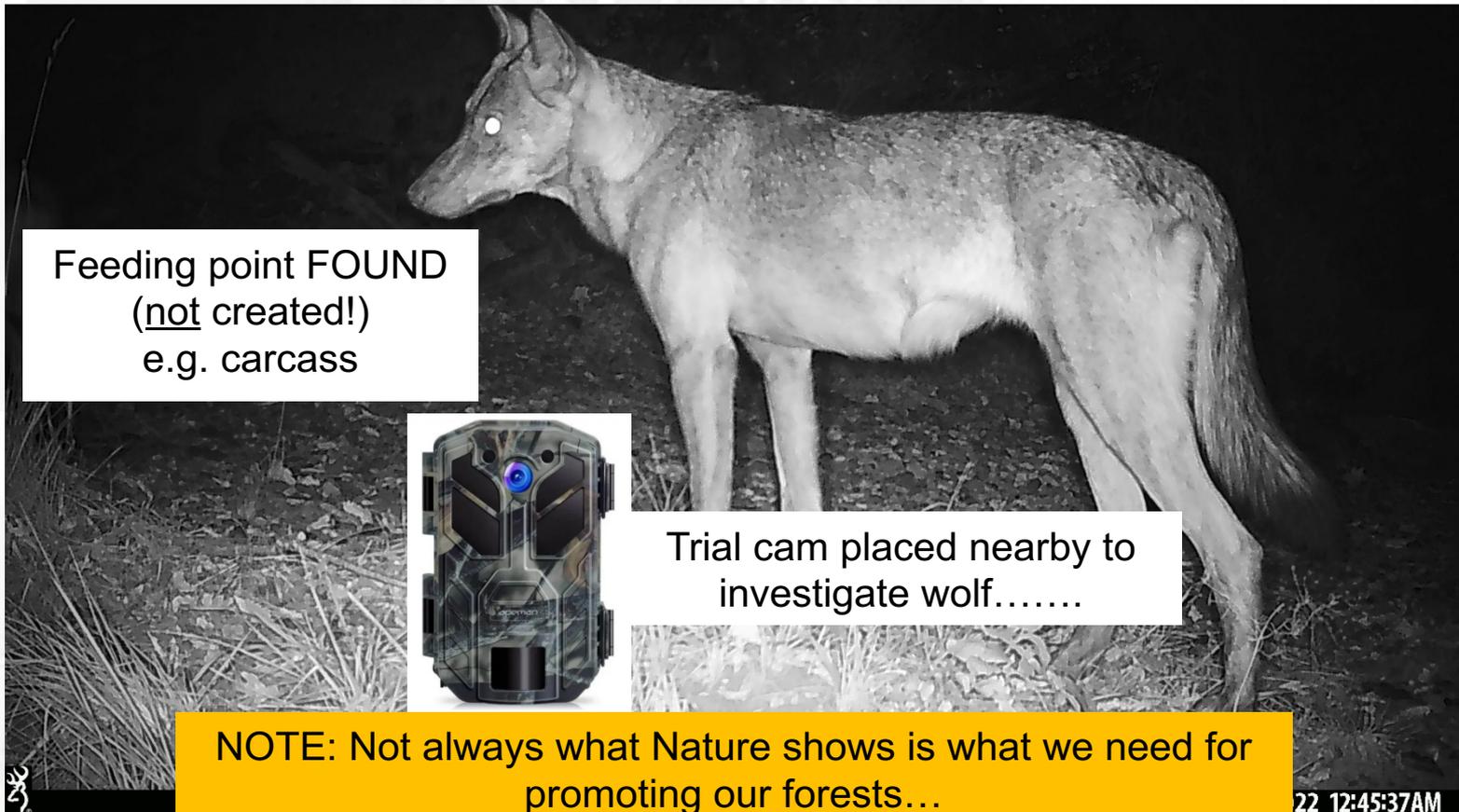
# Material to promote the Reserve image and activities



IMPORTANT: Often the best material is already available,  
but sometime you can be lucky....

## OUR EXPERIENCE EXAMPLE:

Presence of wolves





# Placement

Big mammals (from cat size)



60-250cm

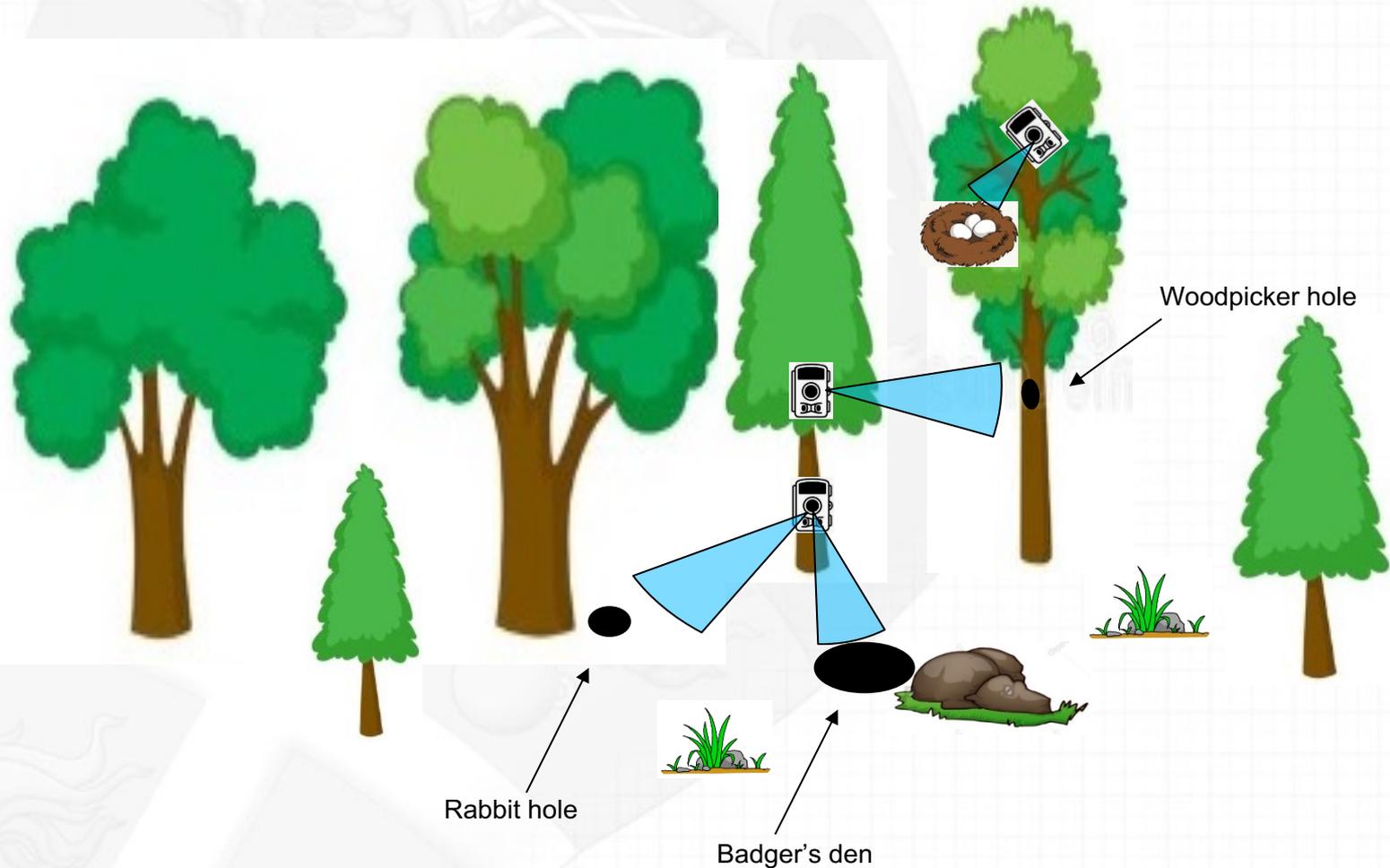
Passage path (presumed)





# Placement

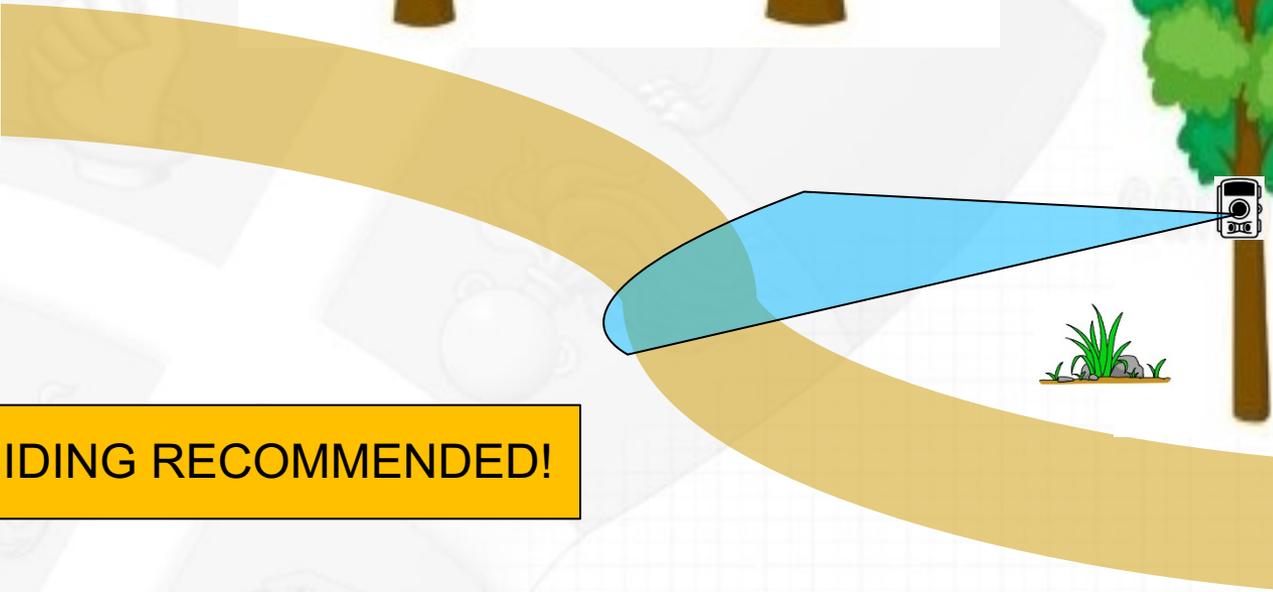
Birds (nesting, on ground), small sized animals...NOT HUMANS





# Placement

## Vehicles



0 - 400cm

**HIDING RECOMMENDED!**

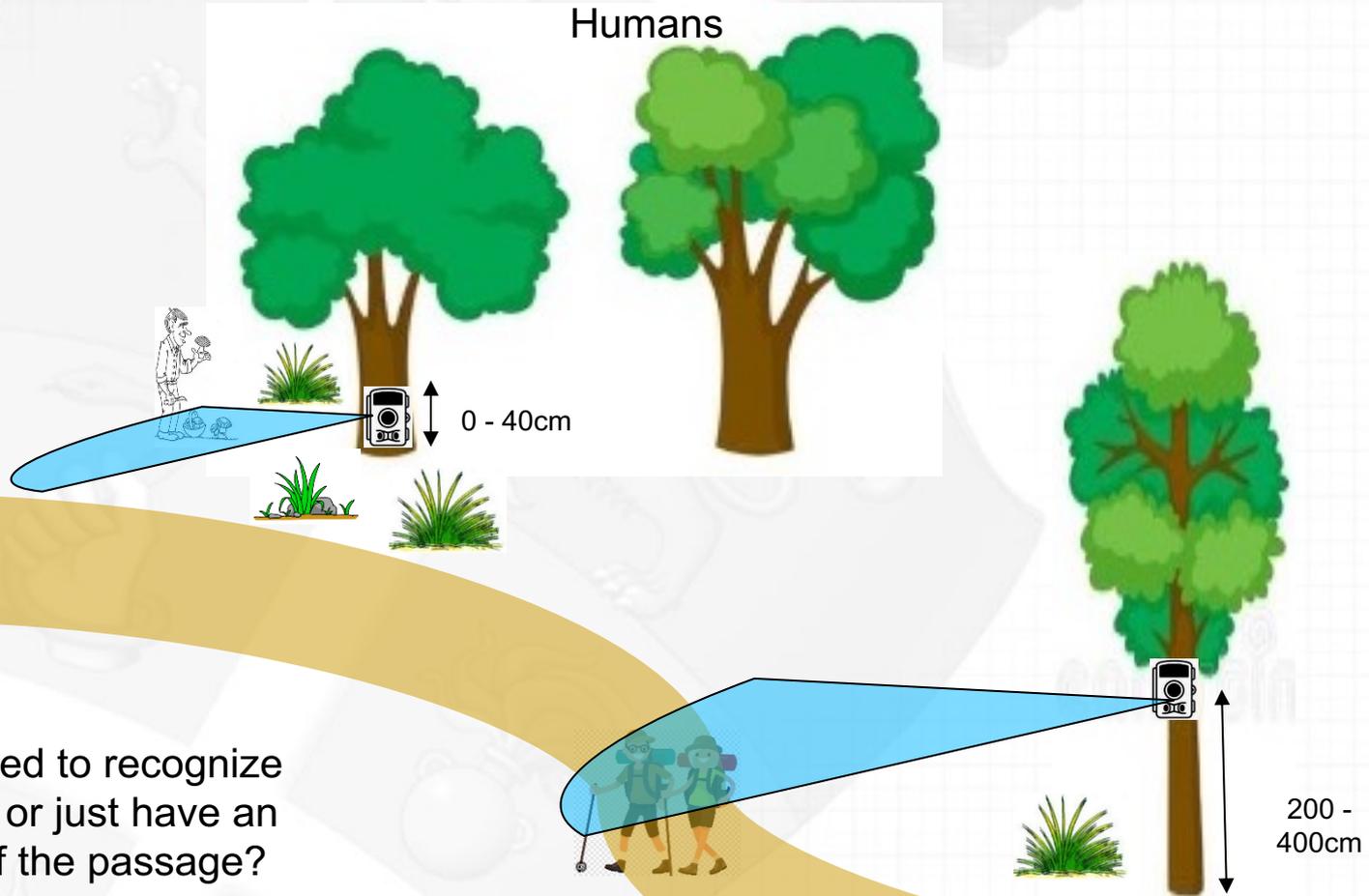




# Placement



## Humans



Do I need to recognize people or just have an idea of the passage?

**HIDING HIGHLY RECOMMENDED!**



# Placement



Of course there can be not suitable places for the camera placement.....





# Placement



General tips:

Guessing trigger point (camera detection zone) based on clues found

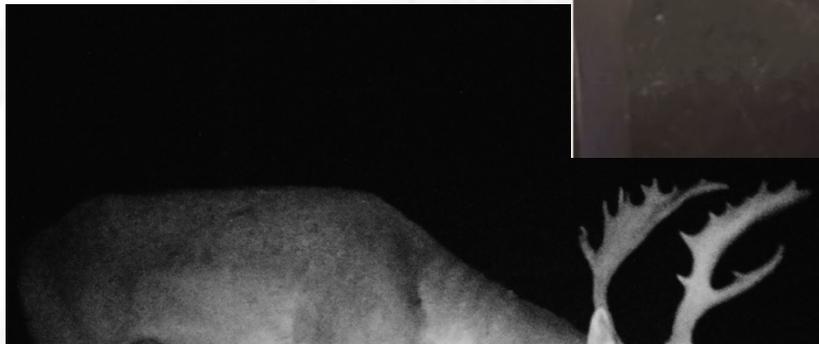
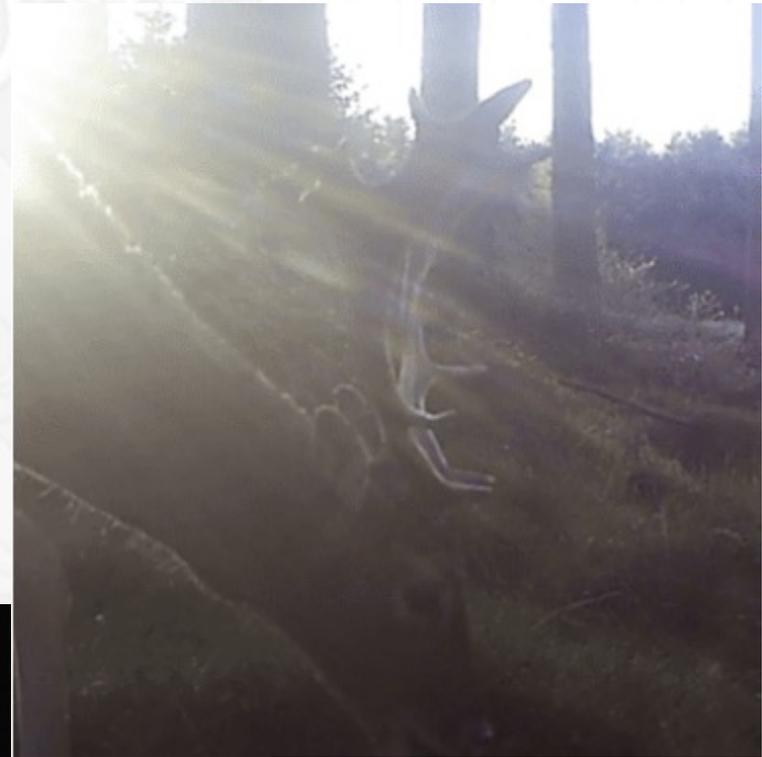




# Placement



Light (sunrise, sunset, angling too low or too high)





# Placement



Vegetation movement (forest type, season)





# Placement



Other examples of multi-target





# Placement



Other examples of multi-target





# Placement

General tips:

Minimize user's smell & traces (also in checking!)

Trail cameras stealing  
(hiding, no glow cameras, lockers, boxes,  
tags, serial numbers)





# Placement

## General tips:

Privacy laws (EU 2016/679 GDPR, national/local laws)



**AREA  
MONITORATA CON  
DISPOSITIVI  
AMOVIBILI DI  
VIDEO RIPRESA  
DIGITALE PER IL  
MONITORAGGIO  
FAUNISTICO**

**RAGGRUPPAMENTO CARABINIERI BIODIVERSITÀ  
VALLOMBROSA**

- L'ATTIVITÀ DI MONITORAGGIO È SVOLTA DAL REPARTO CARABINIERI BIODIVERSITÀ DI VALLOMBROSA
- I DISPOSITIVI **SONO ESCLUSIVAMENTE** IMPIEGATI PER IL CENSIMENTO E IL RILEVAMENTO DELLA FAUNA SELVATICA.
- I DATI RACCOLTI SONO CONSERVATI PER IL TEMPO RITENUTO NECESSARIO ALLO SVOLGIMENTO DELLE ATTIVITÀ DI RICERCA/STUDIO.
- **EVENTUALI DATI PERSONALI** ECCEZIONALMENTE ACQUISITI TRAMITE L'ATTIVITÀ DI MONITORAGGIO, RIFERITI A PERSONE FISICHE INCIDENTALMENTE ED ECCEZIONALMENTE RIPRESE, DIRETTAMENTE O ANCHE INDIRETTAMENTE IDENTIFICABILI, SARANNO IMMEDIATAMENTE CANCELLATI.
- **CHIUNQUE** RITIENE DI ESSERE STATO INCIDENTALMENTE ED ECCEZIONALMENTE RIPRESO PUÒ CONTATTARE IL REPARTO CC BIODIVERSITÀ DI VALLOMBROSA AL NUMERO 055/862020 O ALLA MAIL 043606.001@CARABINIERI.IT, AL FINE DI **CHIEDERE LA CANCELLAZIONE** DEI DATI PERSONALI EVENTUALMENTE REGISTRATI.
- IN CASO DI RILEVAZIONE DI IMMAGINI O VIDEO CONCERNENTI IPOTESI DI REATO, **NE SARÀ DATA COMUNICAZIONE** ALL'AUTORITÀ GIUDIZIARIA, PROVVEDENDO NEL CONTEMPO ALLA:
  - CONSERVAZIONE DELLE IMMAGINI O DEI VIDEO SU APPOSITI SUPPORTI MAGNETICI NON RISCRIVIBILI;
  - TRASMISSIONE DELLA COMUNICAZIONE DI NOTIZIA DI REATO CORREDATA DEI SUPPORTI VIDEO, IN VERSIONE INTEGRALE, FACENDO MENZIONE DELLE OPERAZIONI CONDOTTE.
- AL RIGUARDO, L'UTILIZZABILITÀ DELLE IMMAGINI REGistrate È **CONSENTITA** AI SENSI DEGLI ARTICOLI 2 DECIES E 160 BIS DEL D. LGS. 30 GIUGNO 2003 N. 196 (C.D. CODICE DELLA PRIVACY).



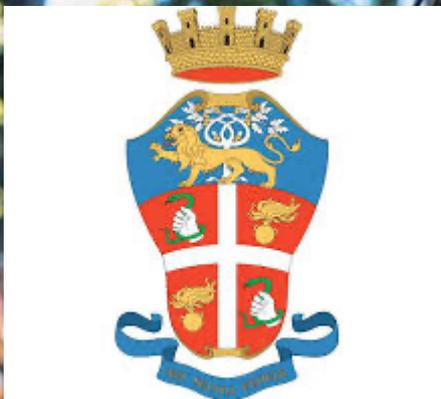
# Placement



Last IMPORTANT tip:

**! set date & time !**

Reference: [How to Place Your Camera Traps – NatureSpy](#)



Arma dei Carabinieri



*Thanks for your attention!*

**Ten. Col. Giuliano SAVELLI**  
**Mar. Ord. Giovanni Galipò**  
**App. Sc. Celeste Di Cesare**

**Reparto Carabinieri Biodiversità di Vallombrosa**