



Utilization of pheromones for monitoring and control of Lepidoptera expanding in European forests



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GREEN FUND





Defoliators

Importance for public health



Three important species



Pine processionary
moth, *Thaumetopoea*
pityocampa



Oak processionary
moth, *Thaumetopoea*
processionea



Gypsy (sponge) moth,
Lymantria dispar

Thaumetopoea pityocampa (Lepidoptera: Thaumetopoeidae)

processionary pine moth

- ➔ *Host range: Pinus (pines)*
- ➔ *Adult: Moth 3-4 cm*
- ➔ *Larva: 5 cm, yellow-black with setae (hair)*

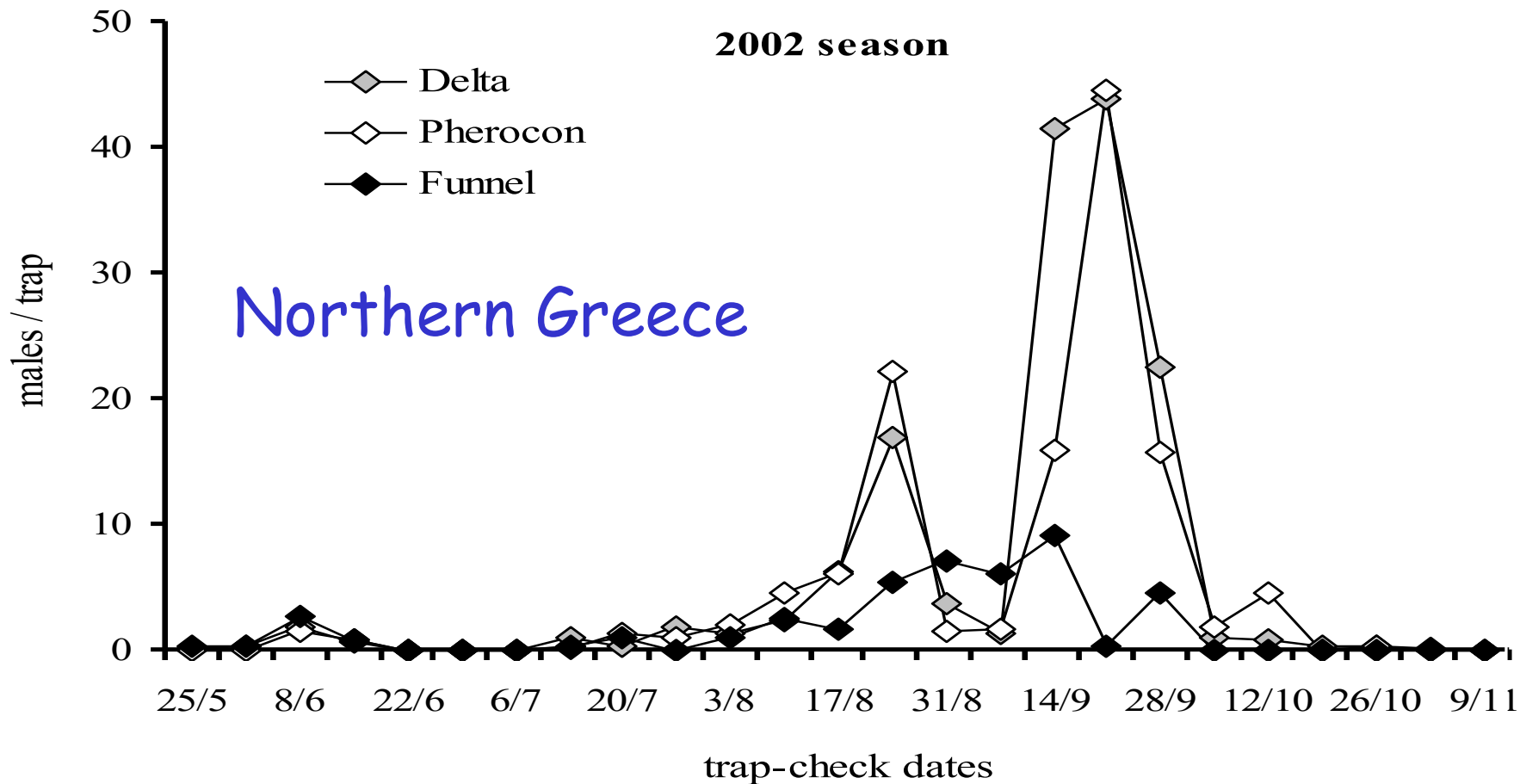




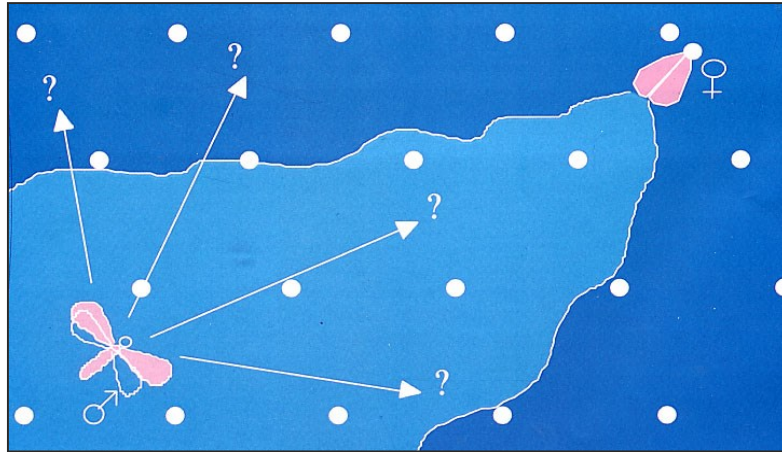


Flight activity

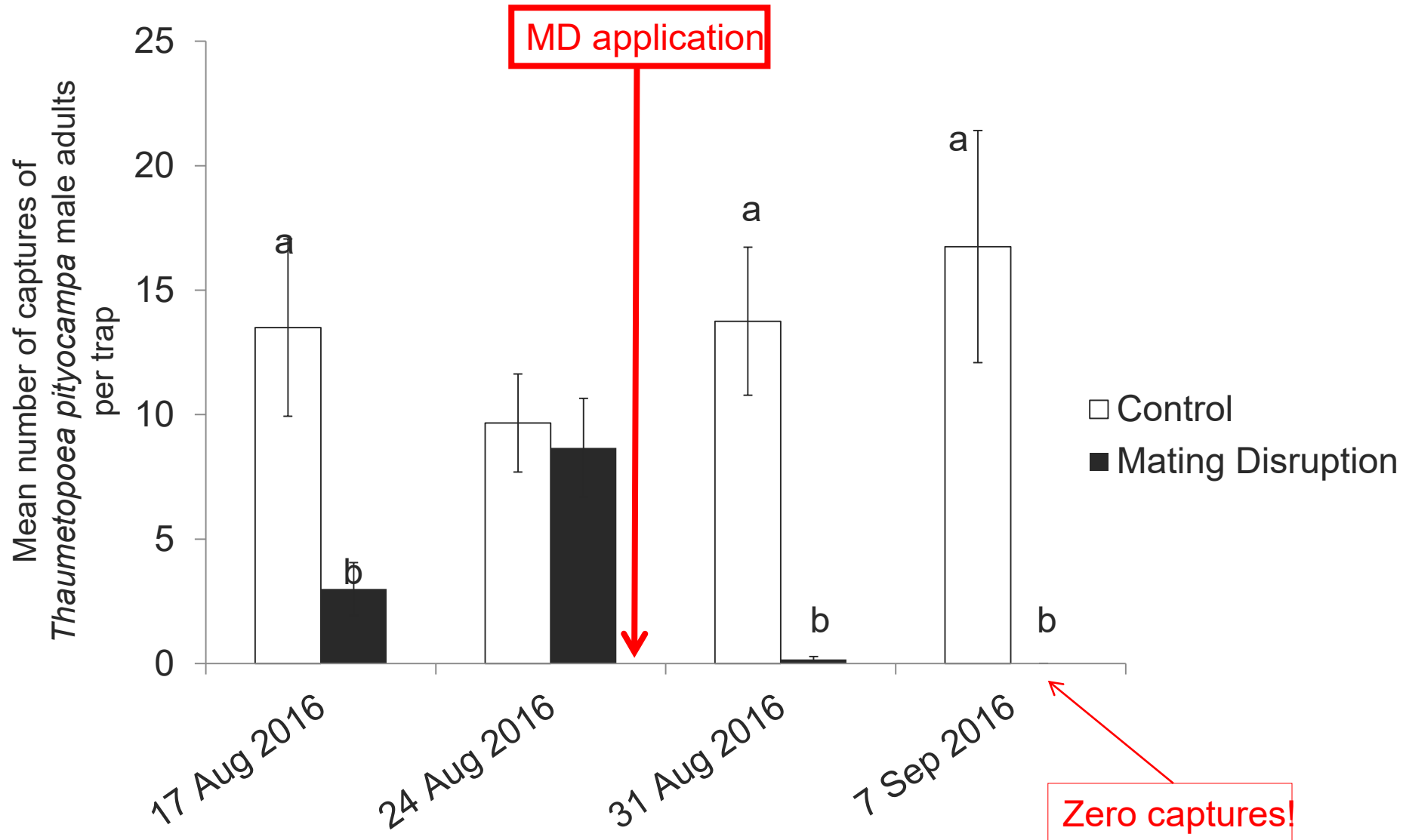
Different flight activity per for each area



Mating disruption



Mating Disruption



* For each sampling date, means followed by the same lower-case letter are significantly different according to HSD Tukey test at $P = 0.05$.

Mating Disruption: Counting of nests

CONTROL



WINTER 2017



Mating Disruption: Counting of nests

MD



WINTER 2017



Trunk traps



**Suspension of
commercial trunk traps**

Trunk traps



Suspension of depositories

Trunk traps



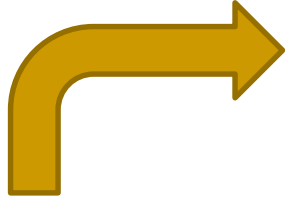


Life cycle of *Lymantria dispar*

female

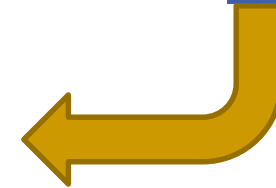
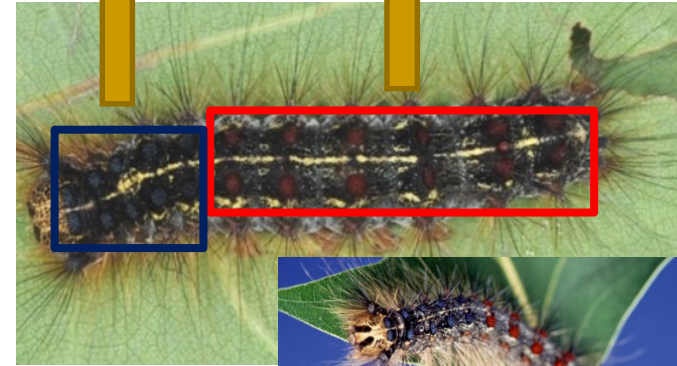


male

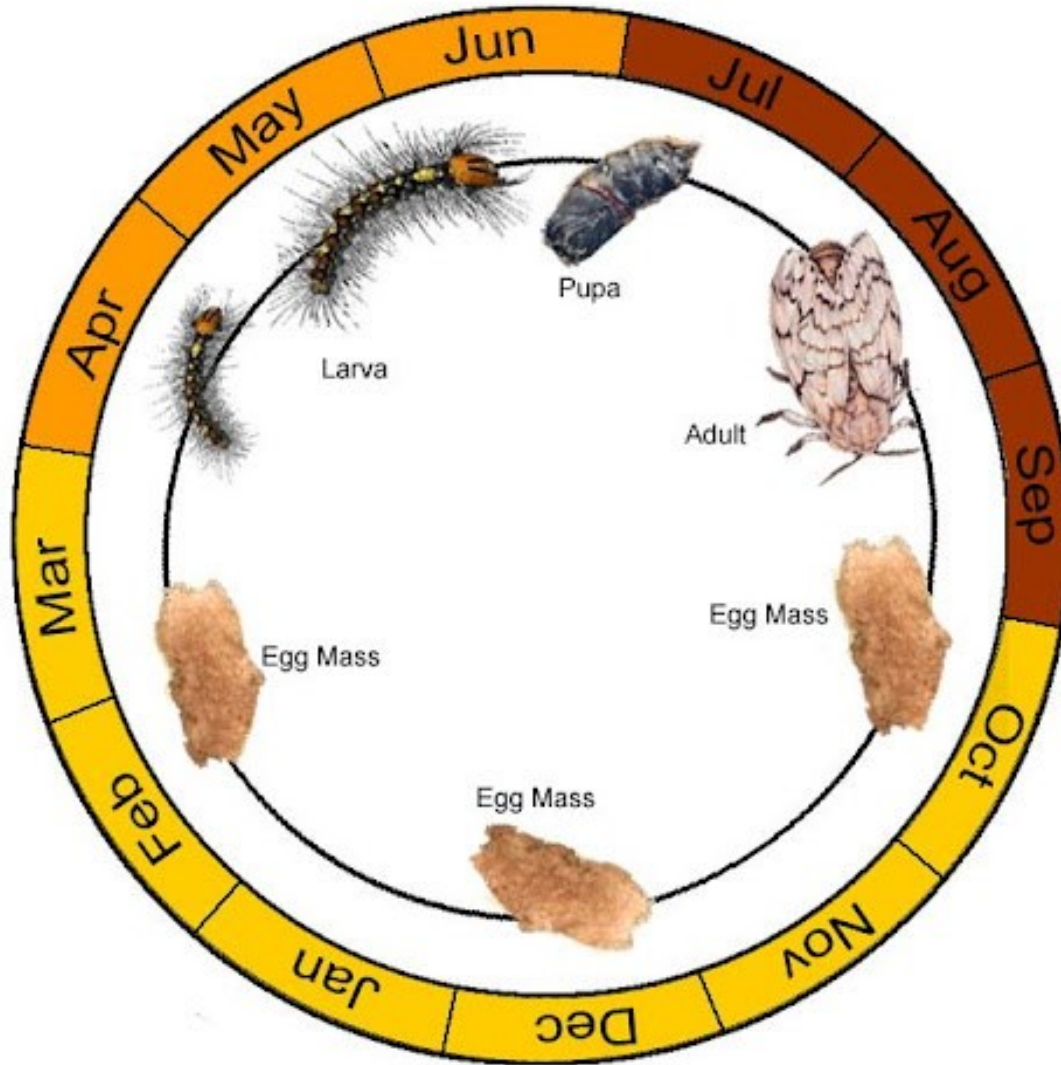


Double rows
of **blue** warts=
5

Double rows
of **red** warts=
6



Phenology of *Lymantria dispar*



Eggs and larvae of *Lymantria dispar*



Infestation patterns of *Lymantria dispar*



Infestation patterns of *Lymantria dispar* (2)



Infestation patterns of *Lymantria dispar* (3)



Trapping network for *L. dispar*

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Trunk trap installation in the forests Ginjevec and Murska šuma in NE Slovenia



On April 20, 3 types of trunk traps were set up in the forests Ginjevec and Murska šuma. The traps were set in time, although young caterpillars in



High capacity traps for *L. dispar*



Pheromone-baited traps for *L. dispar*





Trap types tested



G-trap



eGymer 1



eGymer 2



eGymer 3



eGymer 4





Indicative results (2022)

G-trap



eGymer 1



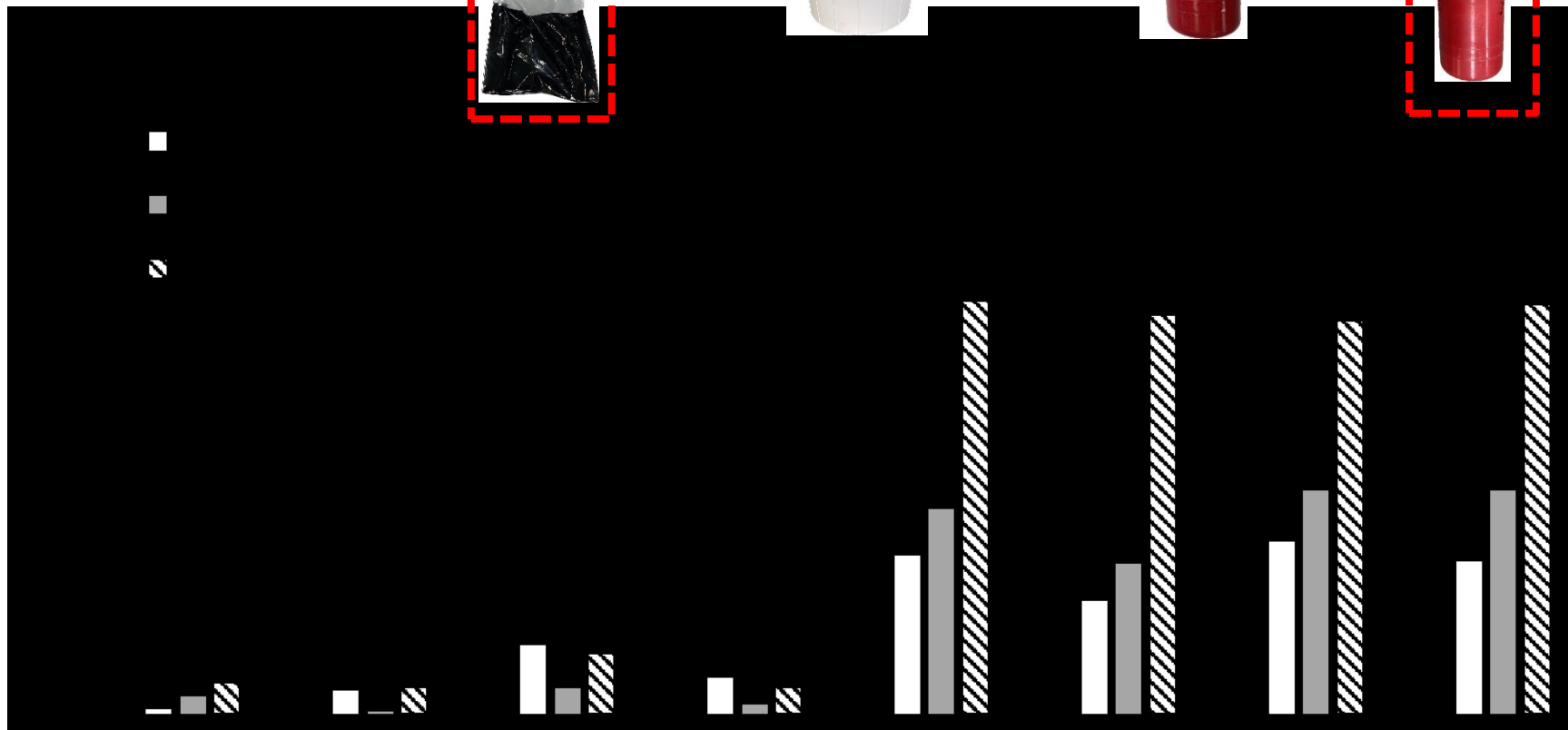
eGymer 2



eGymer 3



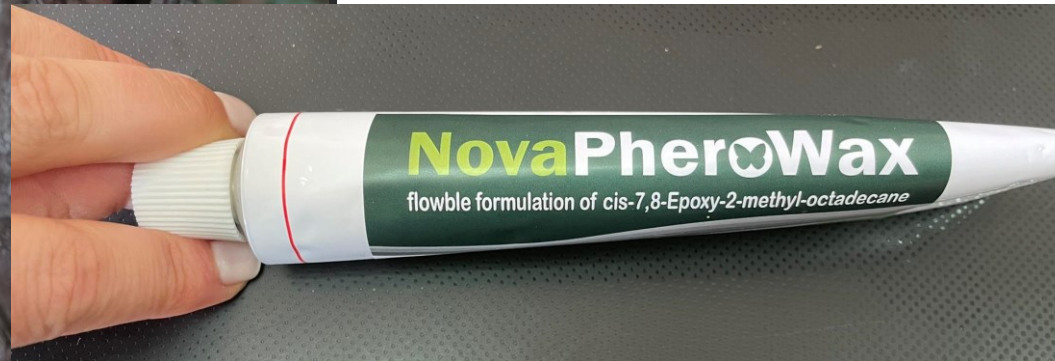
Adults/trap



locations

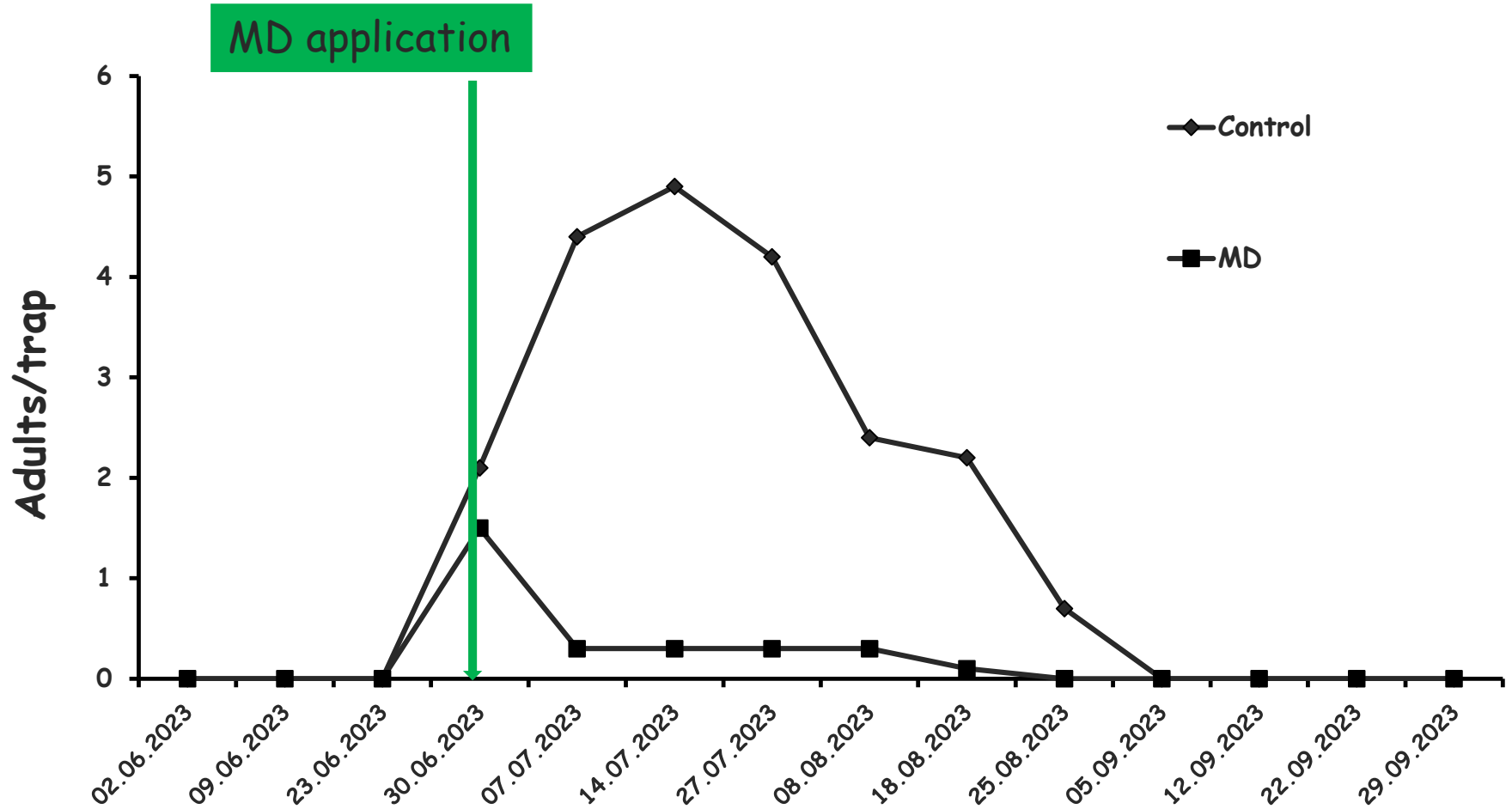


Mating disruption for *L. dispar*





Mating disruption for *L. dispar*





e-trap for *L. dispar* (basic layout)





e-trap basic layout



- ✓ Sticky tape
- ✓ Pheromone bait
- ✓ Temp/humidity sensor



- ✓ Specifically designed openings
- ✓ Air chamber for roof cooling





App.egymer.eu



Spanish Deployments



Greek Deployments



Slovenian Deployments





Website - app



CAMERA

ENVIRONMENT DATA

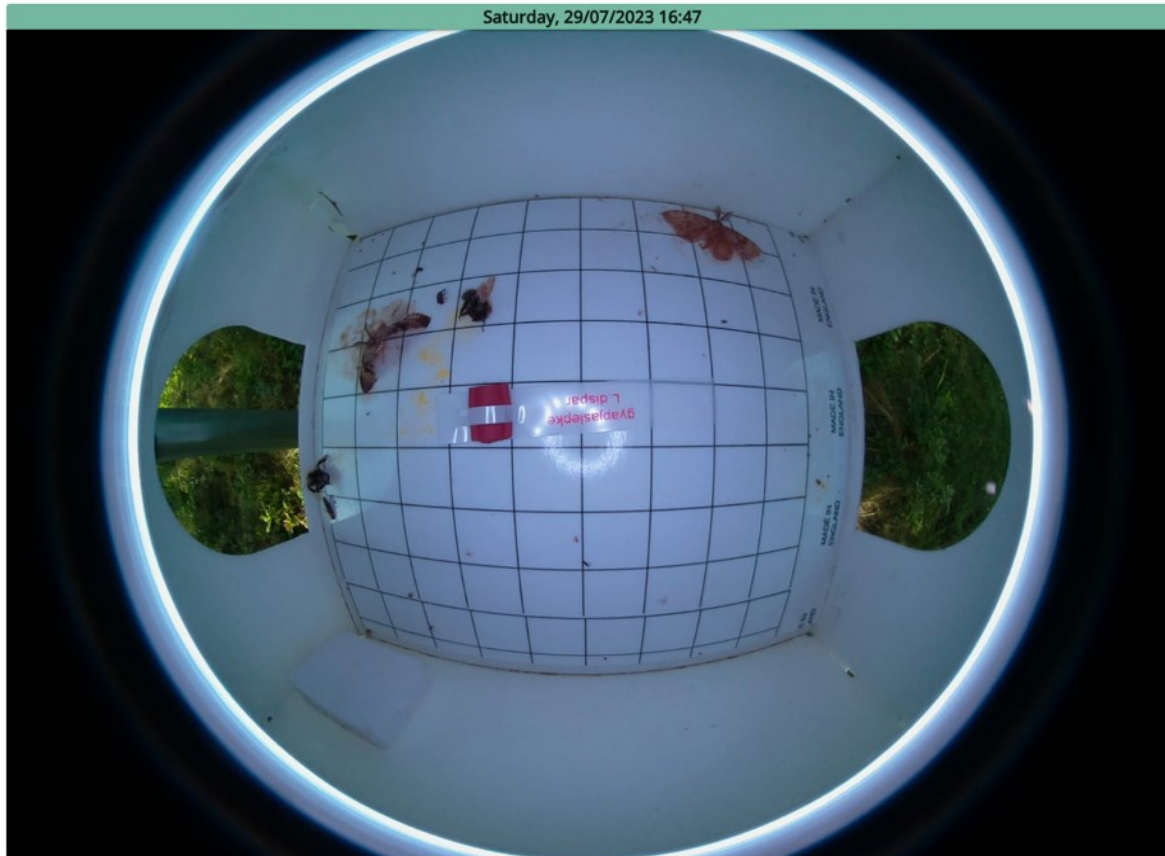


< RETURN

Node 303

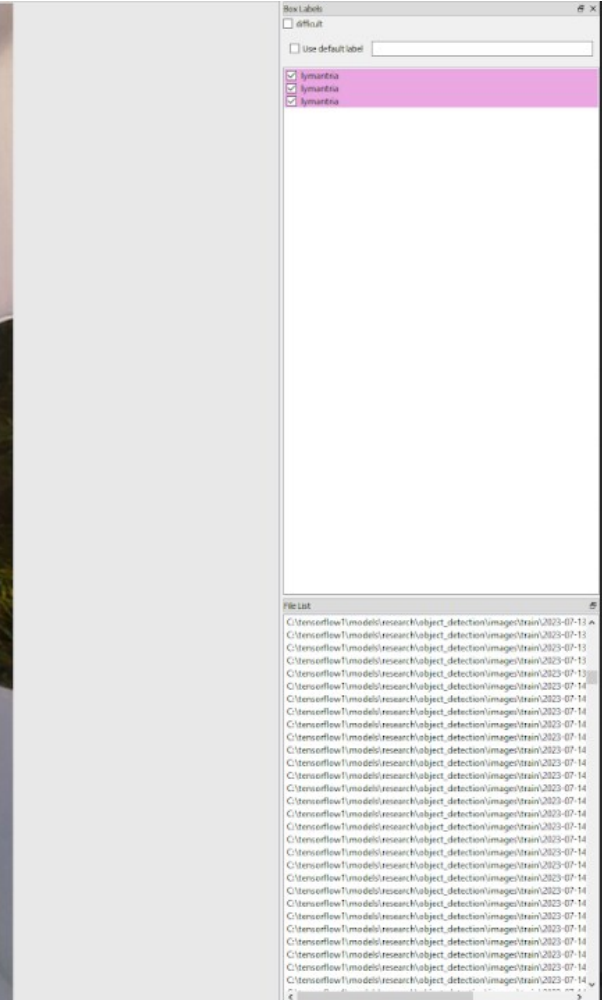
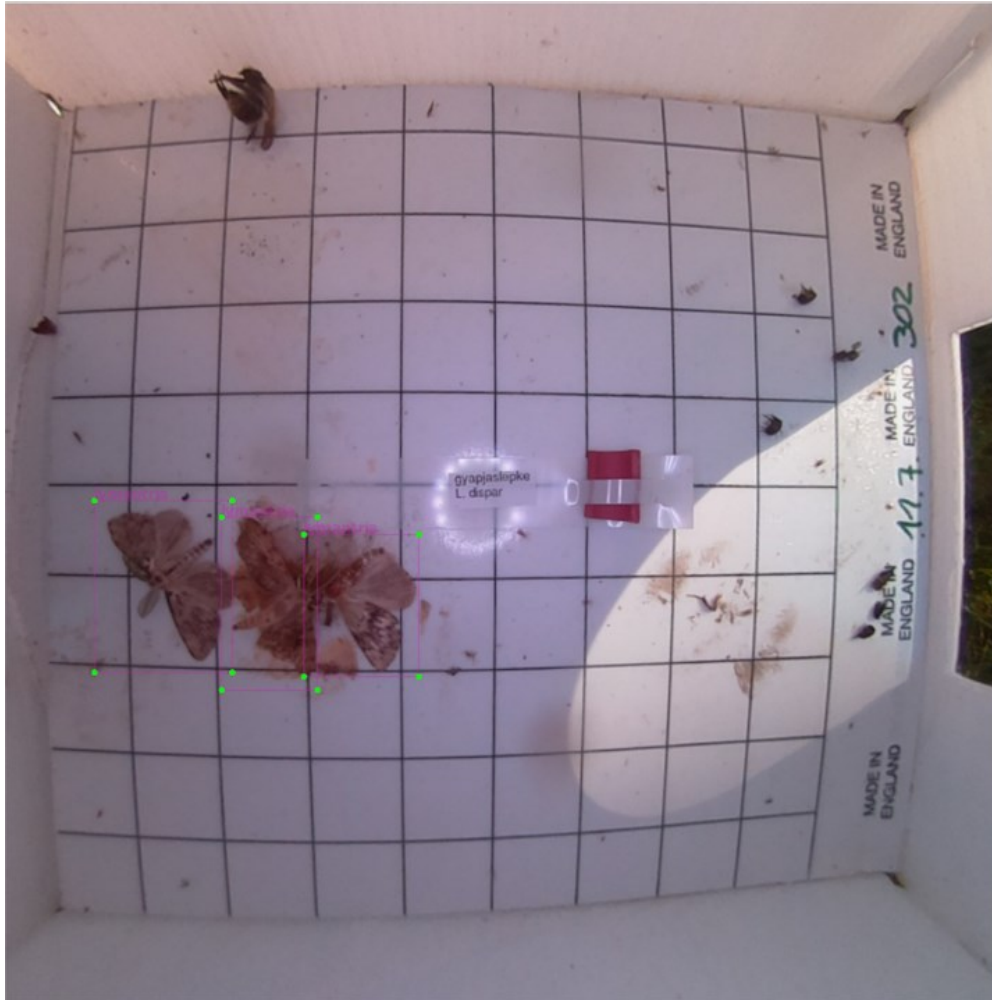
Most recent image

Saturday, 29/07/2023 16:47





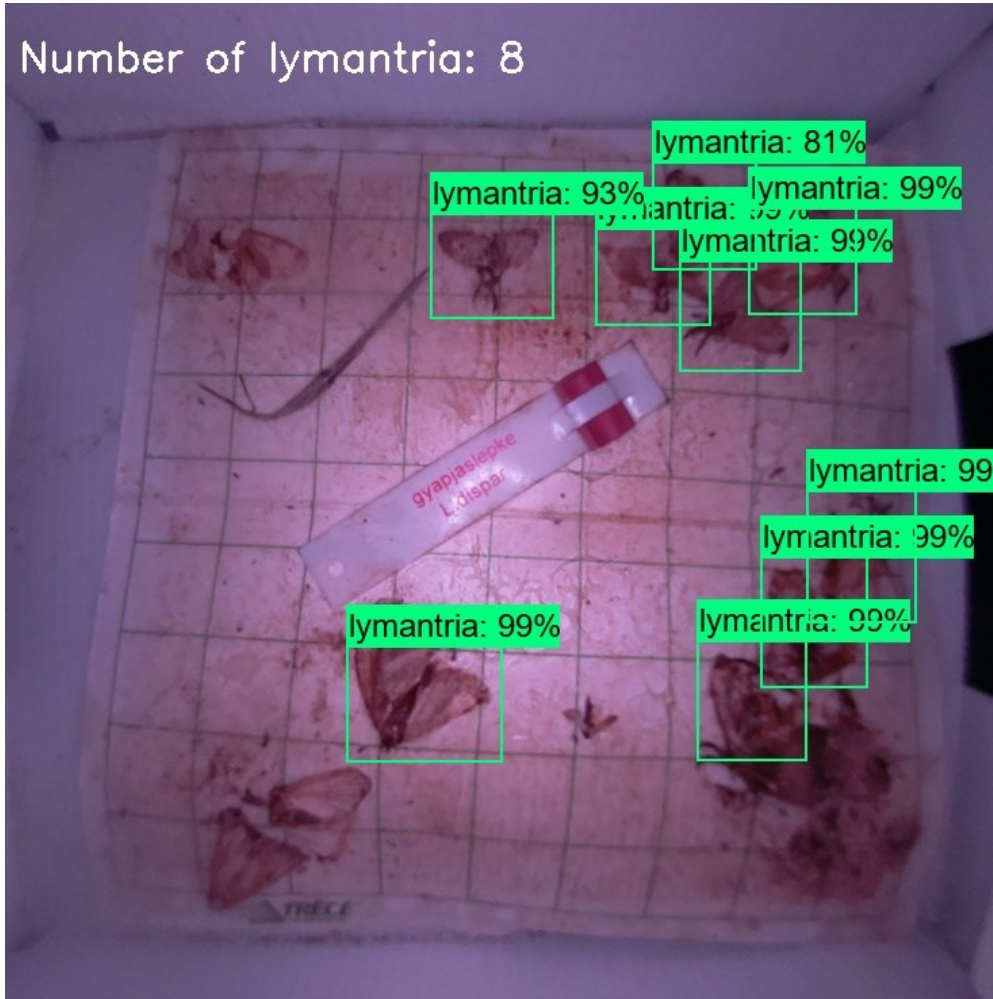
Website - app





Website - app



Number of lymantria: 8





- ✓ Algorithm development for adult recognition
- ✓ Creation of an early warning system based on population estimateion

Lymantria summary



This is a dominant species in the Mediterranean area

-  Extremely wide range of hosts
-  In sub-urban areas

e-Traps are reliable

-  Network and app available
-  Remote sensing for remote areas

Trunk traps

-  Can be used with success for continuous years
-  Easily adopted for the urban areas

MD is easy to use

-  Applied only once per year
-  Reduces insecticidal applications
-  Reduces the risks for human health, in urban and suburban areas



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Thank you!