

Habitat restoration for butterfly conservation in the Walloon region (Belgium)

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Plan

- Introduction:
 - From science to... action !
 - The « butterfly » Life+ Project in the Walloon Region (Southern Belgium)
- Target species : *Euphydryas aurinia*, *Lycaena helle* & *L. dispar*
 - Regional status?
 - Species' habitats?
 - Population networks?
- Restoration methods
- Management practices
- First results and perspectives



Introduction

From science to... action !

- *Do we know enough to take action?*

Hostplant selection

Foraging theory

Mate location
behaviour

Metapopulation concept

Dispersal

Resource-based habitat view



Introduction

From science to... action !

- *Yes we know enough !*



- *But there are obvious gaps about ...how to restore butterfly habitats !!*

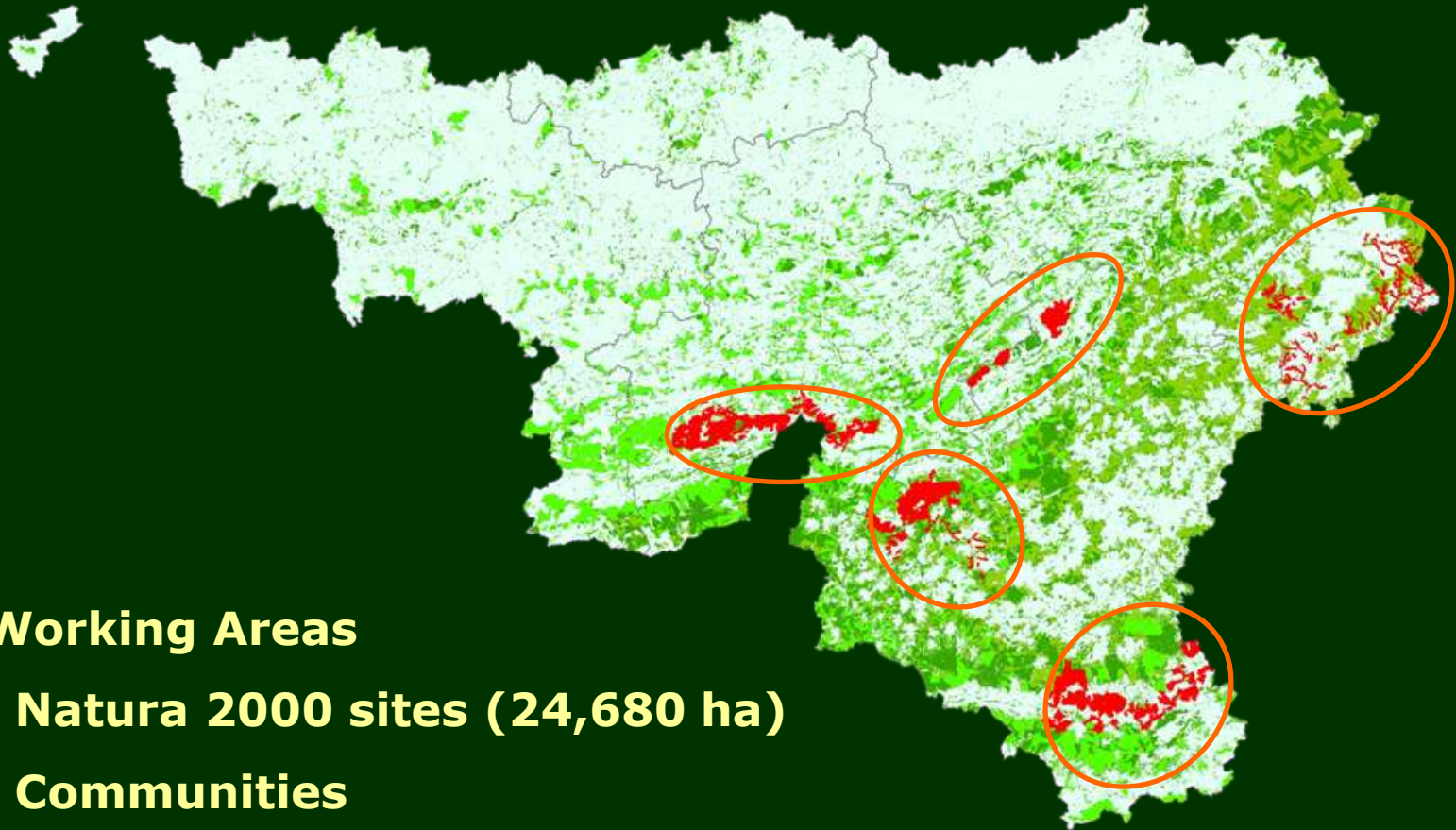
=> Action and science can work in parallel and in this way, can feed each other

The « Butterfly » Life+ Project in the Walloon Region (Southern Belgium)

- *Euphydryas aurinia*, *Lycaena helle* & *L. dispar*
- 2 partners : Natagora & Walloon Region (DGARNE, SPW)
- 5 years – from January 2009 till end 2013
- 9 persons (including 4 persons as technical staff)
- Budget : 7.120.000 €
 - » Europe : 50% - 3.560.000 €
 - » Walloon Region : 45% - 3.204.000 €
 - » Natagora : 5% - 356.000 €



The « Butterflies » Life+ Project in the Walloon Region (Southern Belgium)



- **5 Working Areas**
- **25 Natura 2000 sites (24,680 ha)**
- **22 Communities**
- **15 DNF districts**



The « Butterflies » Life+ Project in the Walloon Region (Southern Belgium)

GENERAL OBJECTIVE :

- To restore the three Lepidoptera species to a favourable conservation status within the 25 Natura 2000 sites.

SPECIFIC OBJECTIVES

- 1 - Reducing isolation of surviving populations by recreating **interconnected habitat networks**, taking into account the needs of each of the species and ensuring their long-term viability;
- 2 - Contributing to the **restoration of favourable habitats** for these species;
- 3 - Implementing **long-term and appropriate regular management** within the project sites;
- 4 - **Raising awareness among nature managers and the general public** about the particularly critical situation of the butterflies and informing them about the territorial management principles needed to conserve them.



Marsh Fritillary (*Euphydryas aurinia*) cycle



Caterpillar nest



Univoltine cycle

Flight period : 5 to 6

Winter stage : caterpillar

Hostplants: *Succisa pratensis*,
Knautia, *Scabiosa*,...



Marsh Fritillary (*Euphydryas aurinia*) habitat



Poor grasslands along edges or in clearings



Marsh Fritillary (*Euphydryas aurinia*) habitats



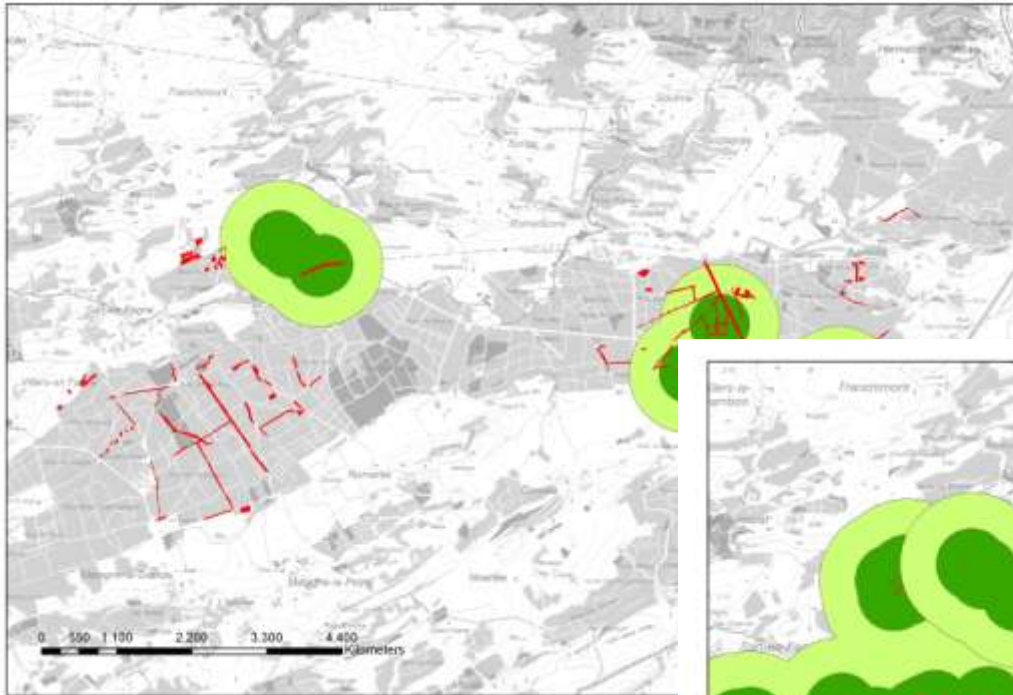
Nardus grasslands



From chalk grasslands to fens !



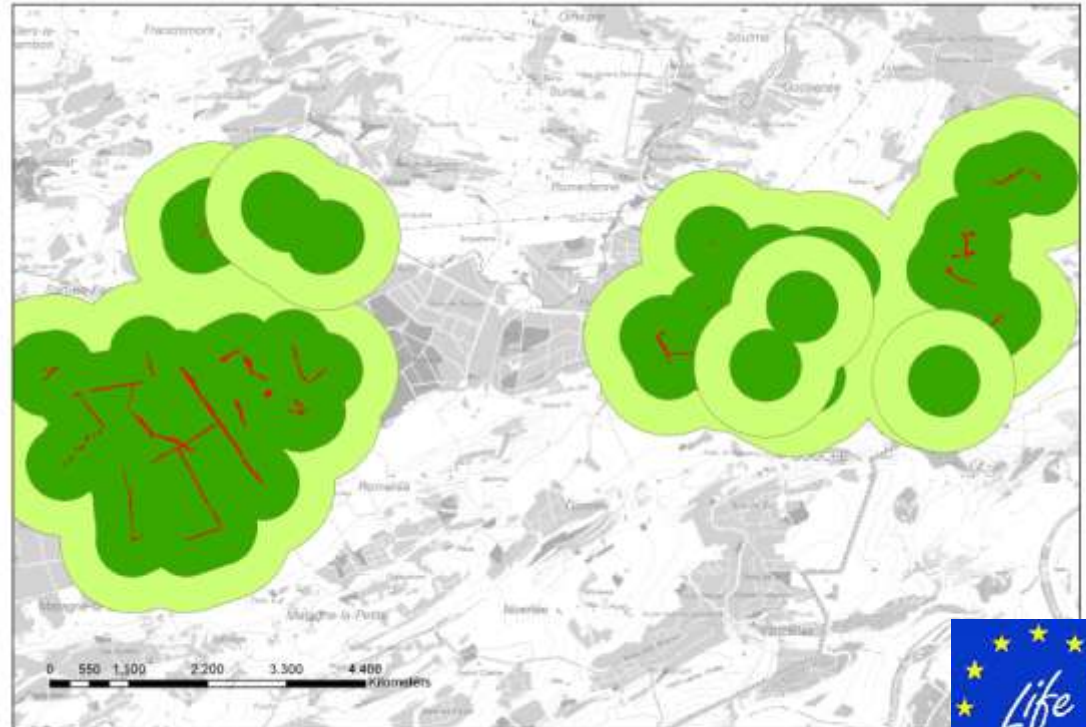
E. aurinia habitat network



Initial situation

Minimum Viable Metapopulation (Bulman *et al.*, 2007)

- >4 % favorable habitats
- >100 hectares interconnected
- <1 km between habitat patches

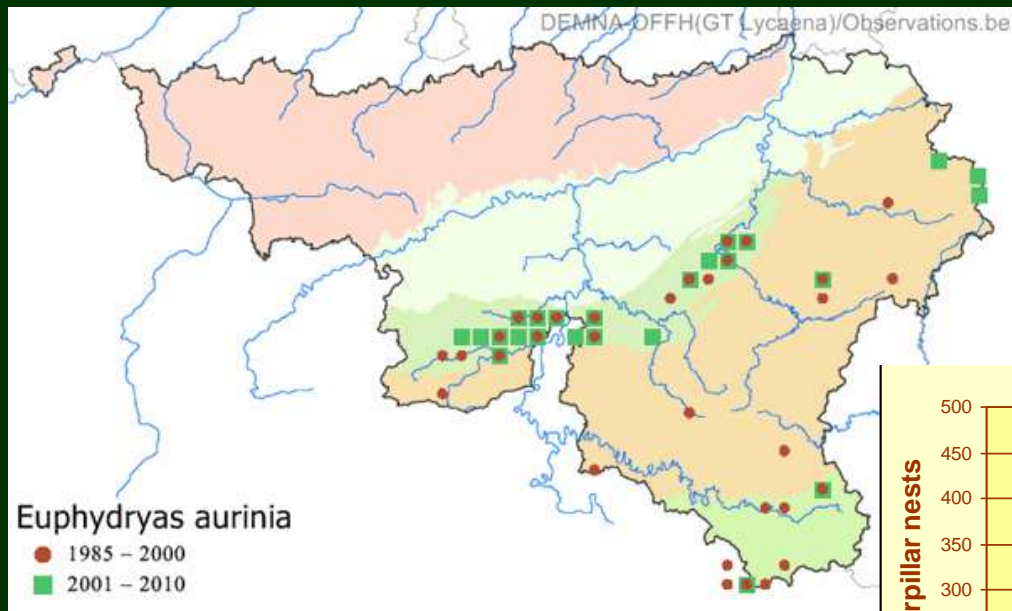


Projected situation

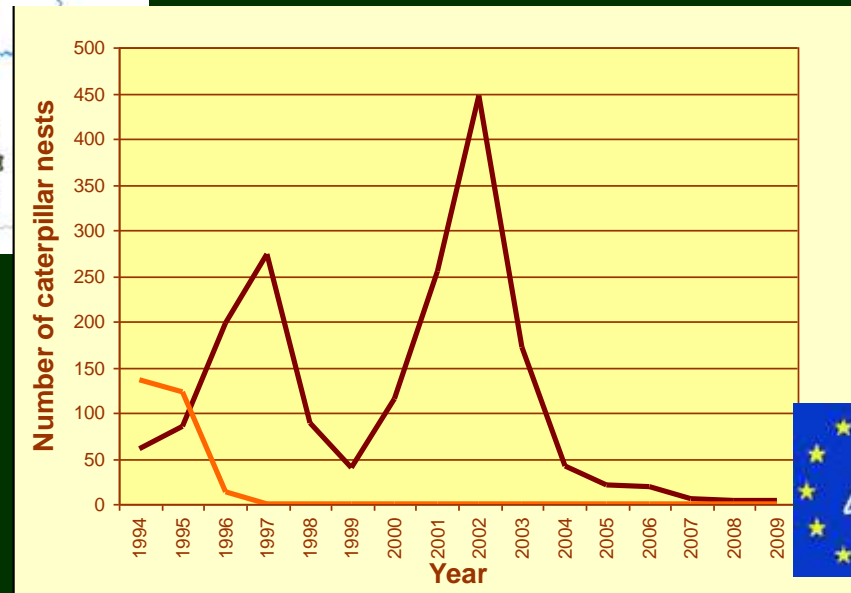


How threatened butterflies?

- *E. aurinia*: Critically Endangered (CR), in decline

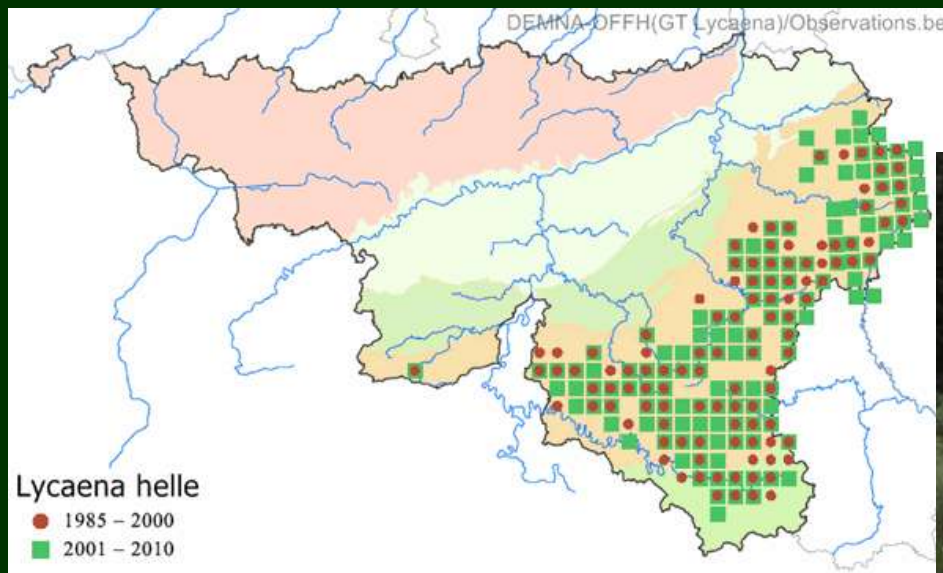


Strong range depletion during the XXth Century !



How threatened butterflies?

- ***L. helle*** : Vulnerable (VU), in decline



Abandoned humid grasslands
along edges or in clearings



Violet Copper (*Lycaena helle*) cycle

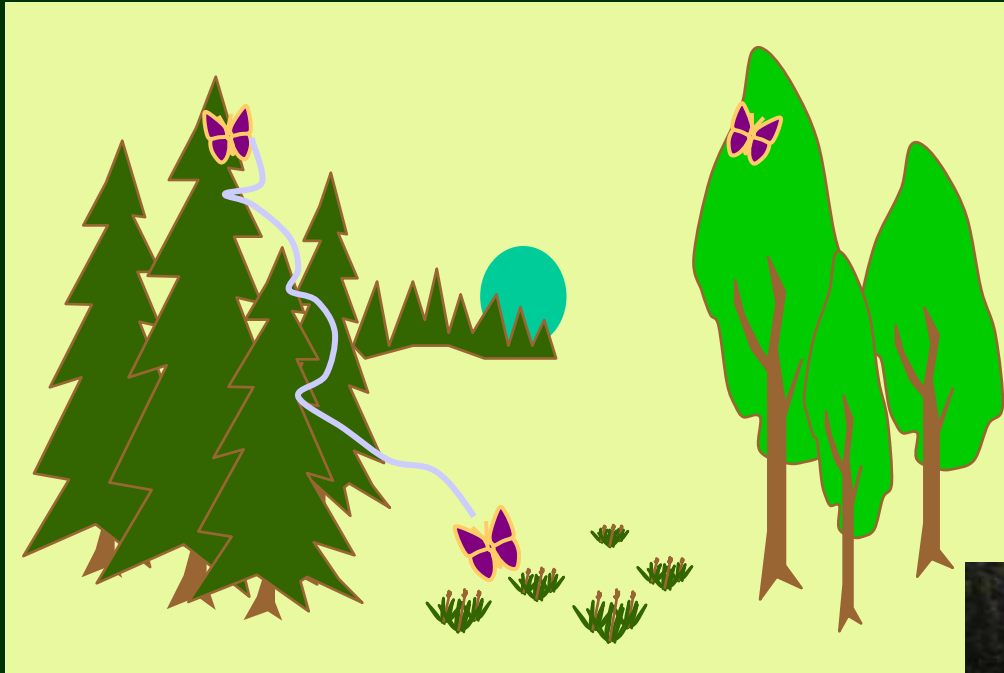


Univoltine cycle
Flight period : 4 to 7
Winter stage : pupa

Hostplant: *Polygonum bistorta*



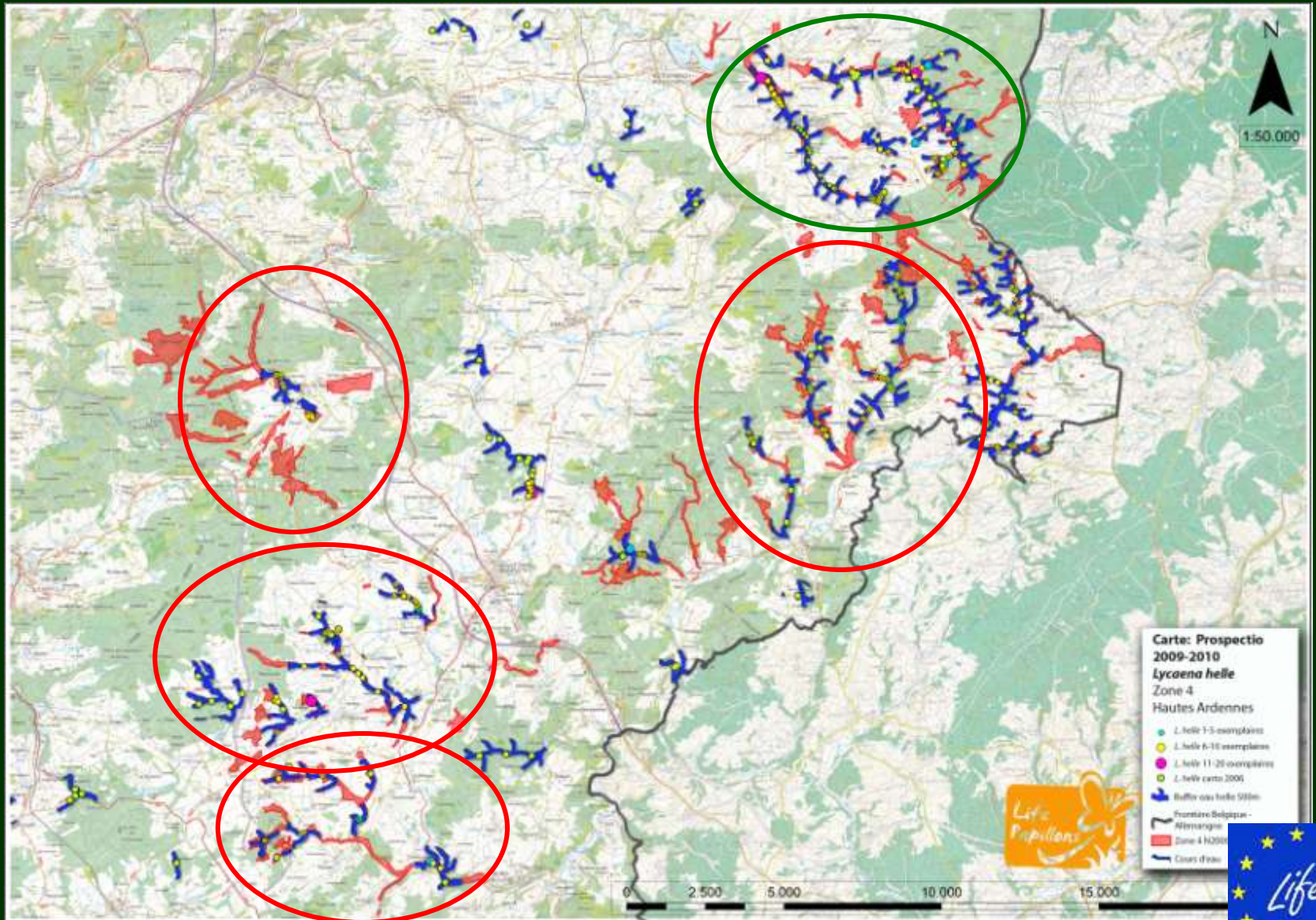
Violet Copper (*Lycaena helle*) habitat



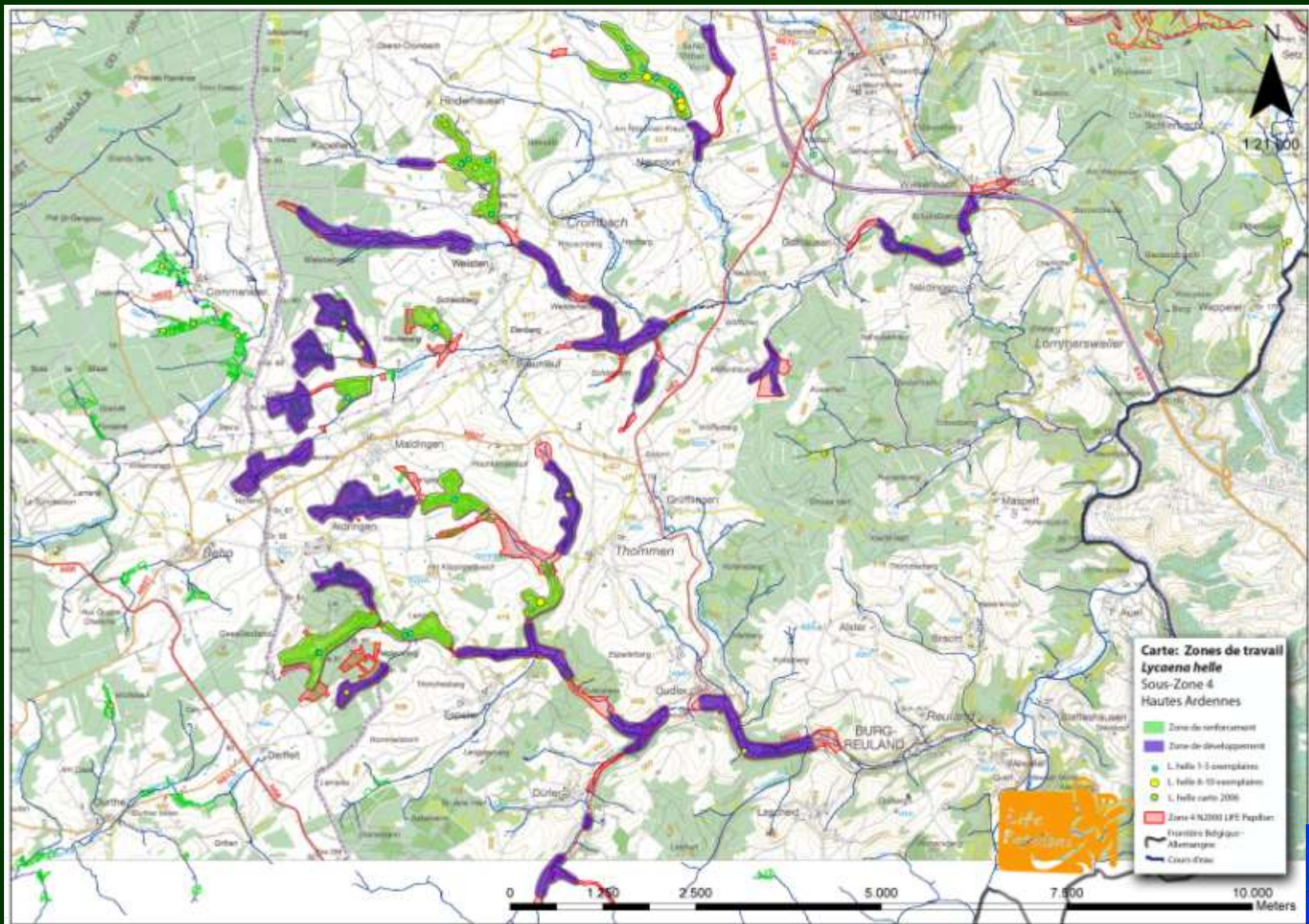
Roosting behaviour:
on top of highest trees !!



L. helle habitat network

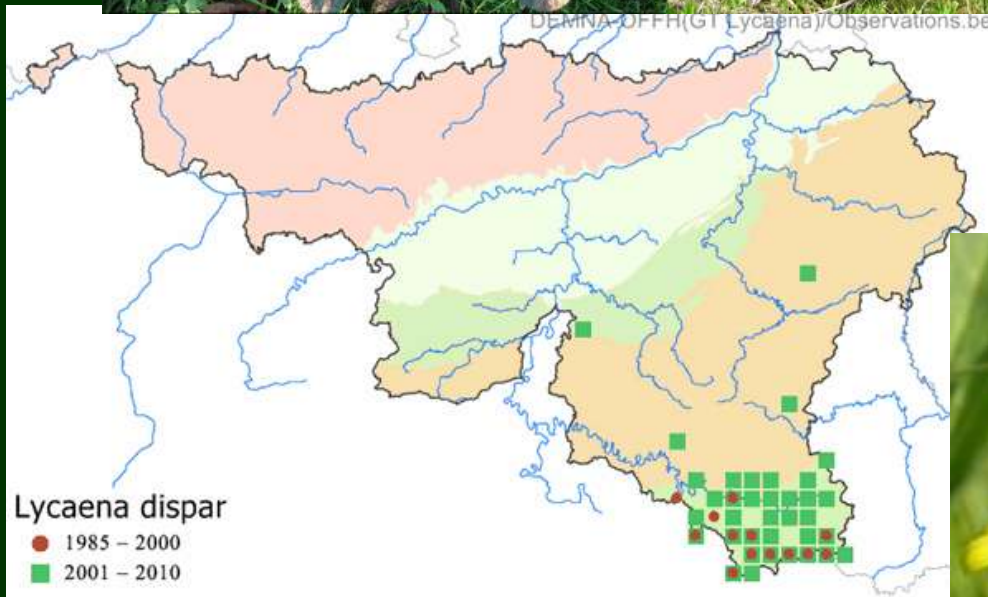


L. helle habitat network



How threatened butterflies?

- *L. dispar rutilus* : Least Concern (LC), in expansion



Hostplants:

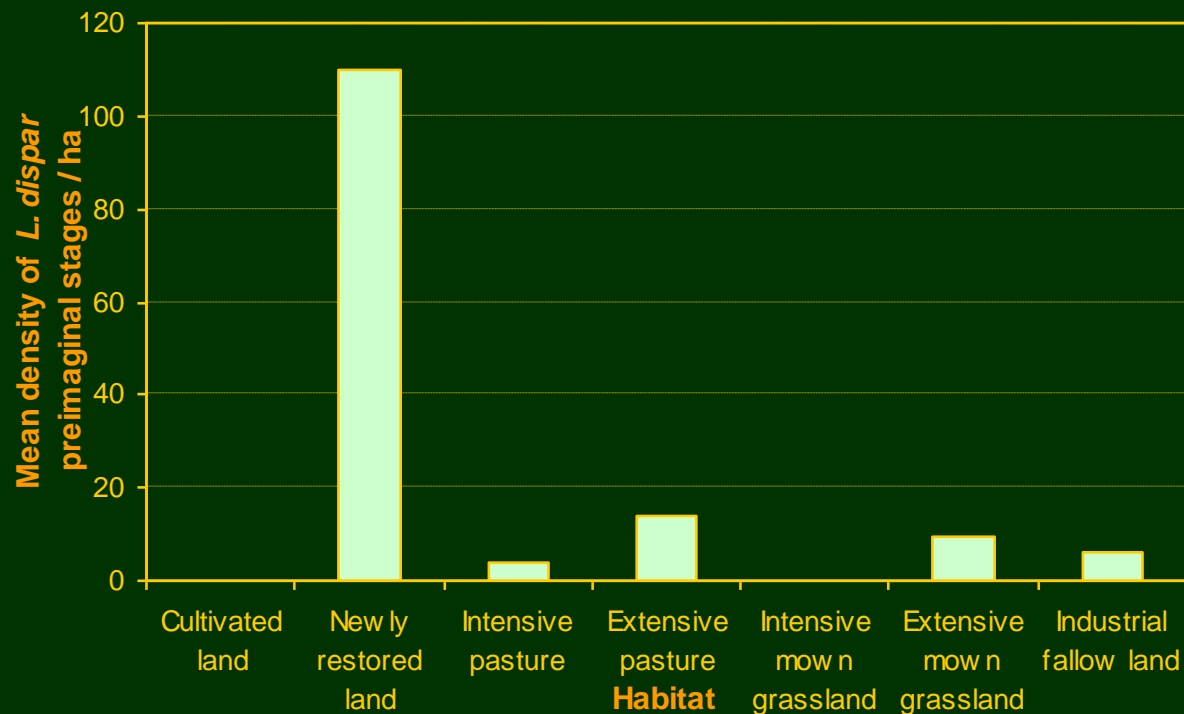
- *Rumex hydrolapathum*
- *R. crispus*
- *R. obtusifolius*



Large Copper (*L. dispar*) habitats

L. dispar (eggs & caterpillars) density

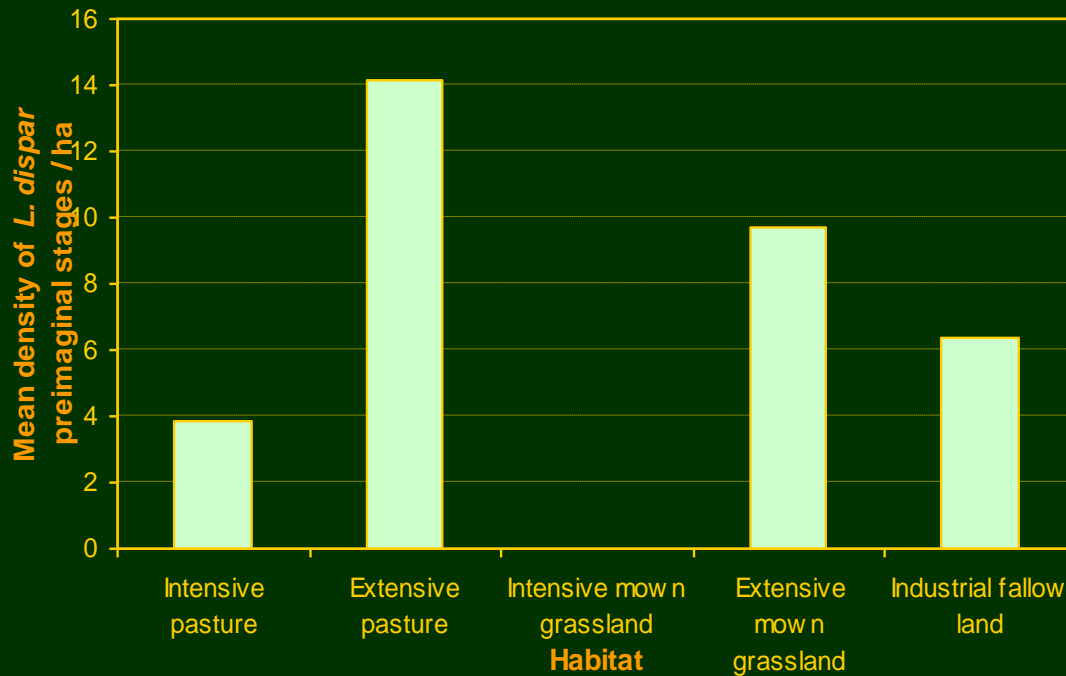
Egg-laying mostly in newly restored areas!



Large Copper (*L. dispar*) habitats

L. dispar (eggs & caterpillars) density

More individuals on extensive grasslands than intensive ones!



Restoration methods

Euphydryas aurinia



Tree cutting
for glides enlargement



Restoration methods

Euphydryas aurinia



Stumps ' grinding

Wood grinding



Restoration methods

Euphydrias aurinia



Topsoil removal



Restoration methods

Euphydrias aurinia

Seed sowing



Succisa's seed harvesting



Restoration methods

Euphydryas aurinia



Results of *Succisa* seed sowing,
the second season after sowing



Restoration methods

Lycaena helle & *L. dispar*



Cutting of spruce
plantations

Milling of
rank grassland
vegetation



Management practices



Very light grazing (< 0.2 LU/ha/an)



Management practices



Mowing in rotation
(with annual refuges $> 1/2$ area)



Management practices



Cutting of stump sprouts



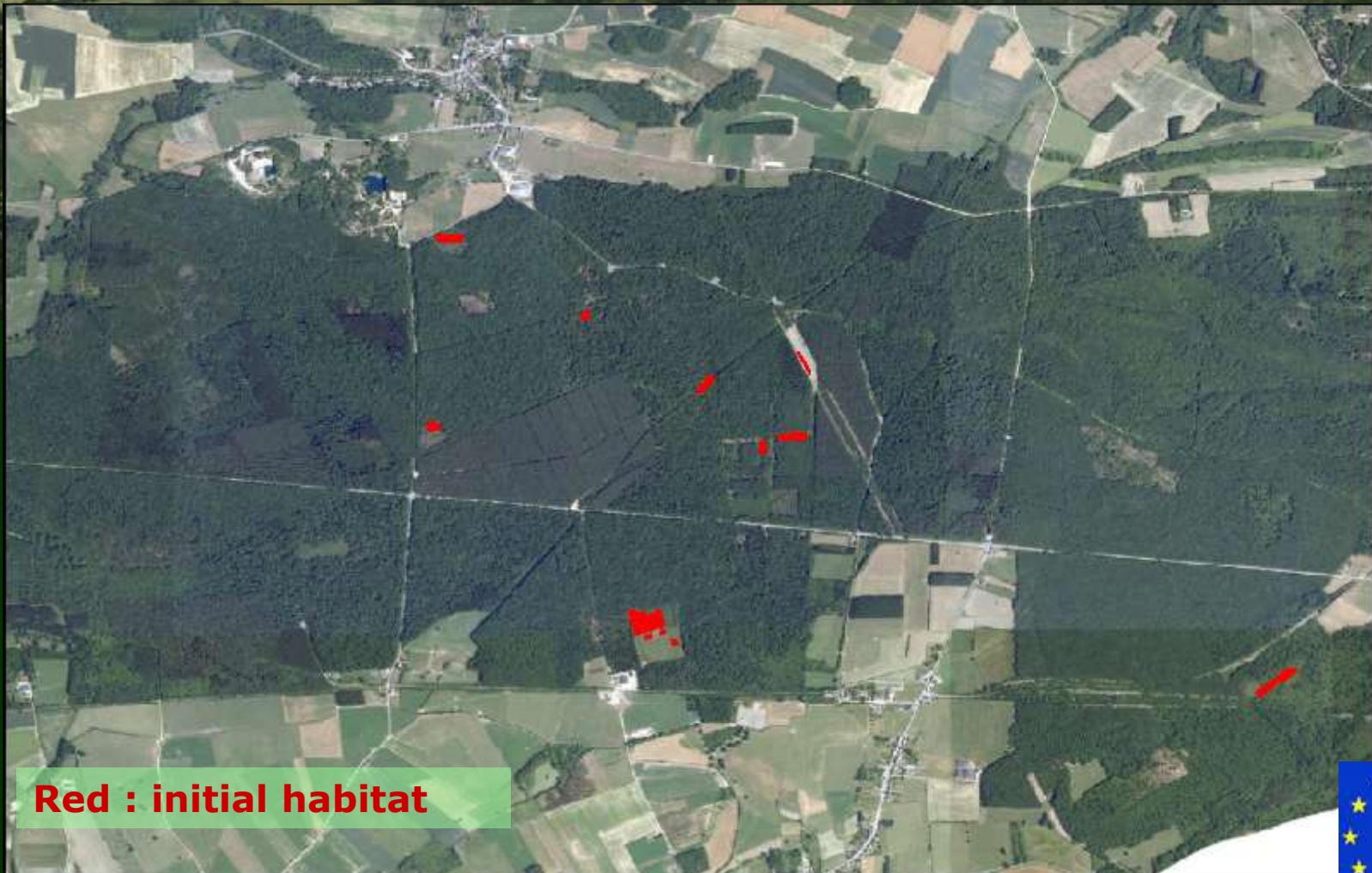
First results and perspectives

Euphydryas aurinia in Fagne-Famenne



First results and perspectives

Euphydryas aurinia in Fagne-Famenne

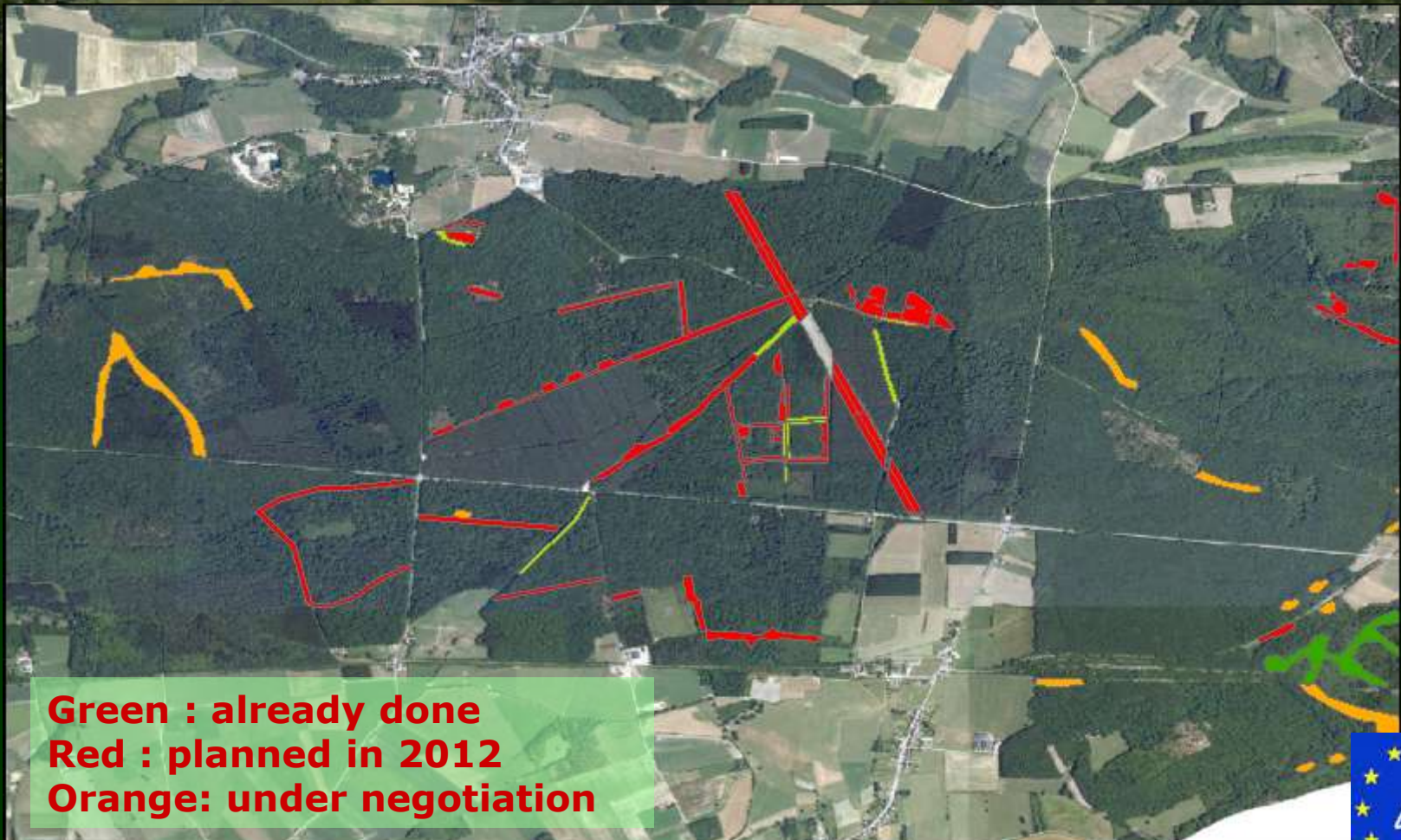


0 250 500 1,000 1,500 2,000
Meter



First results and perspectives

Euphydryas aurinia in Fagne-Famenne

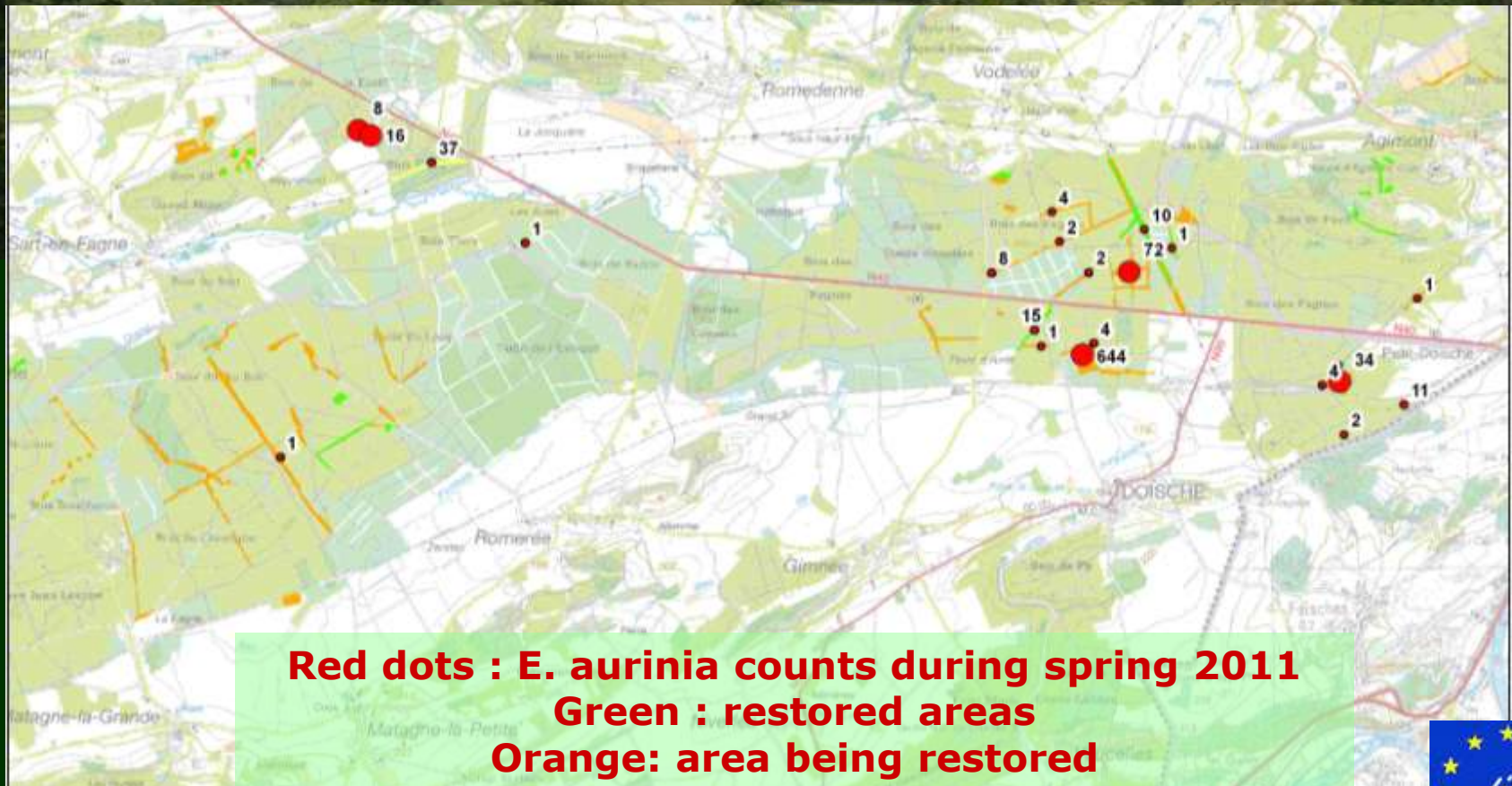


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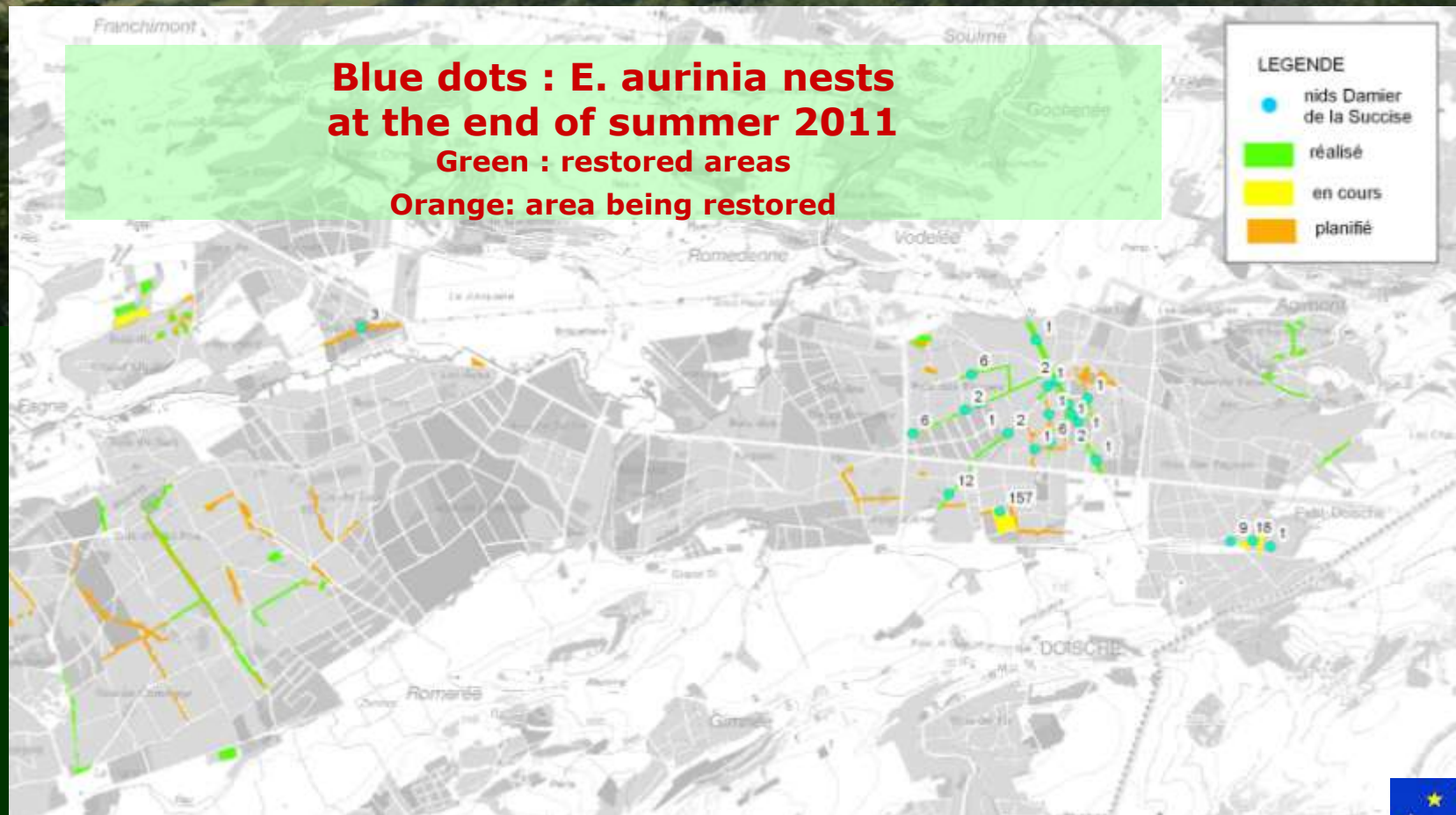
First results and perspectives

Euphydryas aurinia in Fagne-Famenne



First results and perspectives

Euphydryas aurinia in Fagne-Famenne



Nests counts in 2011: 257 nests on 16 locations !



First results and perspectives

Very promising results !

- Occupied habitats have been managed carefully
=> several populations have been ' saved '...
... and some have grown and expanded (thanks partly to favourable climatic conditions)
- New habitat networks are undergoing restoration
- Reintroductions ? Maybe... if natural colonization is not happening !



Conclusions

- Go ahead : there is much work to do !
- Life+ program is an ideal opportunity !!



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