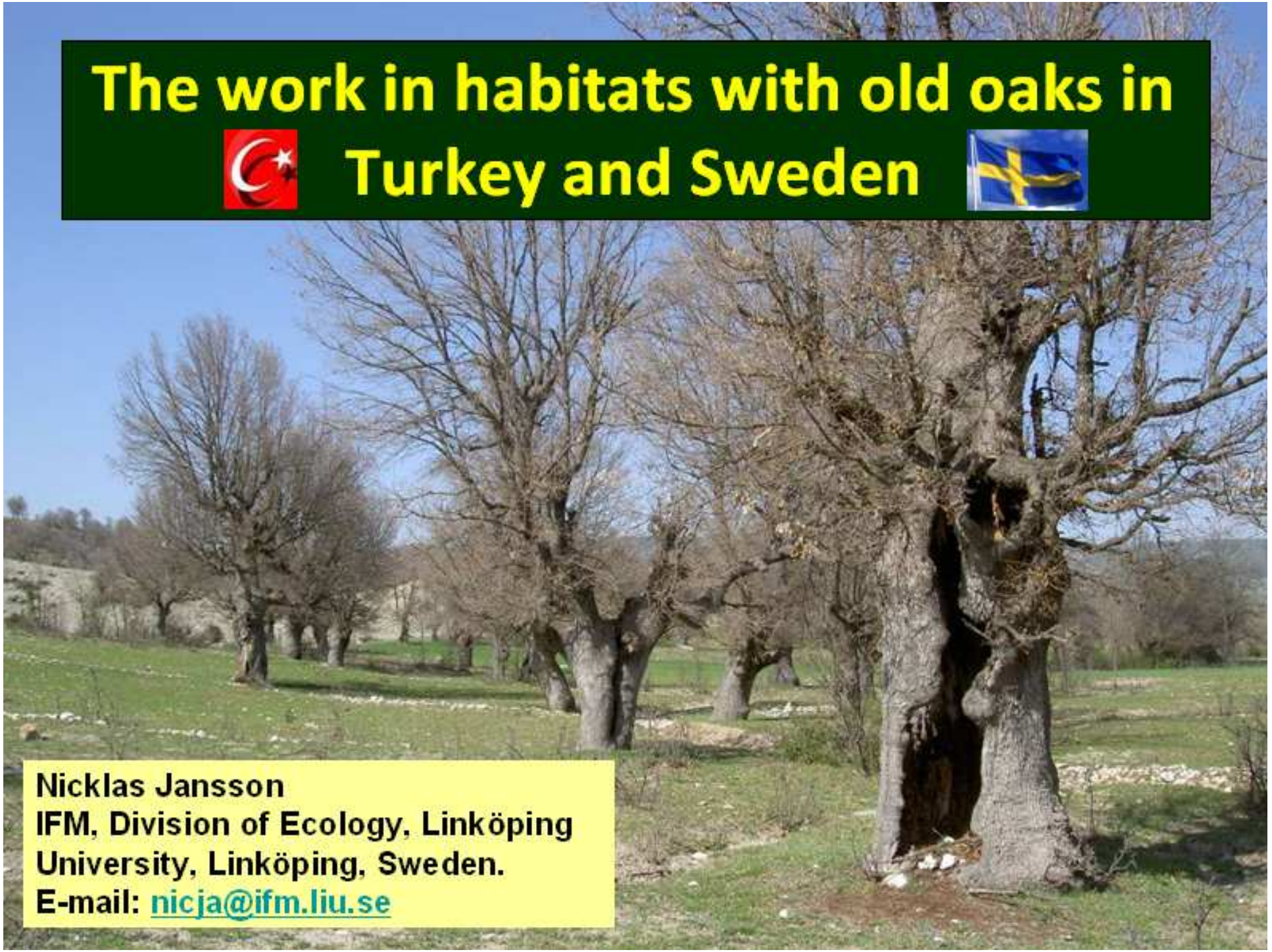
The work in habitats with old oaks in Turkey and Sweden



Nicklas Jansson
IFM, Division of Ecology, Linköping University, Linköping, Sweden.
E-mail: nicja@ifm.liu.se

Why old oaks?

Most species rich tree

(in northern Europe)

number of saproxylic beetles

600
500
400
300
200
100
0

Quercus
Fagus
Elm
Acer
Tilia
Fraxinus
Betula
Populus
Alnus
Salix
Corylus
Sorbus
Pinus
Acer

(Palm, 1959)


Why is the oak so species rich?

Often large, gets old and produce many micro-habitats



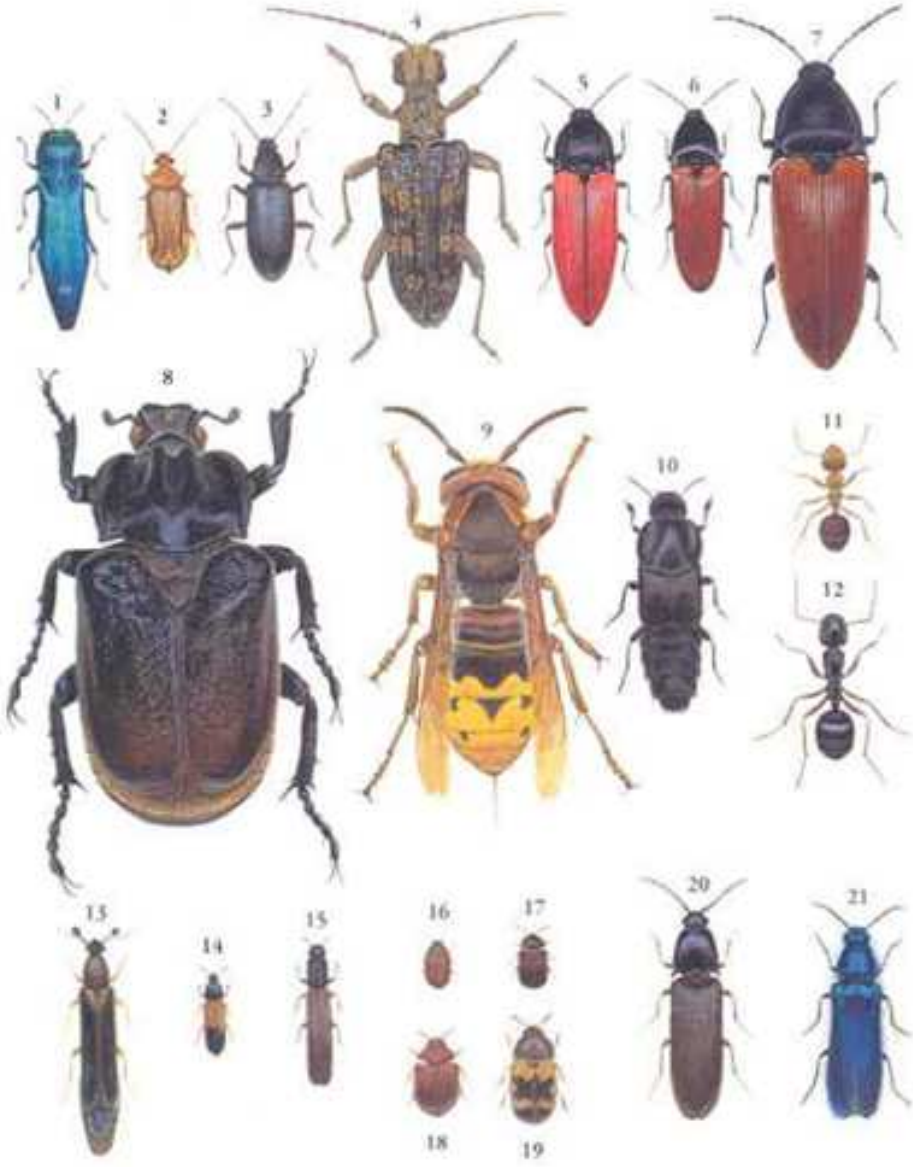


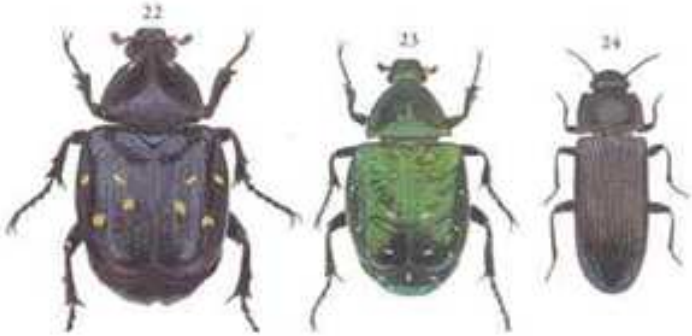







Important organism groups on old oaks

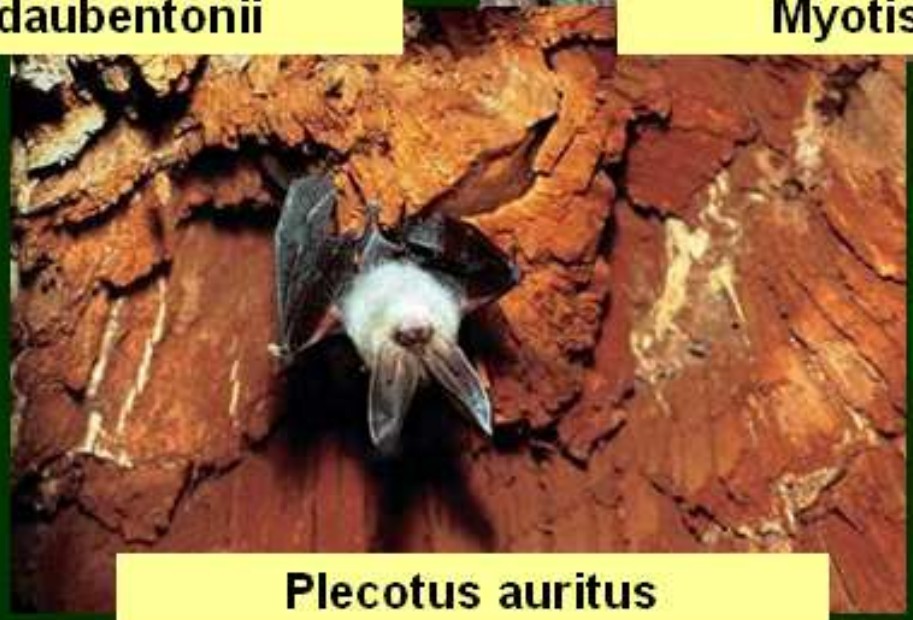




Bats

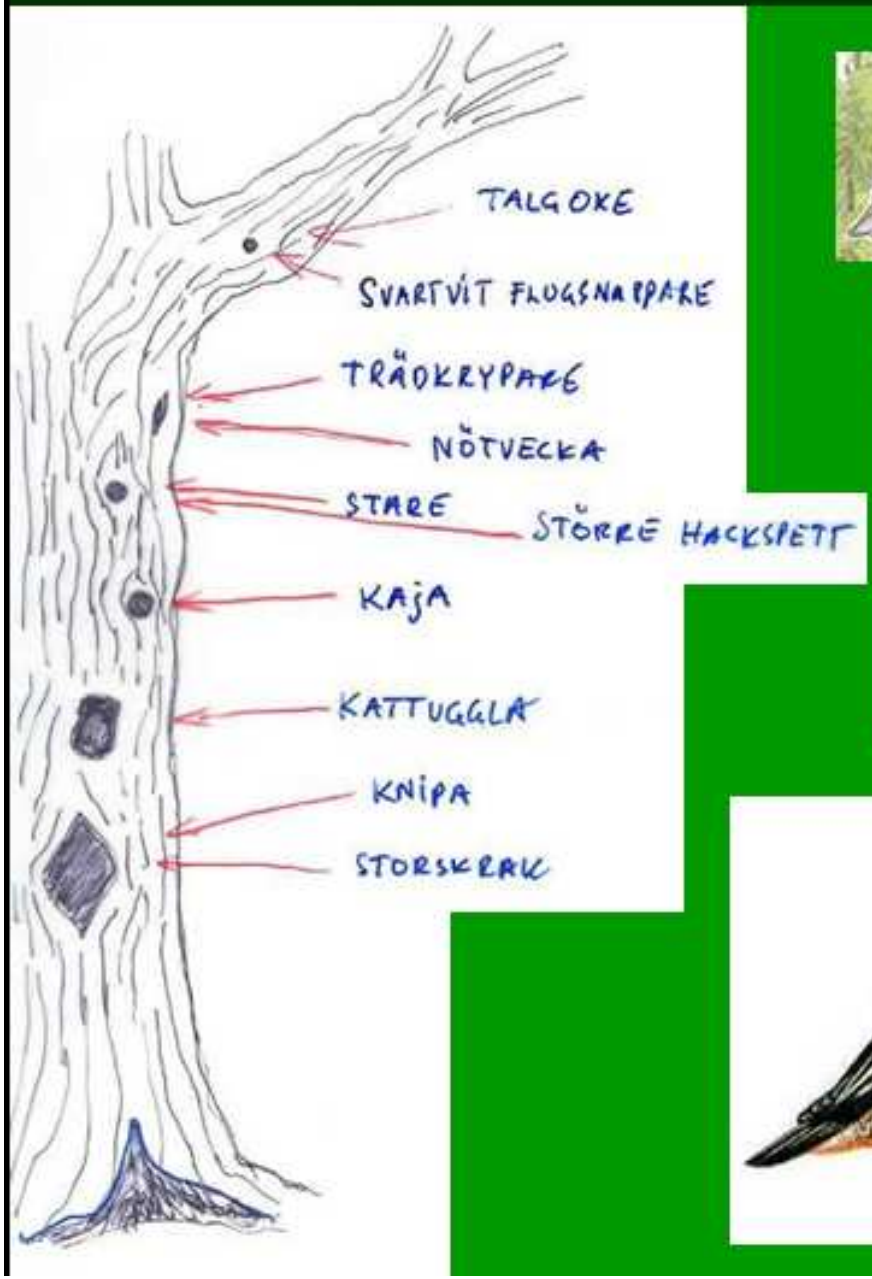
Myotis daubentonii

Myotis bechsteini



Plecotus auritus

Birds in hollow trees



Without fungy no hollow oaks!

+

...so don´t forget the importans of:

Laetiporus sulphureus
(svavelticka)

Phellinus robustus
(ekticka)

Korkmussling

Fistulina hepatica
(oxtungesvamp)

Inonotus dryadeus (tårticka)

Hapalopilus croceus
(saffransticka)

Describing the richness of Turkish oak habitats and sawing it for future

The genus Quercus in is very rich and variable





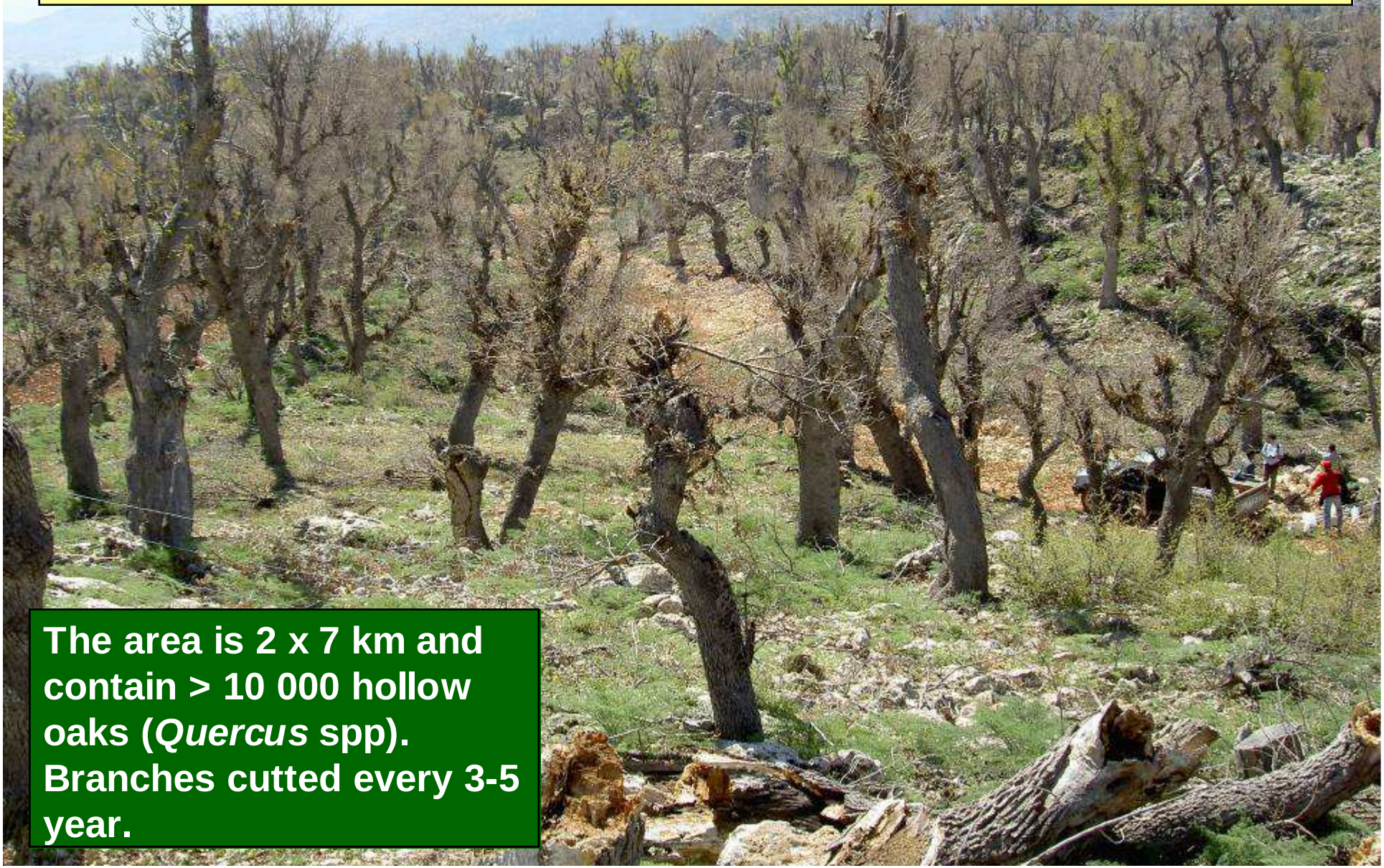


One goal for National Forest Ministry:
”All oak-forests with signs of human activities must be changed in to *Cedrus/Pinus* plantations”
= great threat for the old oaks and its fauna and flora

These trees are important because they produce large volumes of fire wood and fodder from coppicing or pollarding

Leaf fodder stored in the tree un-reachable for goats

A managed common with pollarded oaks between small villages north of the city Mersin in southern Turkey



The area is 2 x 7 km and contain > 10 000 hollow oaks (*Quercus* spp). Branches cutted every 3-5 year.

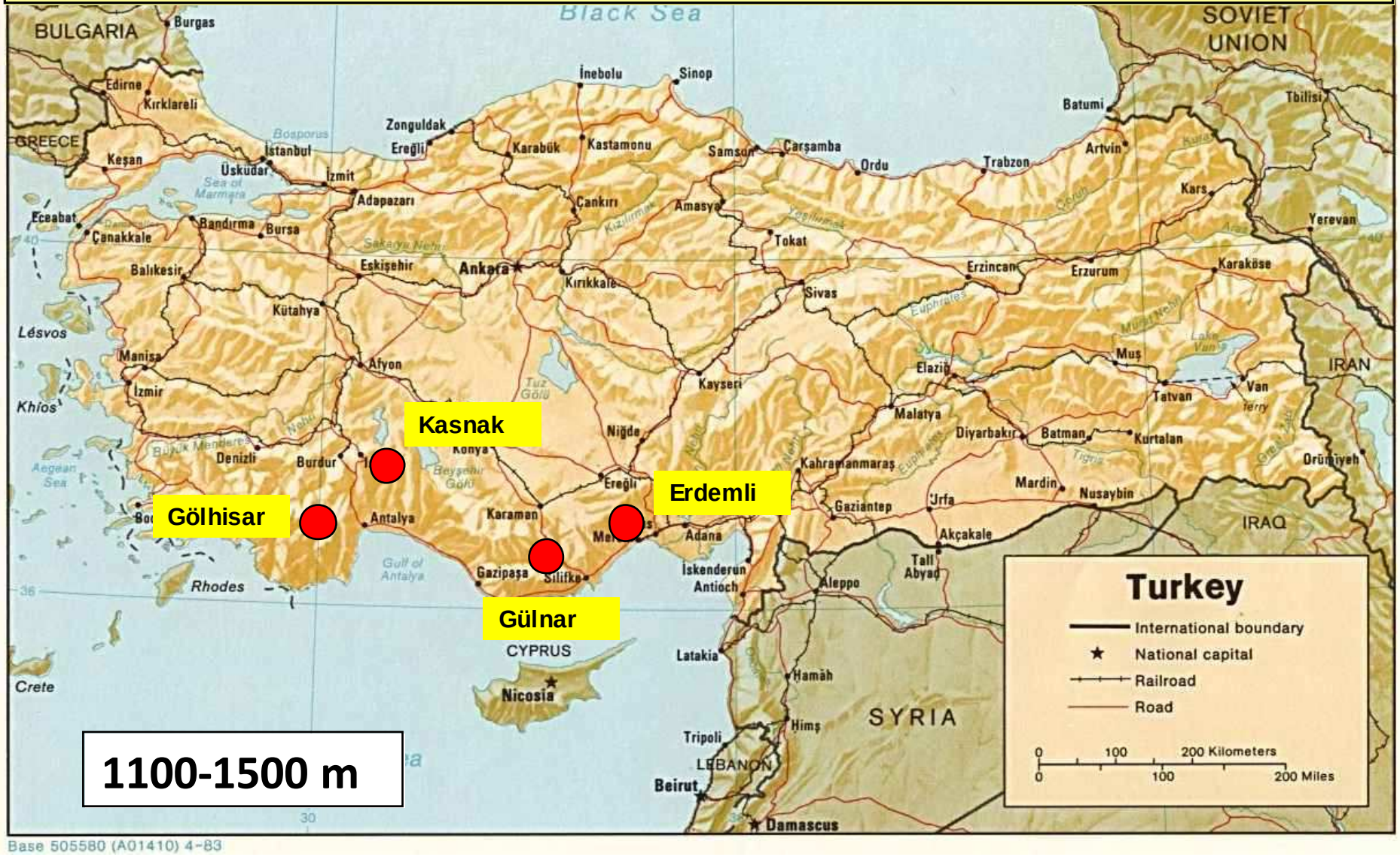

Marked before cutting!

Pine or cedar plantations instead!

Pinus brutia

Cedrus libanii

Studies of the beetle fauna on Turkish oaks 2005-2009



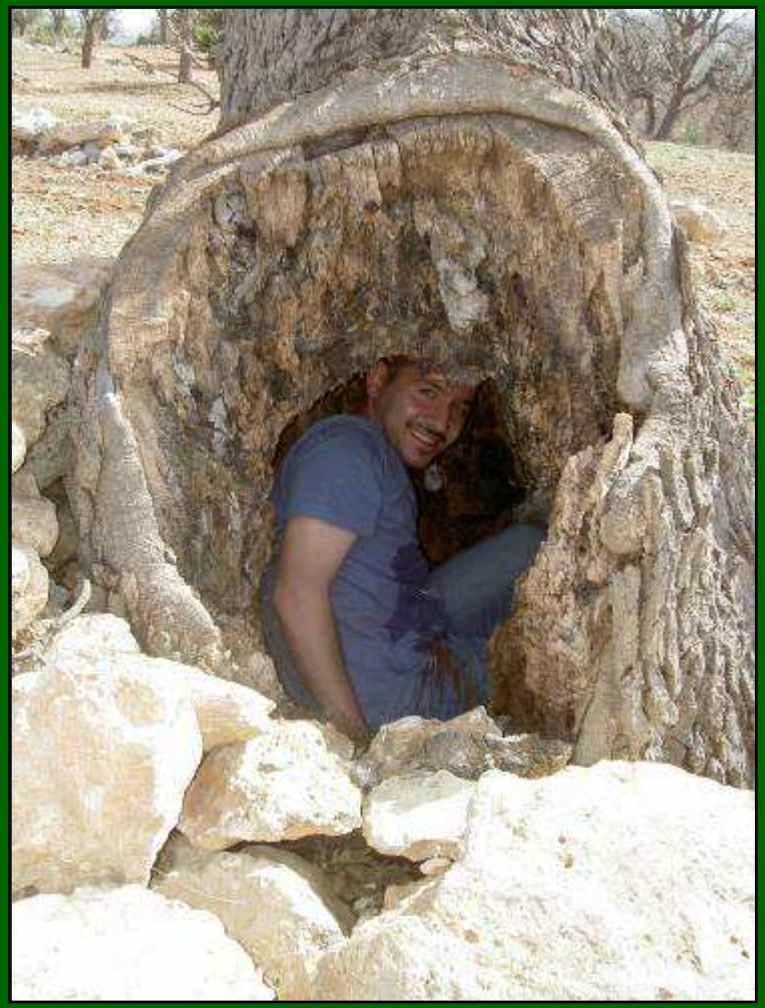
Methods

window traps
(flight interception traps)

Quercus infectoria, Q. ithaburensis,

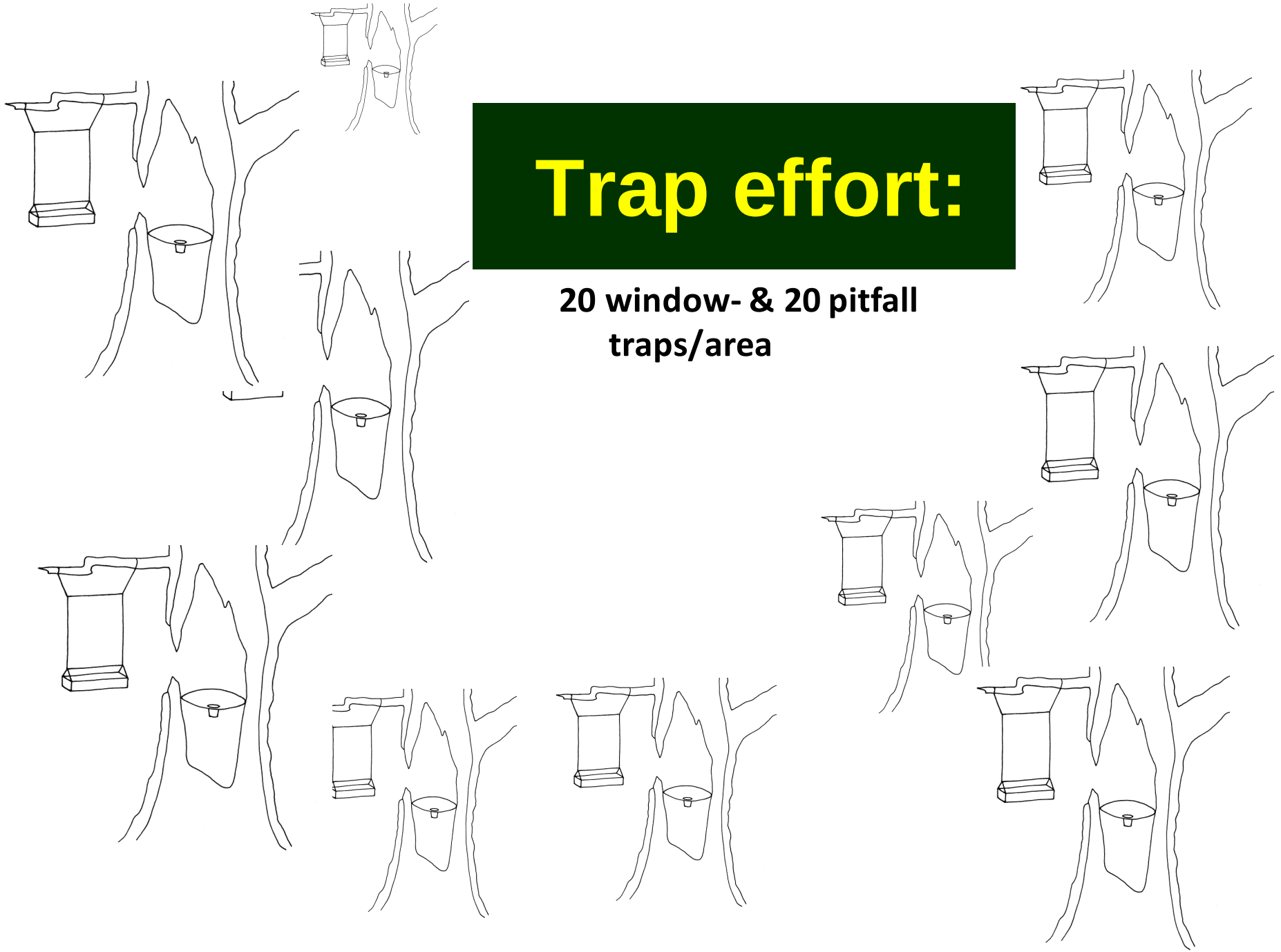
Q. cerris, Q.libanii and Q. vulcanica

pit-fall traps



Trap effort:

20 window- & 20 pitfall traps/area



Analysed families

Histeridae

Catopidae

Scarabidae

Lucanidae

Elateridae

Dermestidae

Anobiidae

Cleridae

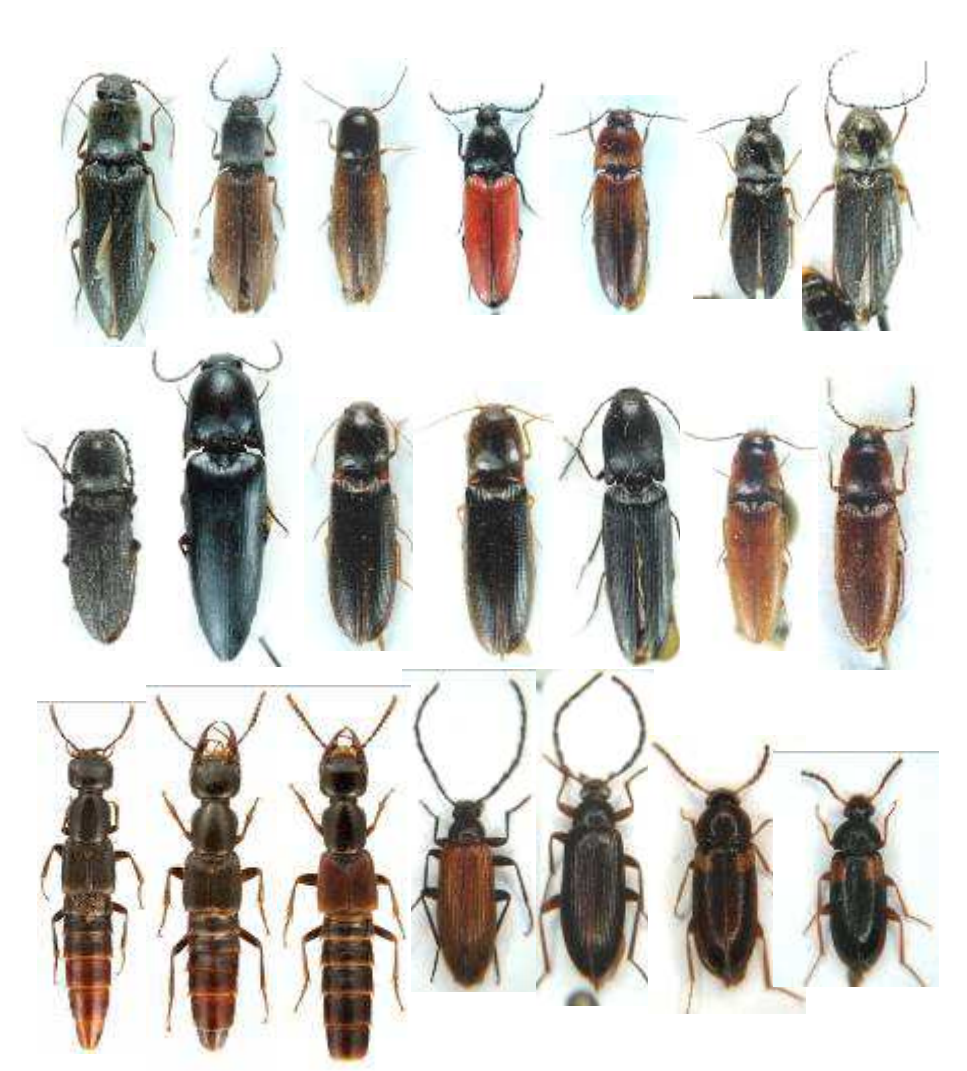
Mycetophagidae

Cerambycidae

Tenebrionidae

Buprestidae

Result 1: 27 new species to science found in areas with old oaks in Turkey!



- ***Agriotes gulnariensis***
- ***Agriotes ayani***
- ***Agriotes ulkeri***
- ***Ampedus camillae***
- ***Brachygonus gunnurae***
- ***Cardiophorus sculptus***
- ***Cardiophorus kasnaki***
- ***Dicronyhus gulleri***
- ***Elater turcicus***
- ***Elathous nutayae***
- ***Elathous emrei***
- ***Crepidophorus mutilatus***
- ***Peripontius omissoides***
- ***Tolphorea ozalpi***
- ***Hesperus auricomus***
- ***Hesperus gozukarai***
- ***Hesperus turcicus***
- ***Allecula n sp1***
- ***Allecula n sp2***
- ***Mycetochara n sp1,***
- ***Mycetochara n sp2.***

Result 2: At the Turkish sites 10 rare species found from the European Red-list

Elater ferrugineus

Ischnodes sanguinicollis

Megapenthes lugens

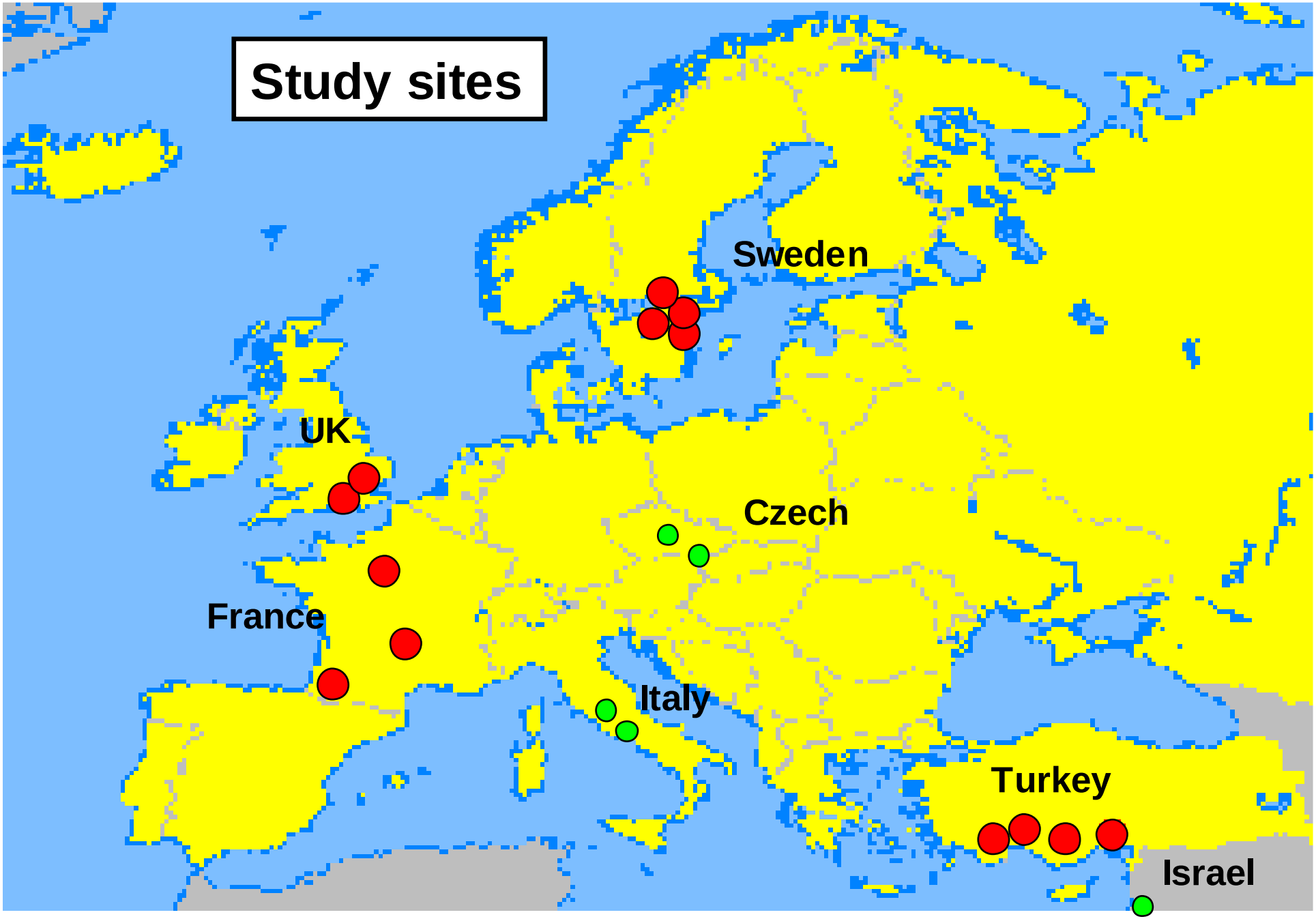
Protaetia mirifica

A comparison of the saproxylic beetle fauna on old hollow oaks (*Quercus* spp) in Turkey and Western Europe

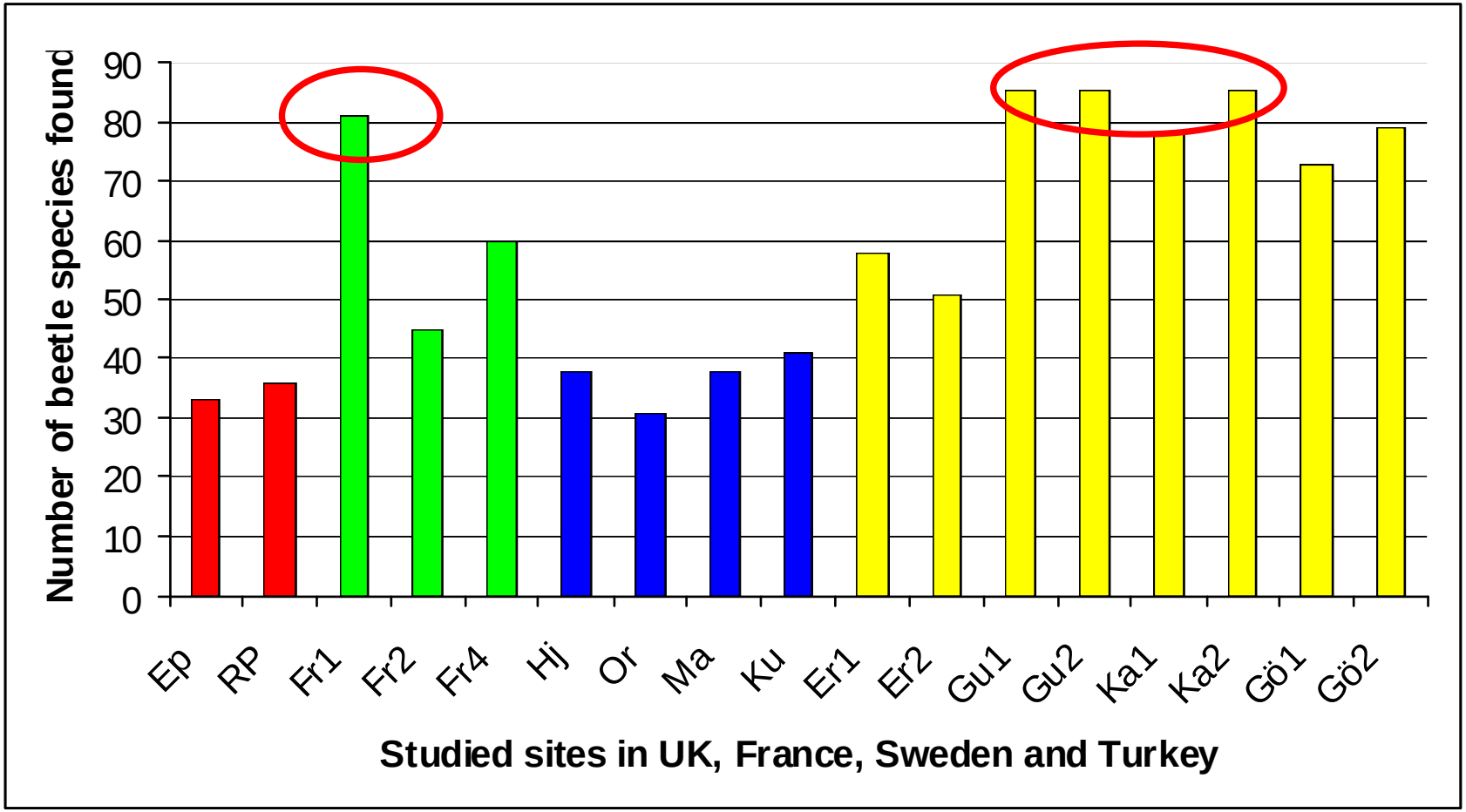
Nicklas JANSSON[1]*

Mustafa AVCI[2], Mustafa COSKUN[3], Oguzhan SARIKAYA[2], Hervé BRUSTEL[4], Glenn DUBOIS[5], Imogen WILDE[6], Jeremy DAGLEY[6], Peter HAMMOND[7]

[1]IFM, Division of Ecology, Linköping University, Linköping, Sweden.
E-mail: nicja@ifm.liu.se
[2]Forest Faculty, Suleyman Demirel University, Isparta, Turkey.
[3]Department of Biology, Adiyaman University, Adiyaman, Turkey.
[4]Purpan University, Tolouse, France.
[5]University of Renné1, Paipont, France.
[6]Epping Forest, City of London, UK
[7]Department of Entomology, British Museum (NH), London, UK.

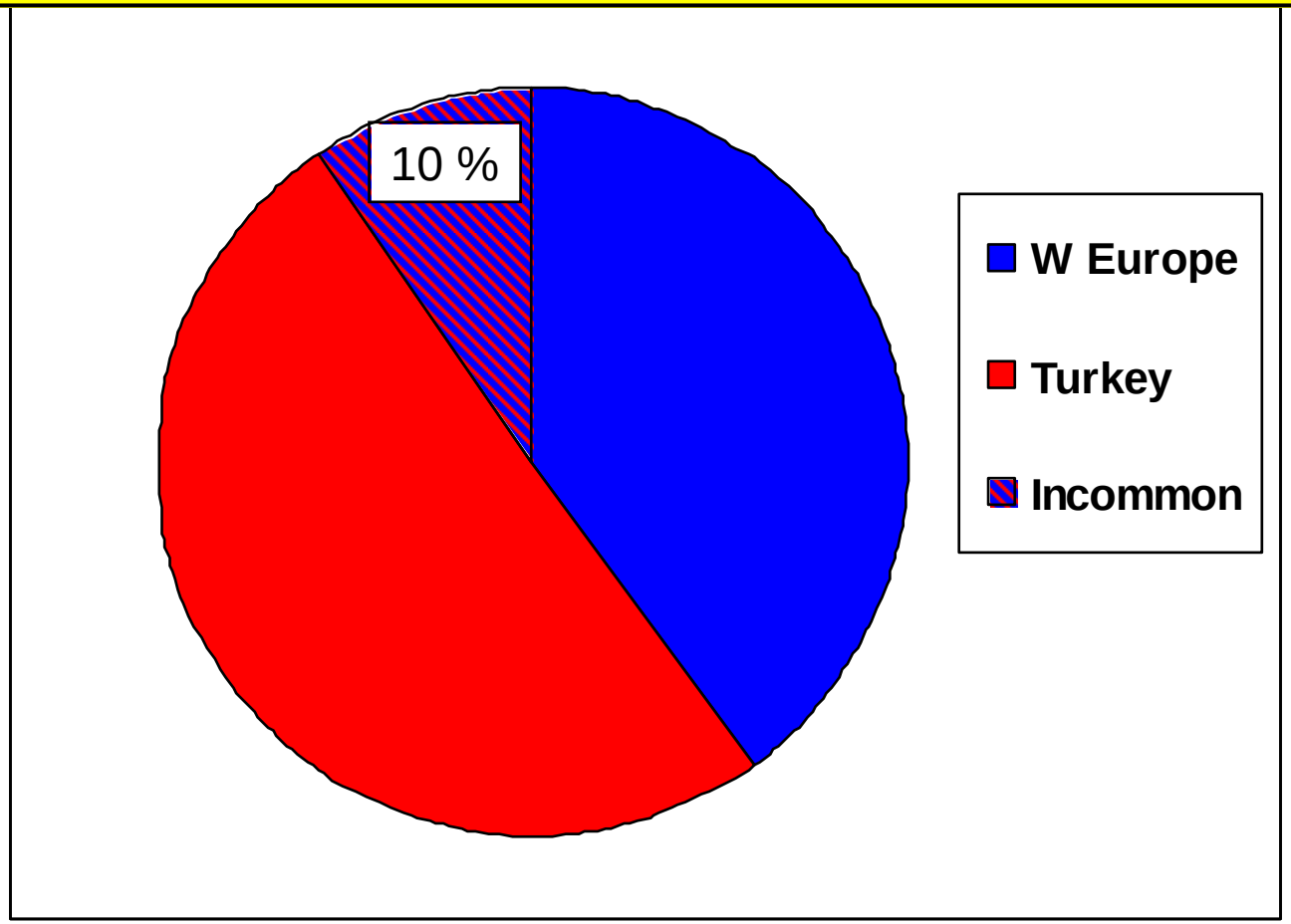

Study sites
Sweden
UK
Czech
France
Italy
Turkey
Israel

Result 1: Turkish stands are most often richer in number of species



Of the 315 species identified so far only 10 %

(30 species) were the same in W Europe and Turkey



Conclusions

The old oaks in Turkey have a very high biodiversity and unique beetle species

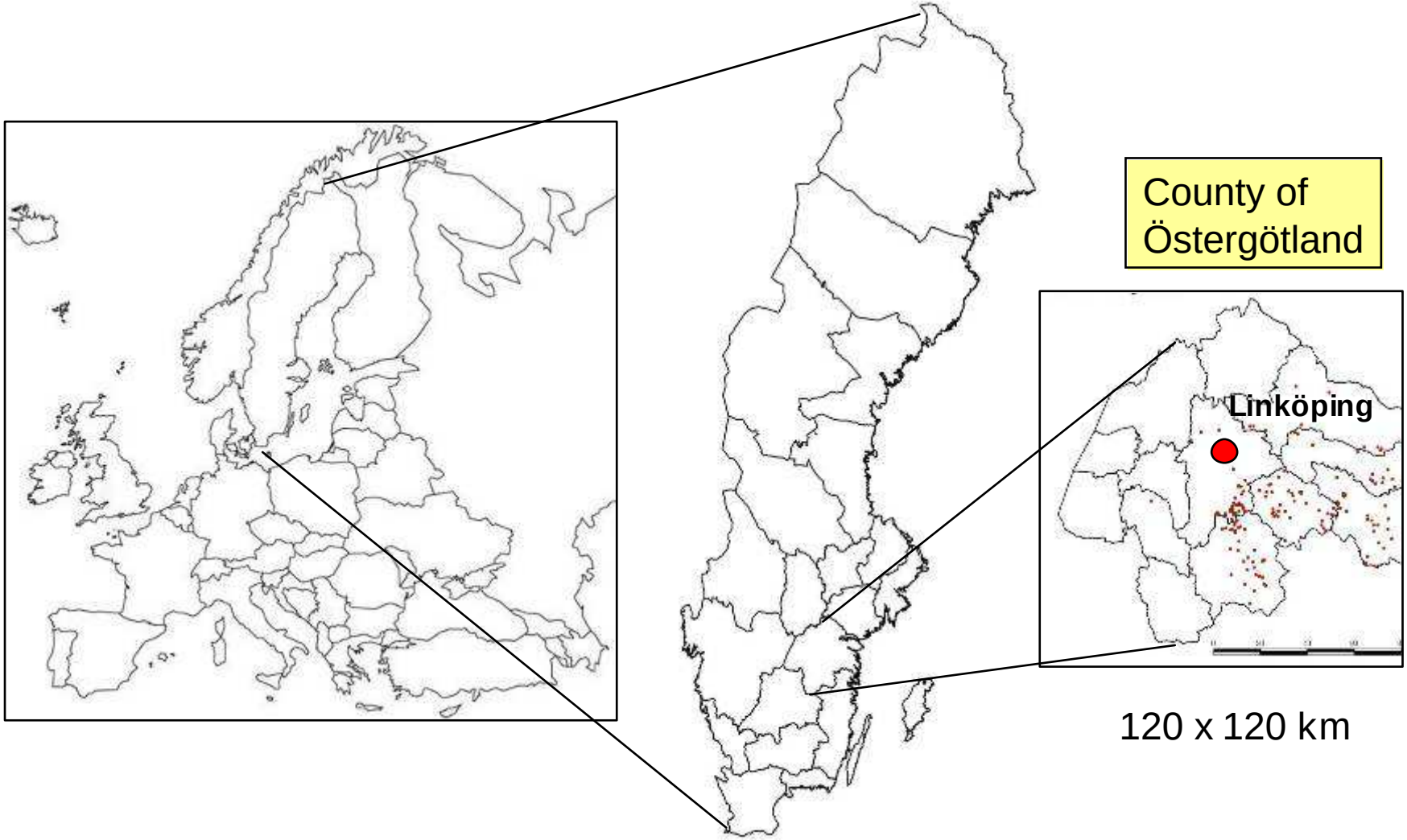
So it is of high importance to save this fauna for future human generations

We have applied for founds from Forest Ministry to work in 10-12 larger oak areas and describe:

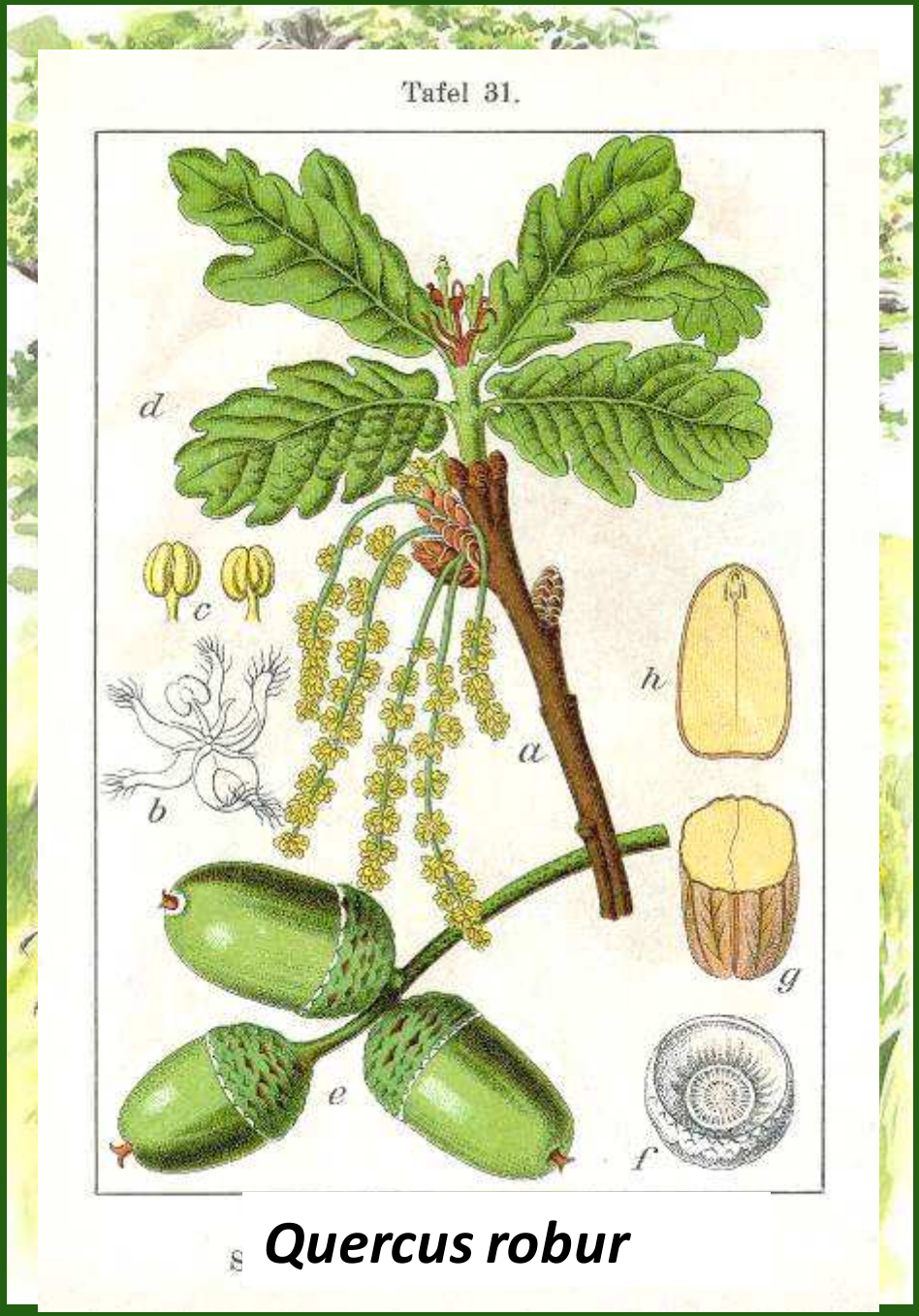
1. The oak-habitats
2. Woodpekers
3. Wood living beetle fauna

We hope this can result in a network of protected areas spread in the country

Activities in oak habitats in one region of Sweden



Year 1550-1830 the oaks belong to the king

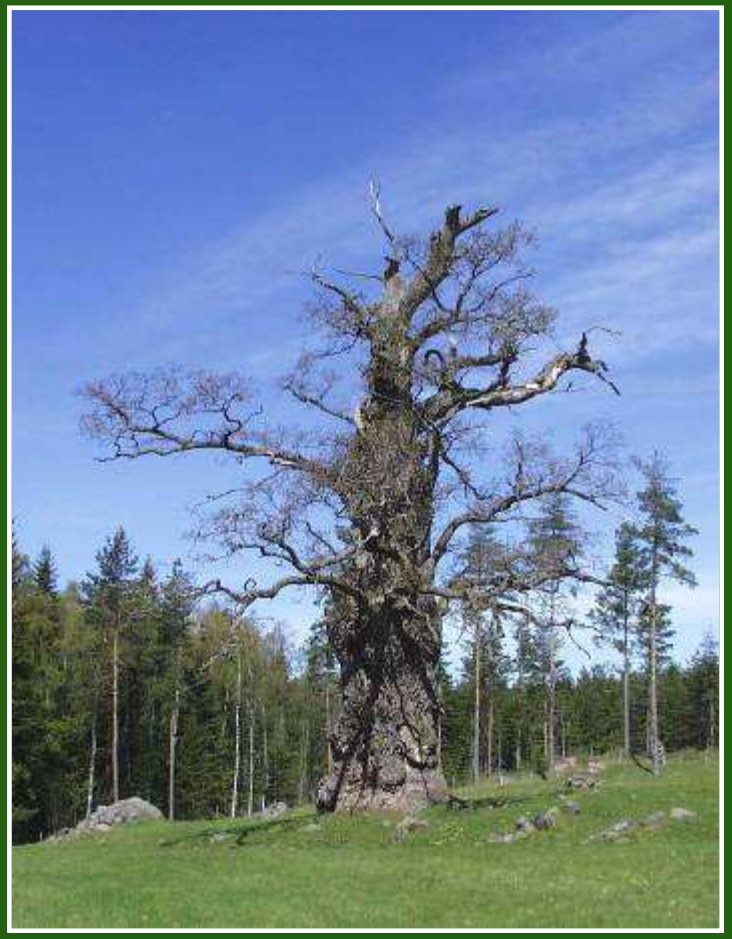


Quercus robur

The problems for the oaks and its fauna and flora

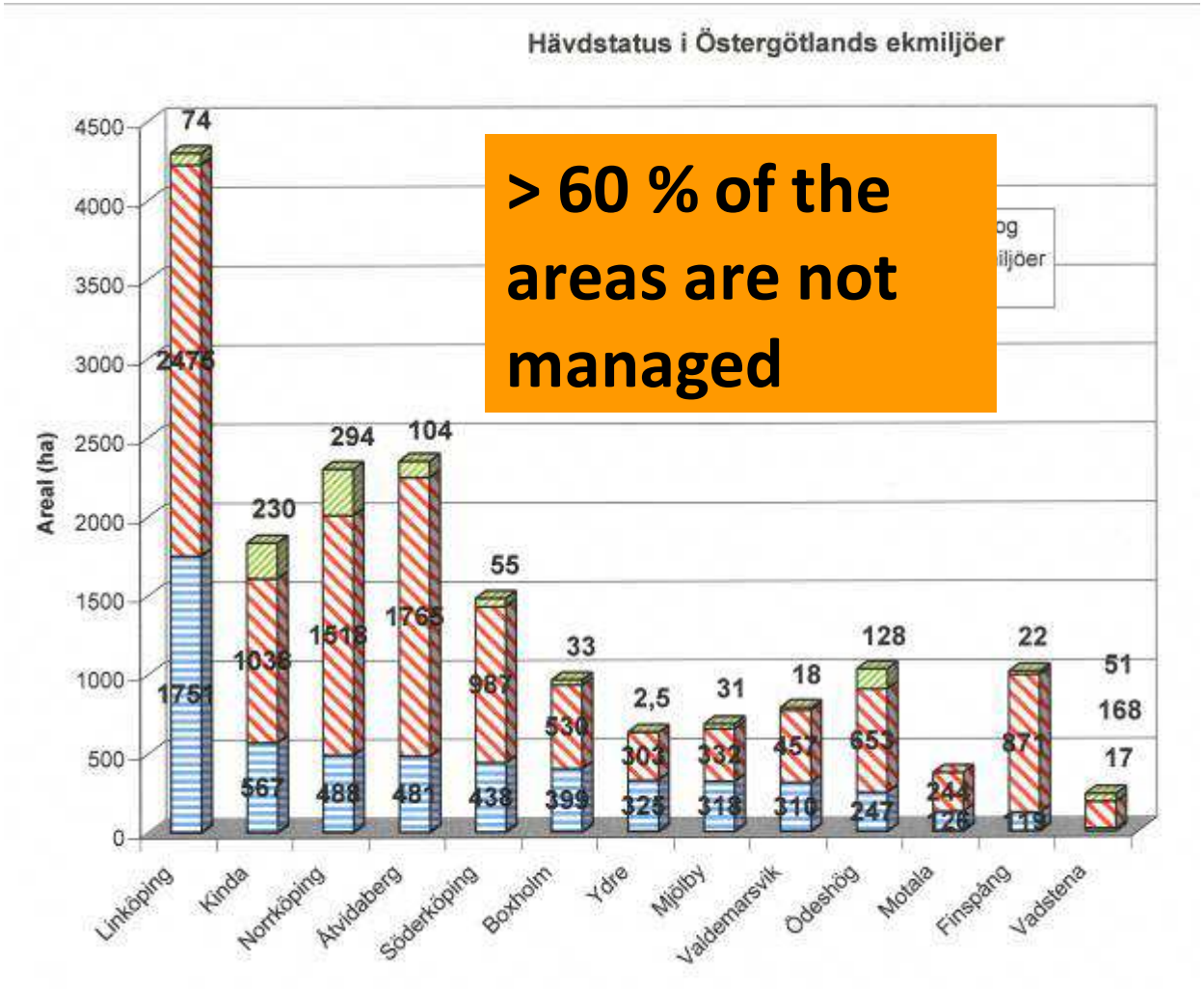

1. Lack of grazing animals!

Forest regrowth

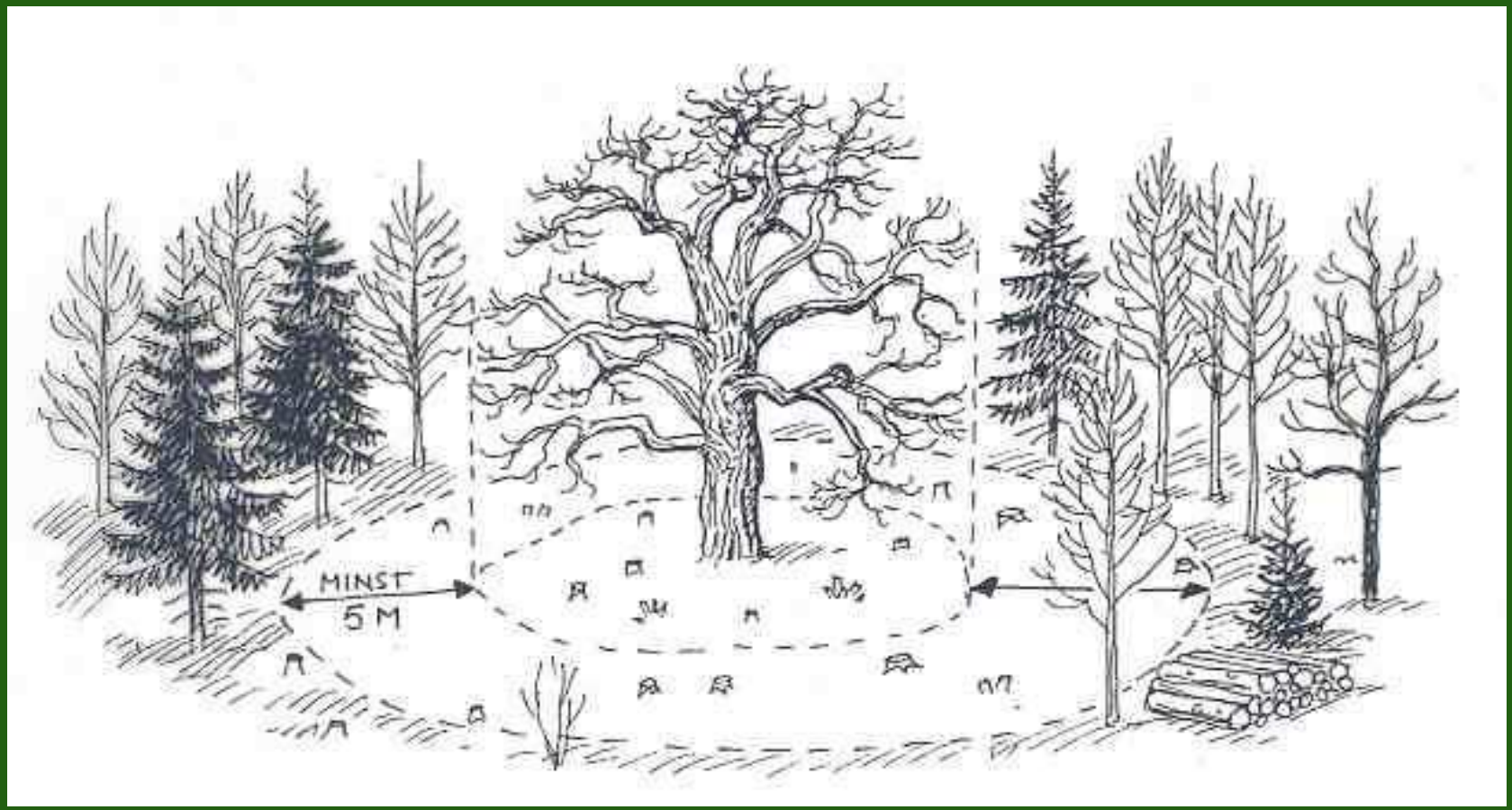


50
year

Two thirds are overgrowing!

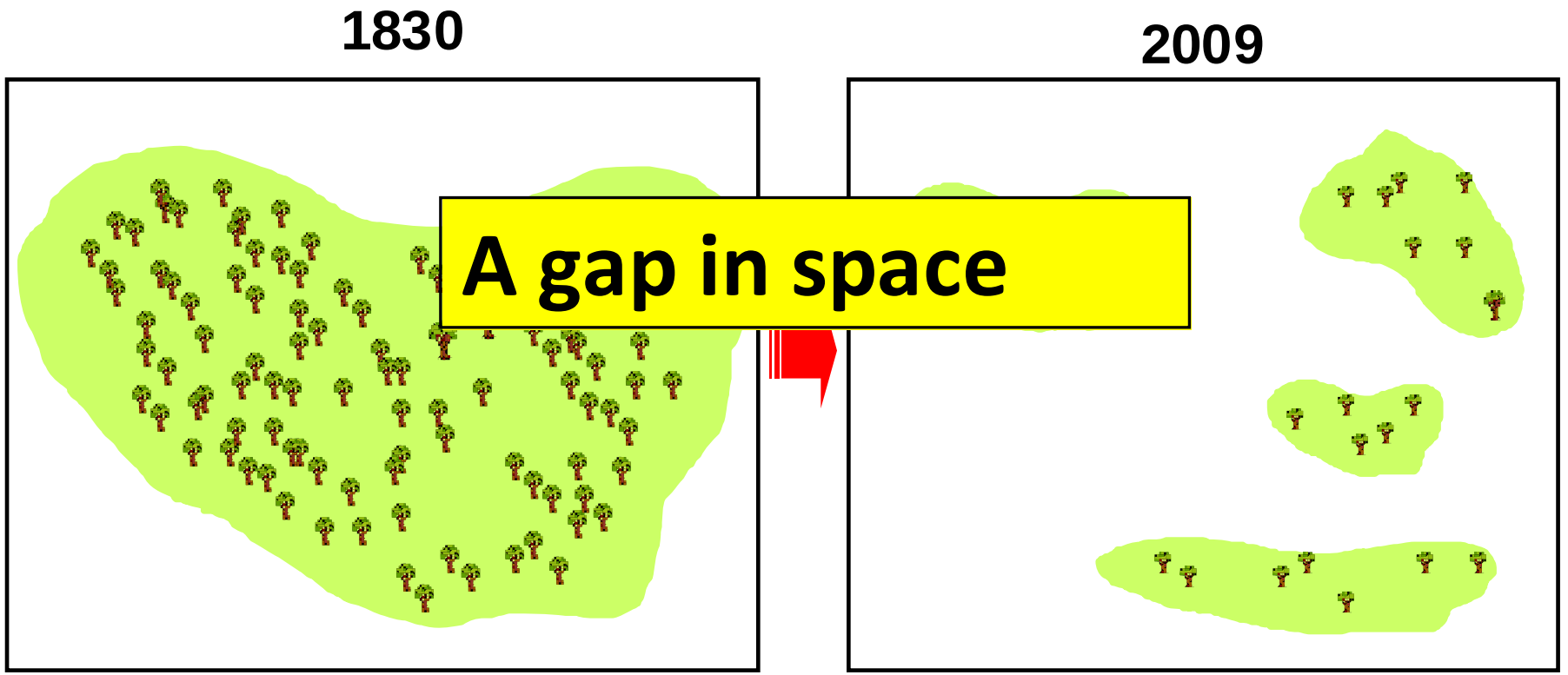


Clearings of forest regrowth arround old oaks

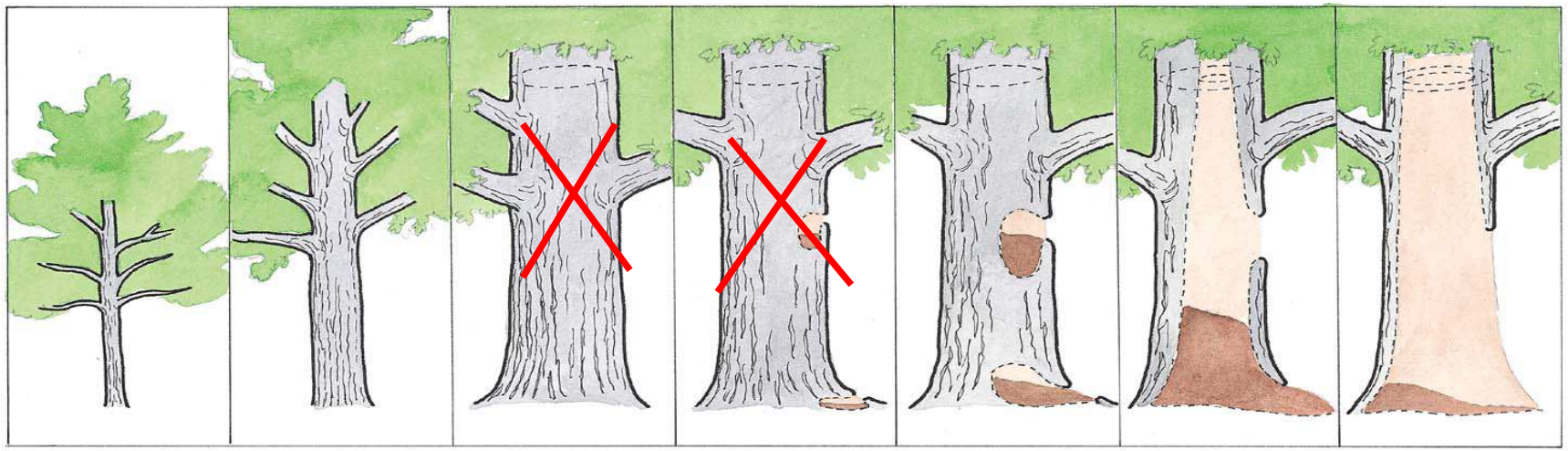


Advisory and foundings for restauration of old oak-pastures

2. Habitat loss and fragmentation – decreasing ecological function



3. Age gap – lack of generations of oaks



Threat?

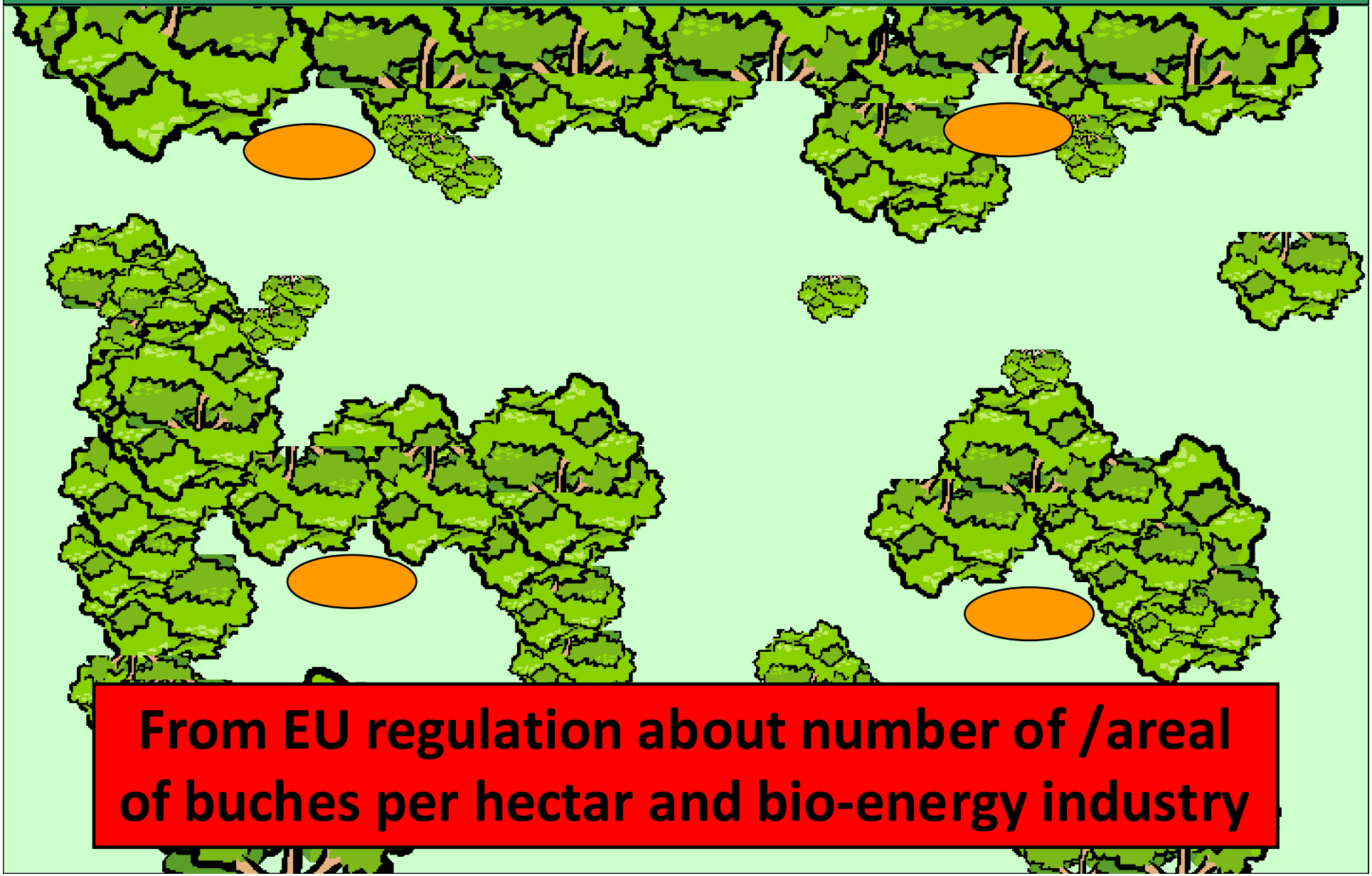
4. Low interest for oak-forest industry – no new oak-forests are produced

5. Lack of flowering bushes and trees!

Nectar and pollen

Meeting place

”Mosaic landscape” with bushes creating glades are disappearing– increas the variation in temp. and moisture



From EU regulation about number of /areal of buches per hectar and bio-energy industry

6. Lack of dead wood


Encourage to leave wood
from the foresty activity

Leave a part of the wood material at restaurations

Rödhjon - *Pyrrhidium sanguineum*

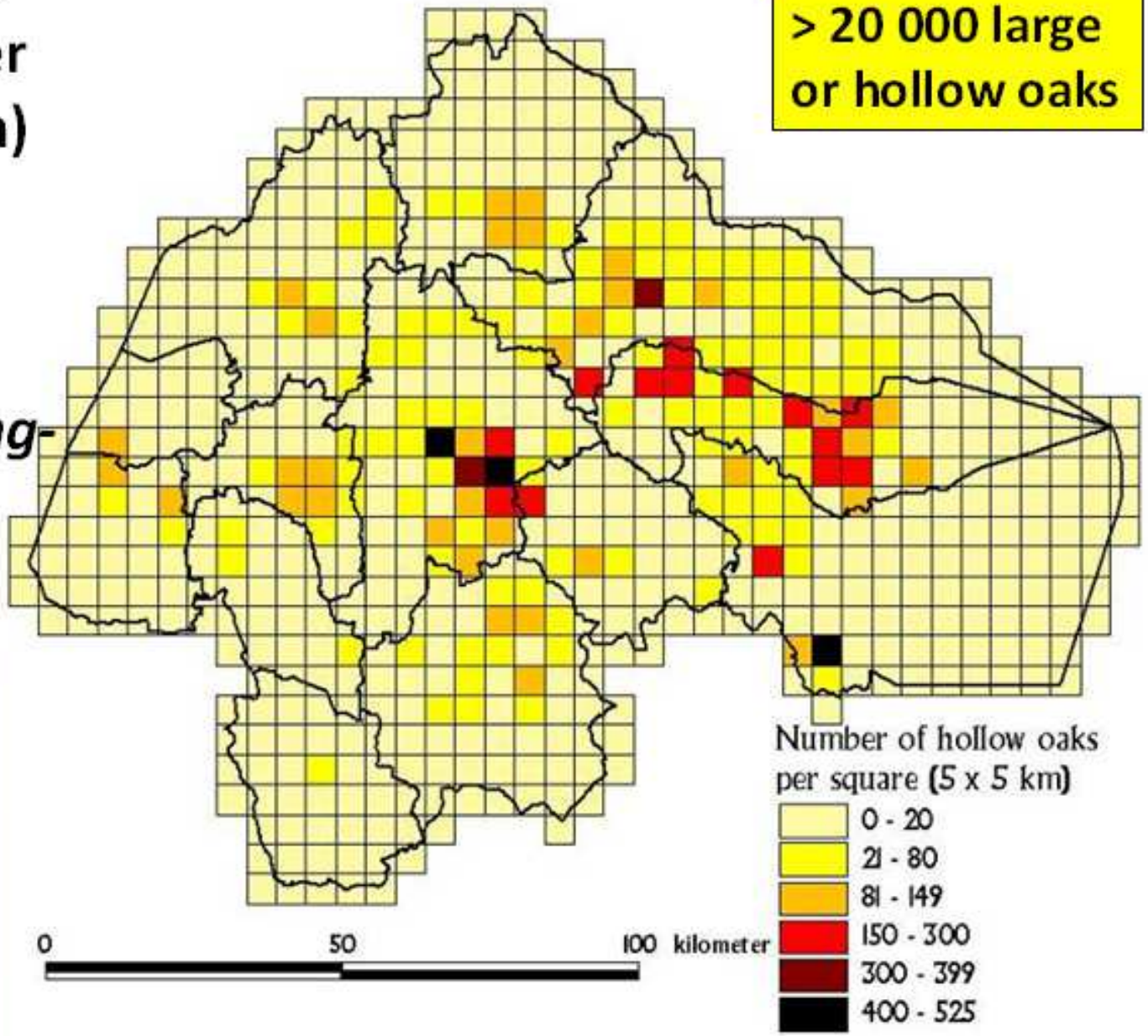
Producing high-stumps

The number of hollow oaks per square (5x5 km)

1998-2005

120 man-working-years

> 20 000 large or hollow oaks



”Red-list points” for the beetle species found in 74 sites with old hollow oaks in the county Östergötland

Swedish redlist 2000

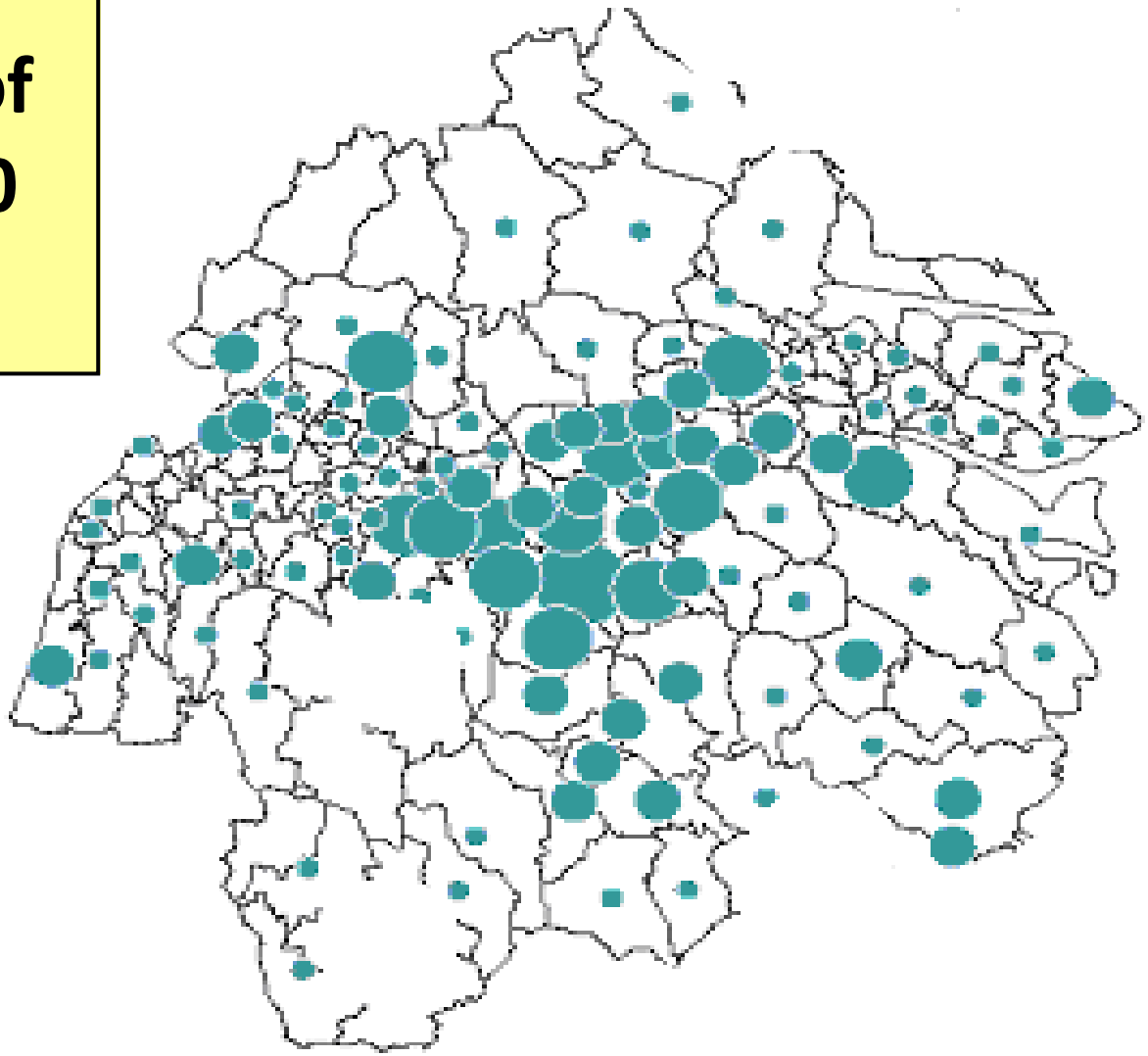
NT/DD = 1p

VU = 3p

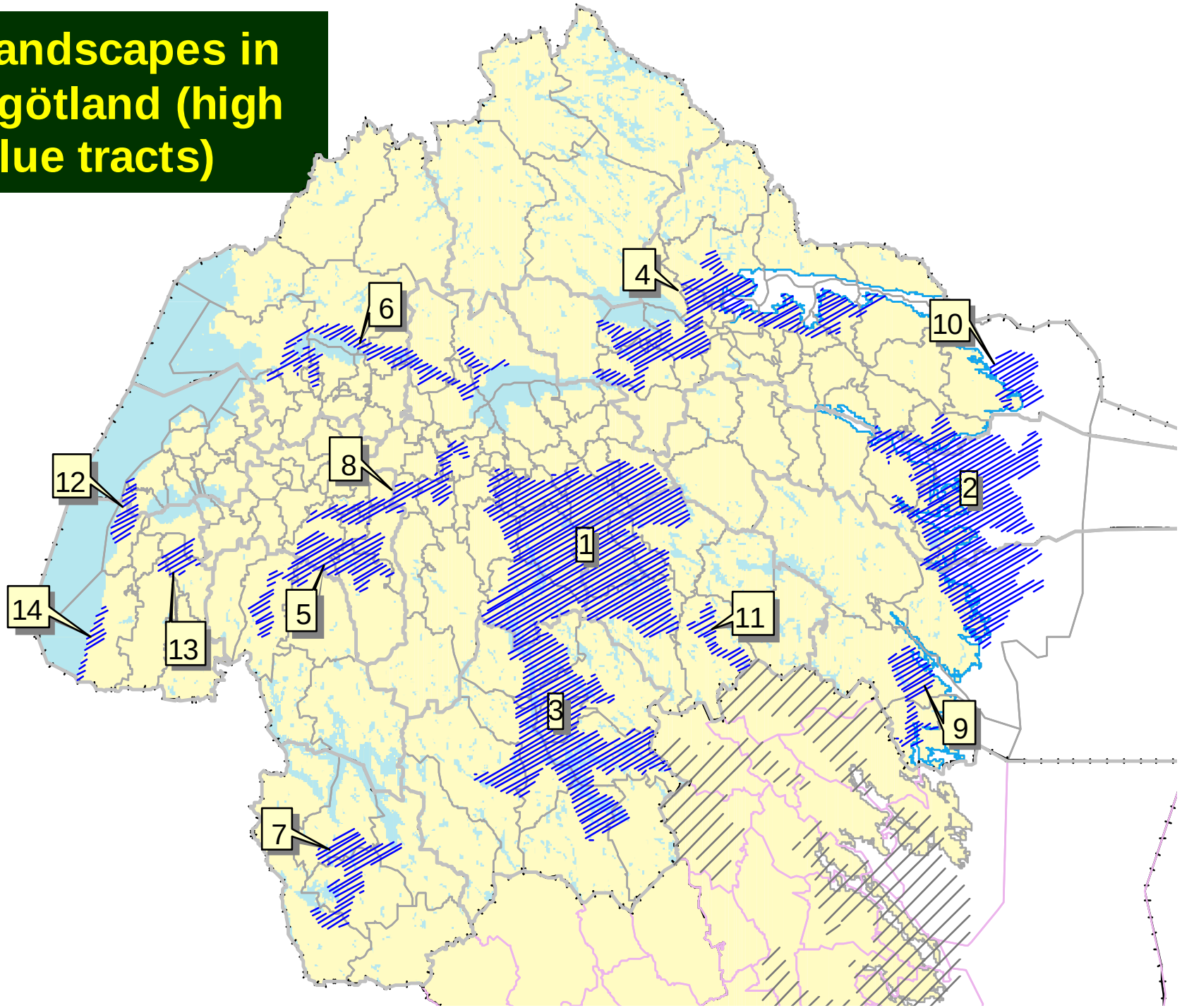
CR/EN = 5p

The number of old oaks 1830

From Eliasson (2002)



Oak landscapes in Östergötland (high value tracts)



The oak landscapes in Östergötland

- 18 000 hectars of valuable oak areas
- 20 000 oaks larger than 1 m in circumf.
- Biodiversity of international significance

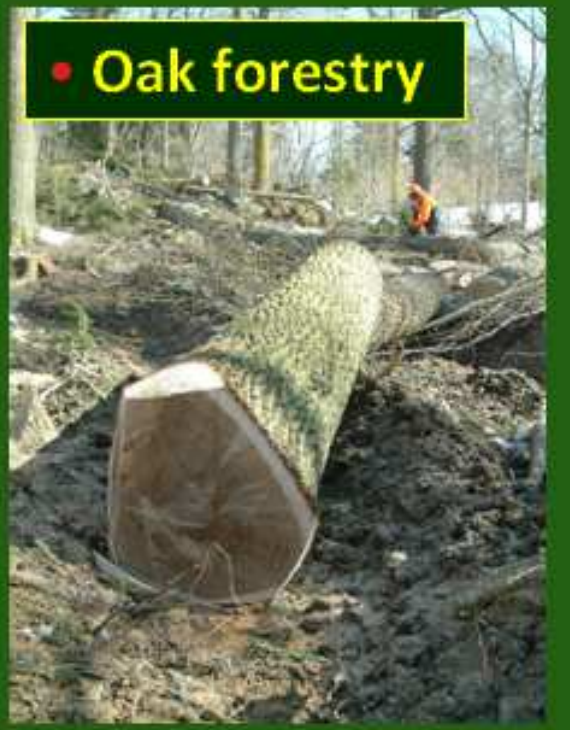
European hot-spot
- a responsibility and
a fantastic resource

Multi-purpose managemanet

- Milk and meat production

- Recreation/tourism

- Oak forestry



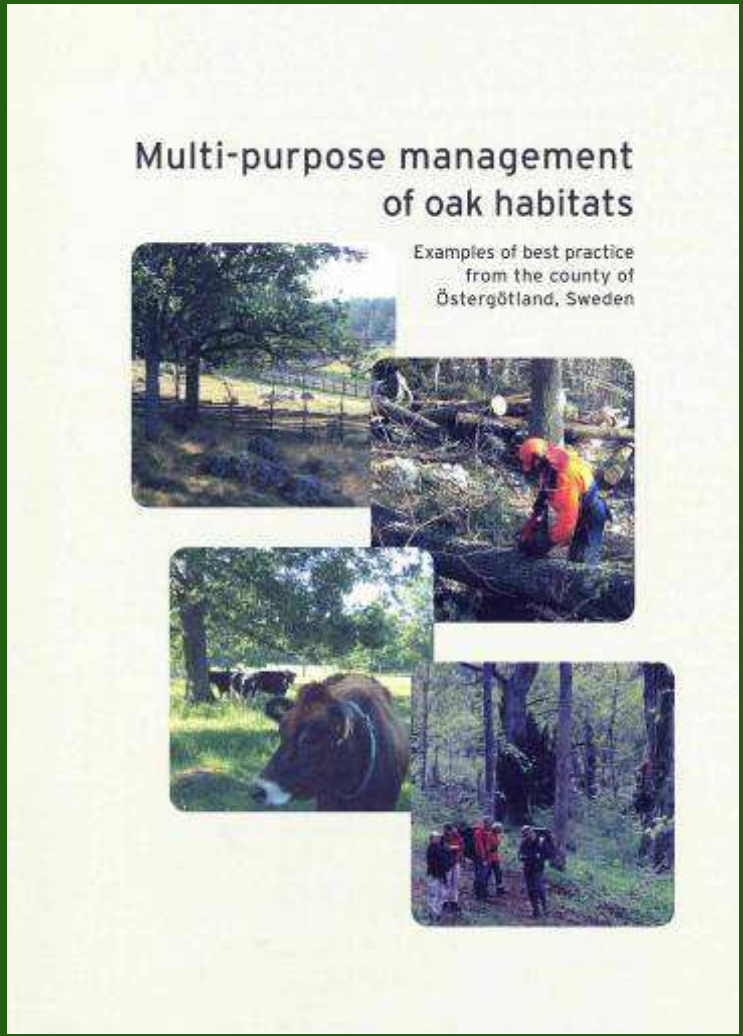
- Cultural values

- Natural values

”Multi-purpose management of oak habitats”

- Examples of best practice

- Oak habitats
- Oak forestry
- Case studies

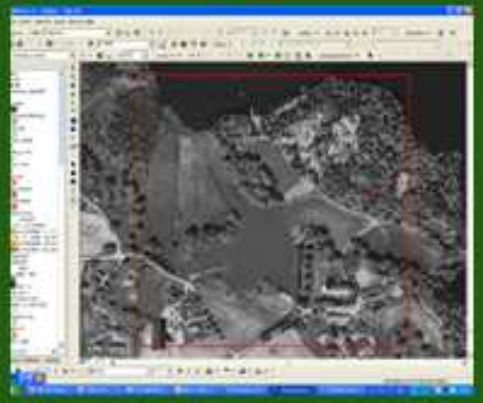


Jens.johannesson@lansstyrelsen.se

Monitoring system for large and hollow trees

Field computor

Maps for registrations



Paremeters in menues

Analysis

Database

* Hollow stage
* Condition
* Over-growing situation
* N-2000 and in the landscape

Monitored organisms in the habitat (N-2000)

Osmoderma eremita

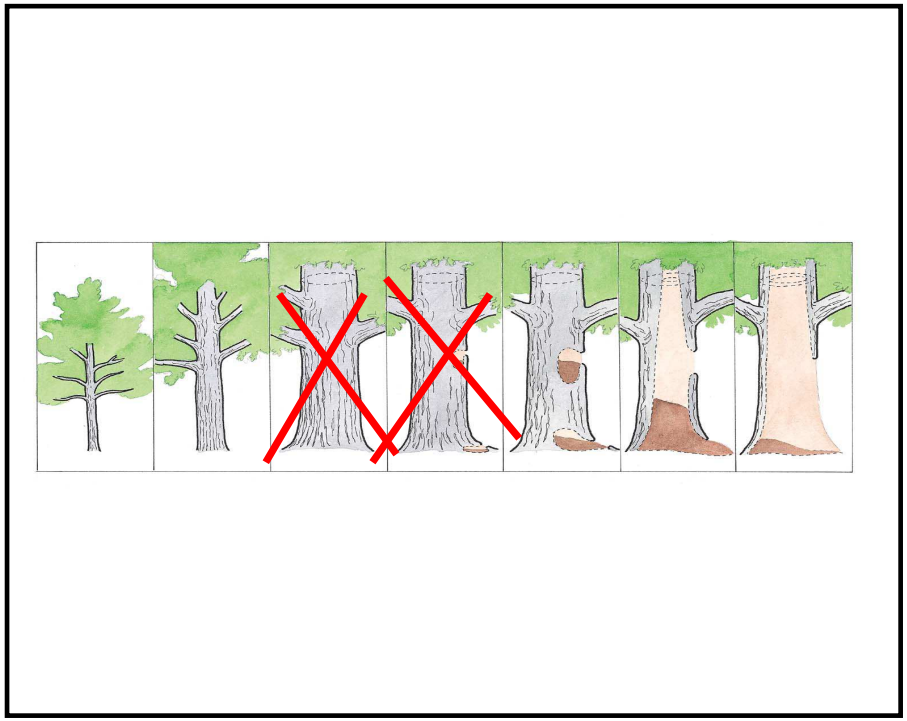
Cerambyx cerdo

Lucanus cervus

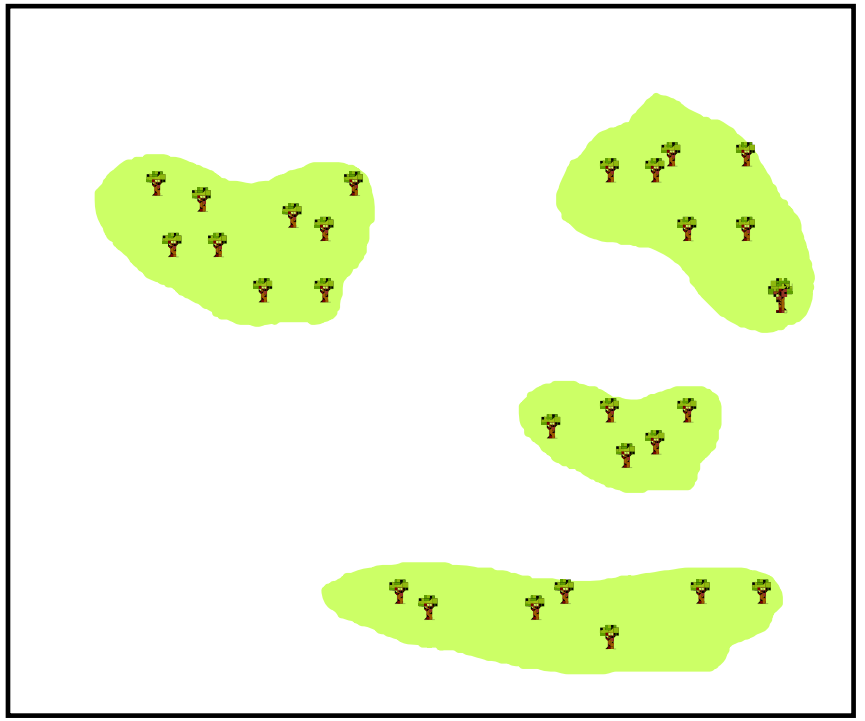
Anthrenochernes stellae

How can we solve the gap in space and time for the hollow tree organisms?

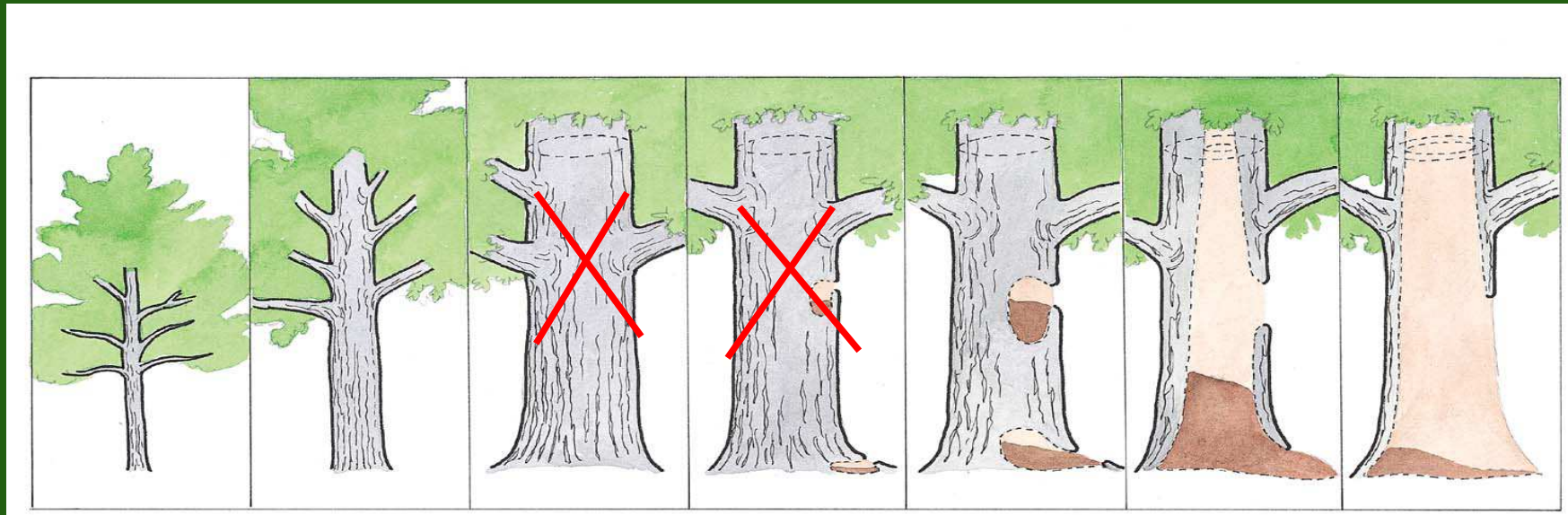
Generation gap



Habitat loss/fragmentation



3. Age gap – lack of generations of oaks

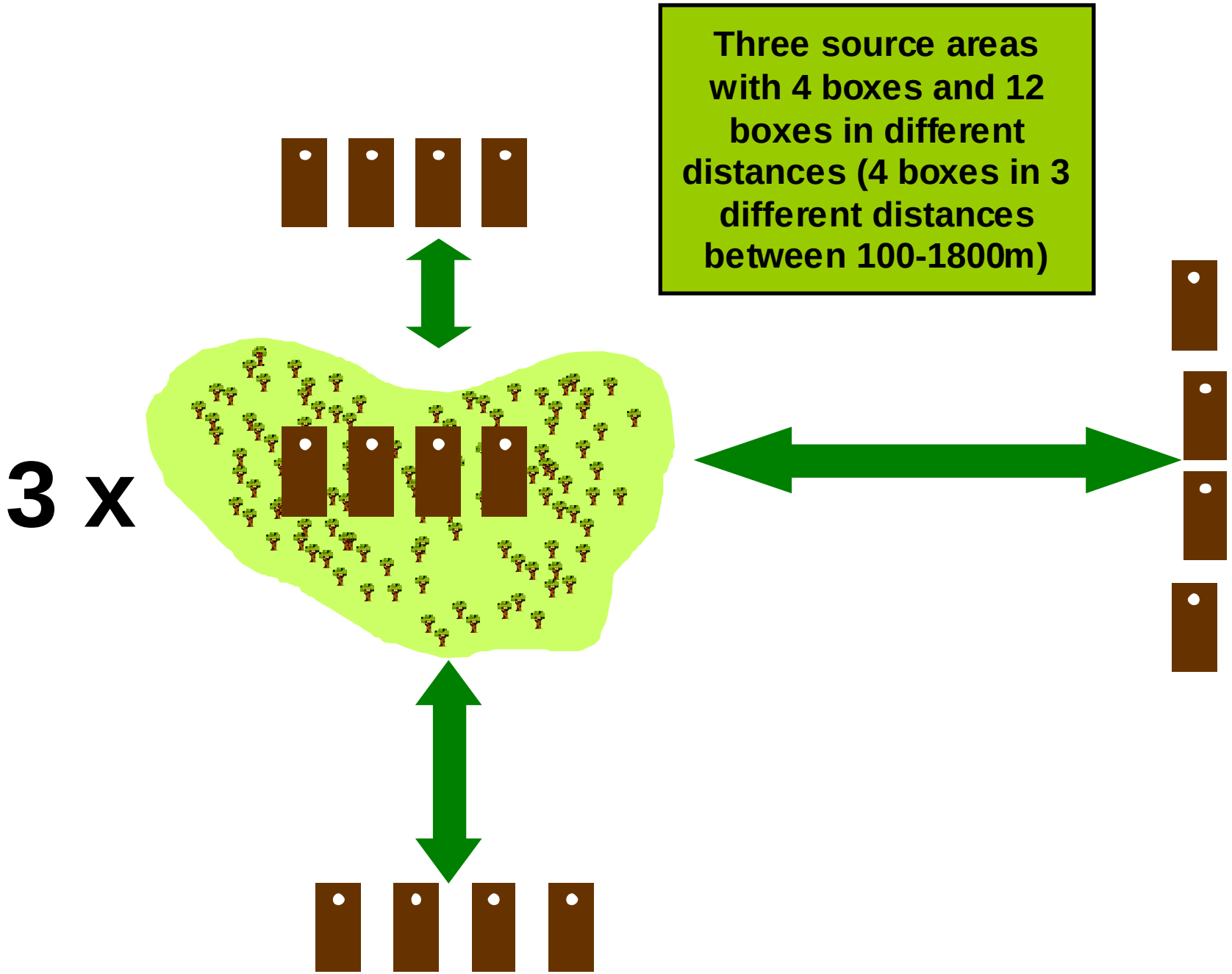


Wood mould boxes

Material: oak wood and filled to 70% with artificial wood mould

basic ingredients

*oak saw dust
*oak leaves
*lucern powder
*hay
*water


Three source areas with 4 boxes and 12 boxes in different distances (4 boxes in 3 different distances between 100-1800m)
3 x

After 3 seasons everything leaving the boxes were caught with emergence traps

Results

- **70%** (57 of 82) **of the saproxylic species** (tree-hollows, animal nest and rotten wood) **captured i hollow oaks were found in the boxes**

Brun guldbagge - *Liocola marmorata*

Orange rödrock - *Ampedus nigroflavus*

Matt mjörbagge *- Tenebrio opacus*

Läderbagge – *Osmoderma eremita*

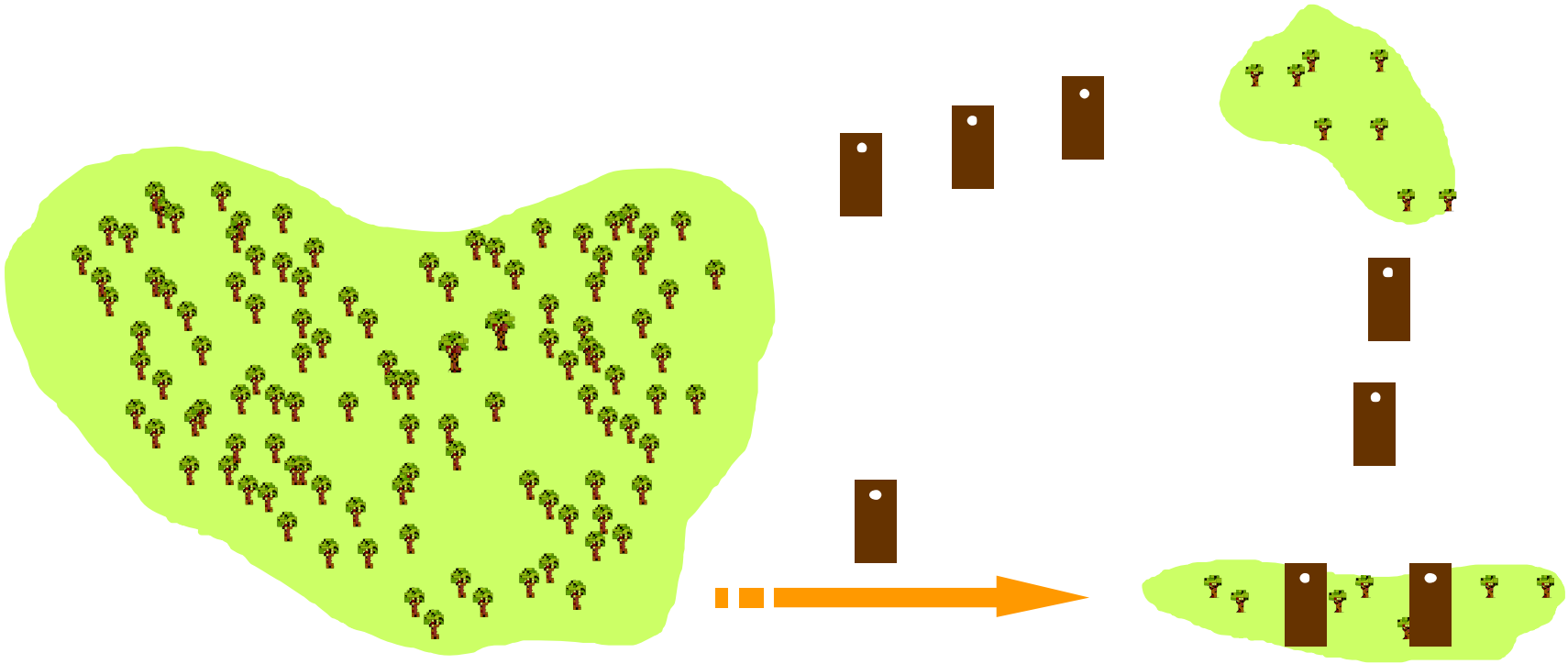
Smal mörkbagge *Grynocharis oblonga*

Åtelbagge - *Nemadus colonoides*

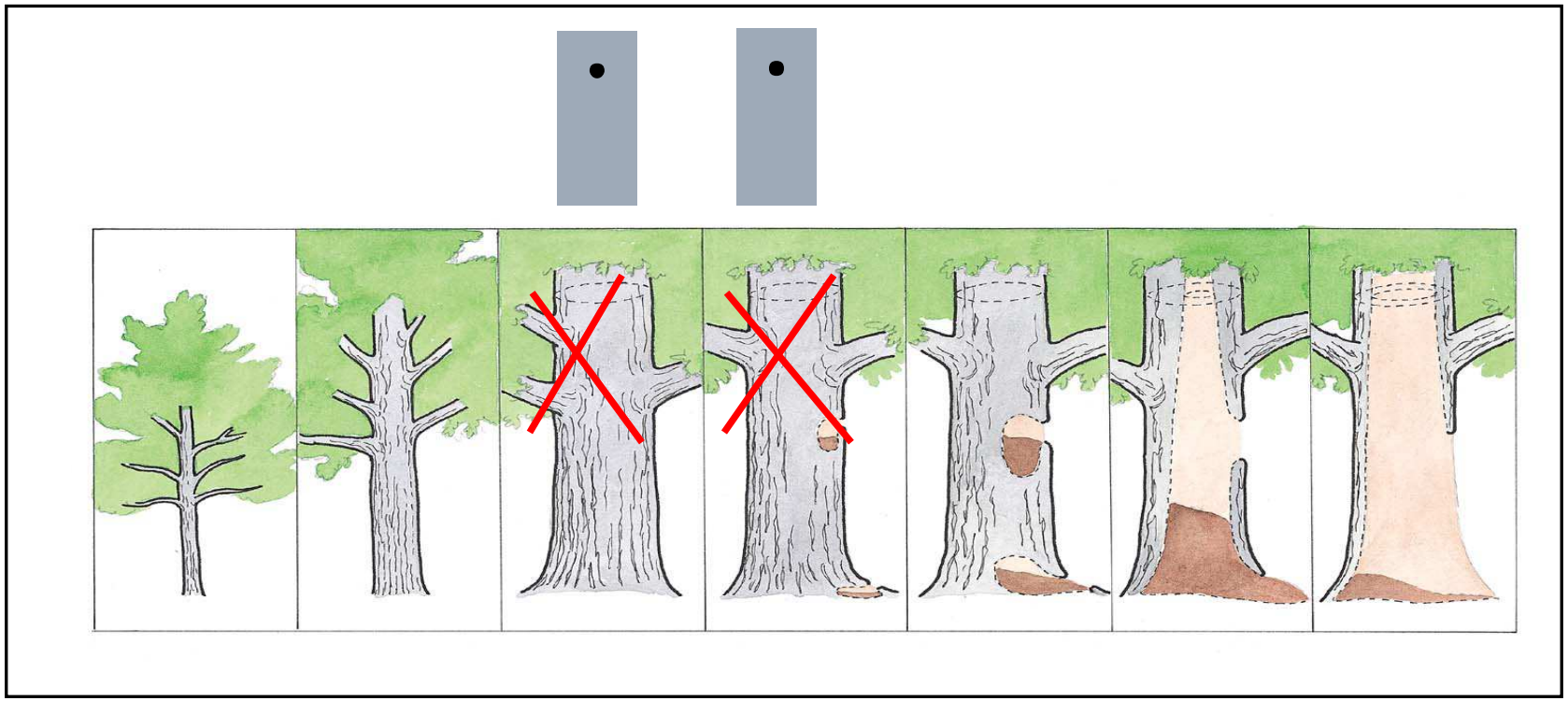
Prionychus melanarius

Ädelguldbagge *– Gnorimus nobilis*

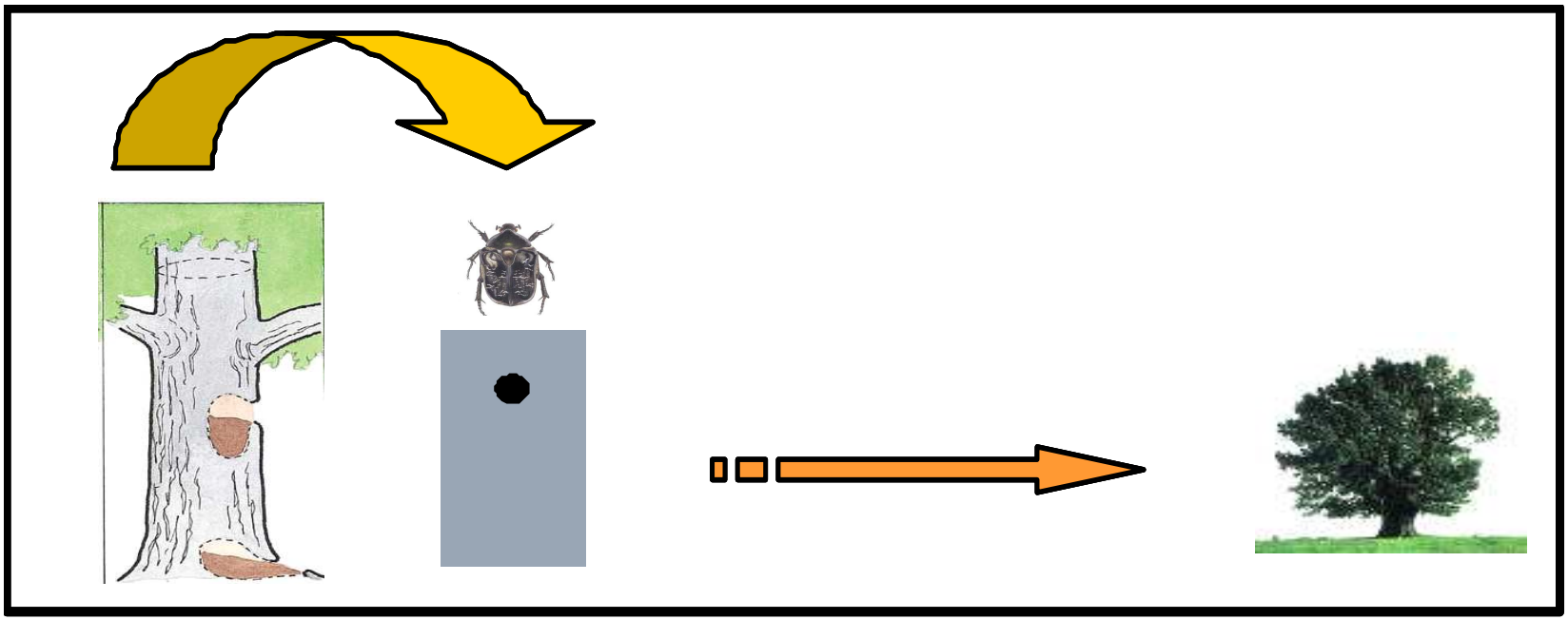
1. Use the boxes as ”stepping stones”



2. Fill gaps in time (succession stages)



3. Move boxes with colonised fauna



Nicklas Jansson
IFM, Division of Ecology, Linköping University, Linköping, Sweden.
E-mail: nicja@ifm.liu.se
+46-70-5534944