

Monitoring of maize damage due to badgers in Wallonia

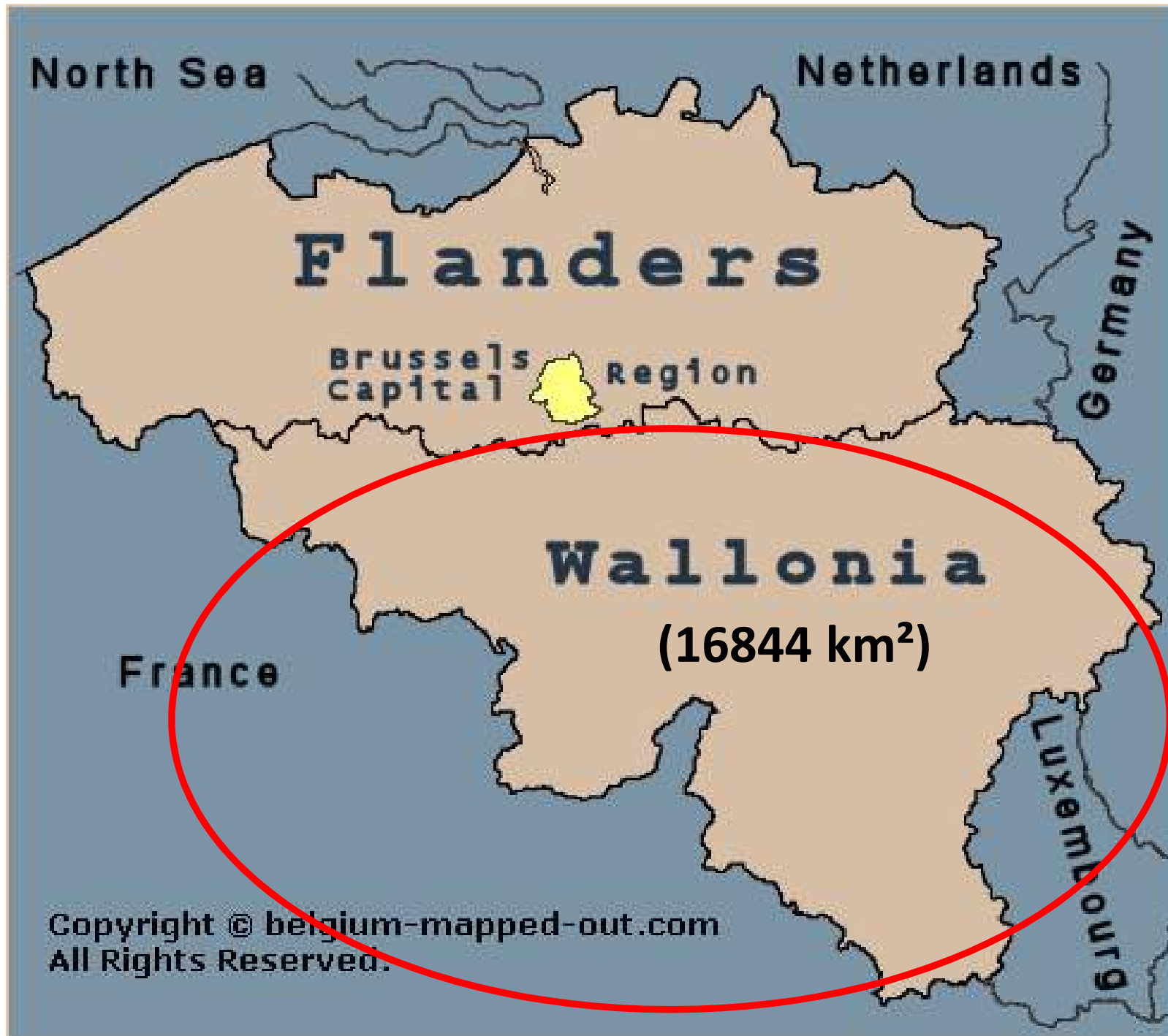
Subsequent management for an improved
damage estimate

Are badgers a “pest” for maize crops ?

SCHOCKERT V. & LAMBINET C.

Zoogeography Research Unit – University of Liège- Belgium

v.schockert@ulg.ac.be



Badgers in Wallonia

From past to present...

Status of *M. meles* in Wallonia:

Until 1973 : hunted

From 1973 : protected

- Bern Convention (Appendix III – protected fauna sp.)
- LNC



Population trends:

Former distribution : widespread

Since the 60's: ↙

From the 90's: ↗, population recovery

Since 2000's : ↗ traffic victims

“Are there “too many” badgers in Wallonia ?”



Taking profit of the badger “work”...

Badgers = diggers !

Setts (social groups)

- entries, gutters, excavations, paths, ...



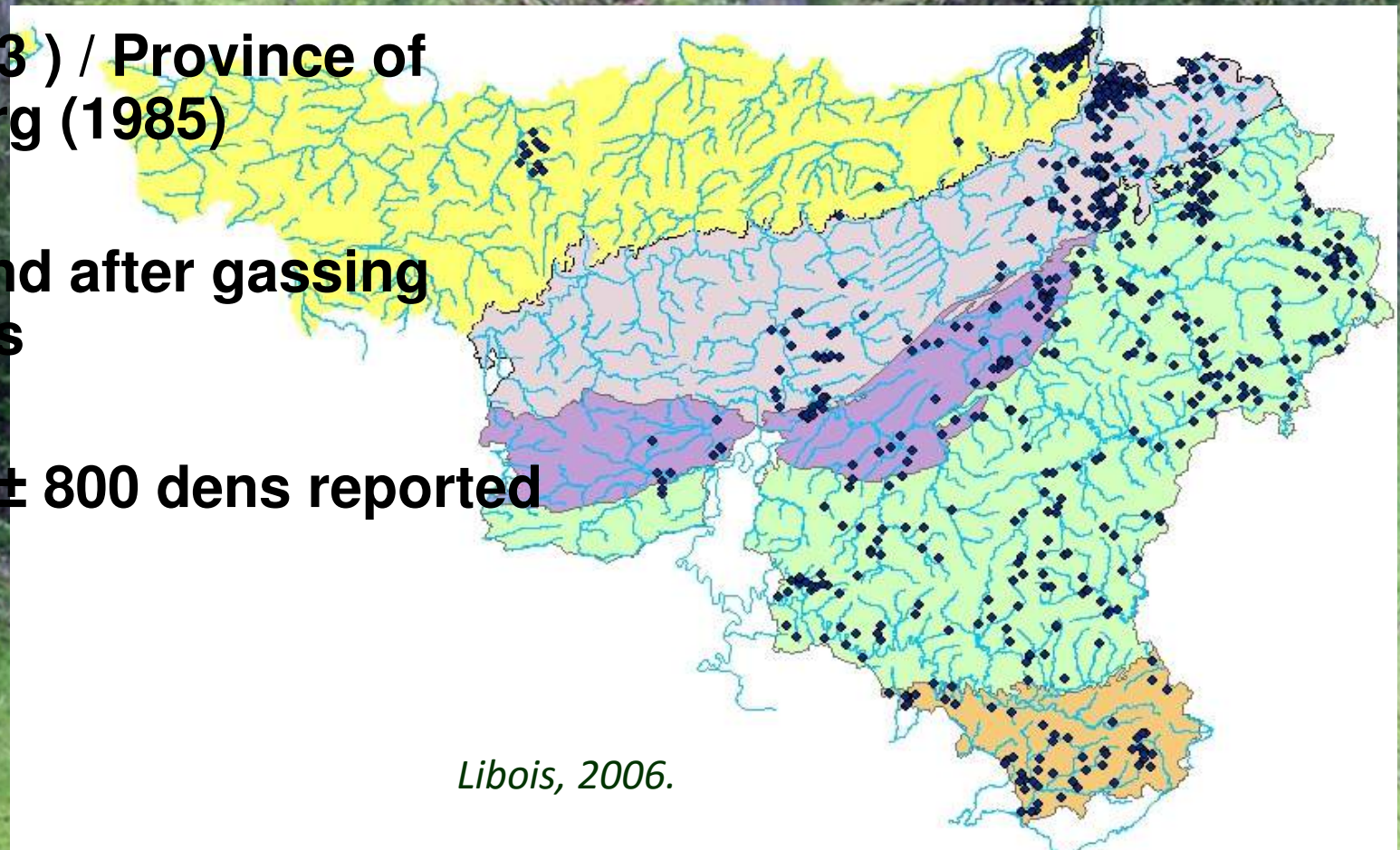
Past monitoring (70's-90's)

4 sett inventories at different scales

-Region (3) / Province of
Luxemburg (1985)

-During and after gassing
operations

-In 1994 : ± 800 dens reported



Libois, 2006.

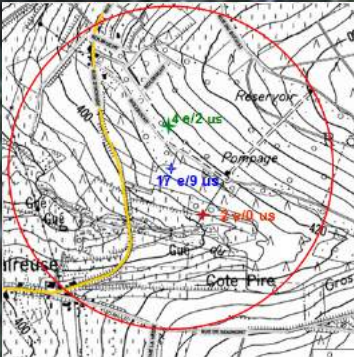
Monitoring ULg 2006 - 2015

Combination of 4 different methods

A) 5th sett inventory update in Wallonia (2006-2008)
ULg - DNF

+

B) Counts → population estimate
C) Inventory of occupied setts per home range
D) GIS analysis of badger habitat preferences



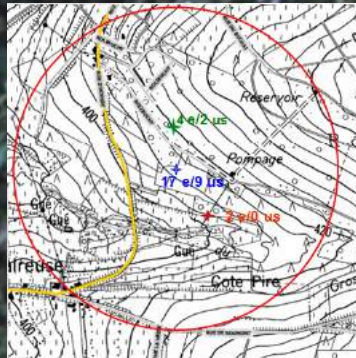
Monitoring ULg 2006 - 2015

Combination of 4 different methods

A) 5th sett inventory update in Wallonia (2006-2008)
ULg - DNF

+

B) Counts → population estimate
C) Inventory of occupied setts per home range
D) GIS analysis of badger habitat preferences



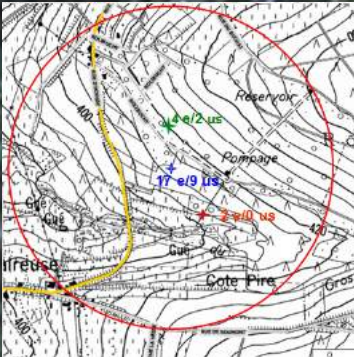
Monitoring ULg 2006 - 2015

Combination of 4 different methods

A) 5th sett inventory update in Wallonia (2006-2008)
ULg - DNF

+

B) Counts → population estimate
C) Inventory of occupied setts per home range
D) GIS analysis of badger habitat preferences



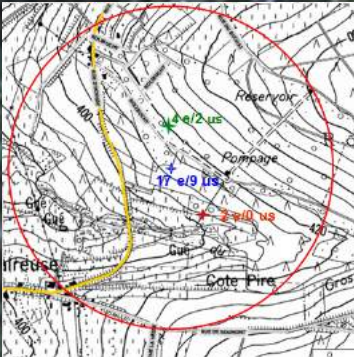
Monitoring ULg 2006 - 2015

Combination of 4 different methods

A) 5th sett inventory update in Wallonia (2006-2008)
ULg - DNF

+

B) Counts → population estimate
C) Inventory of occupied setts per home range
D) GIS analysis of badger habitat preferences



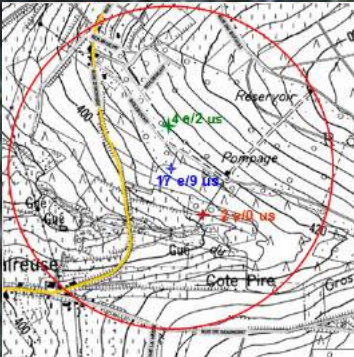
Monitoring ULg 2006 - 2015

Combination of 4 different methods

A) 5th sett inventory update in Wallonia (2006-2008)
ULg - DNF

+

B) Counts → population estimate
C) Inventory of occupied setts per home range
D) GIS analysis of badger habitat preferences



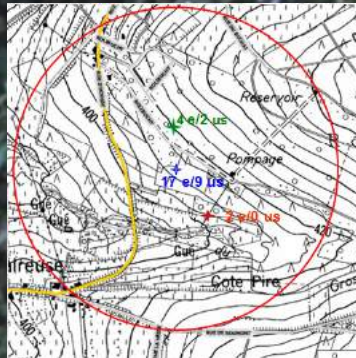
Monitoring ULg 2006 - 2015

Combination of 4 different methods

A) 5th sett inventory update in Wallonia (2006-2008)
ULg - DNF

+

B) Counts → population estimate
C) Inventory of occupied setts per home range
D) GIS analysis of badger habitat preferences

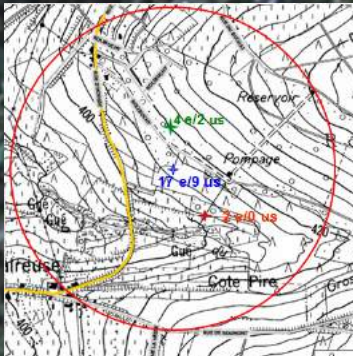


Monitoring ULg 2006 - 2015

Combination of 4 different methods

- A) 5th sett inventory update in Wallonia (2006-2008)
ULg - DNF

+
- B) Counts → population estimate
- C) Inventory of occupied setts per home range
- D) GIS analysis of badger habitat preferences



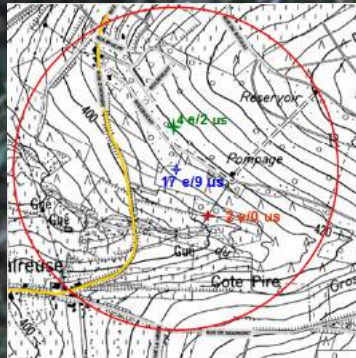
Monitoring ULg 2006 - 2015

Combination of 4 different methods

A) 5th sett inventory update in Wallonia (2006-2008)
ULg - DNF

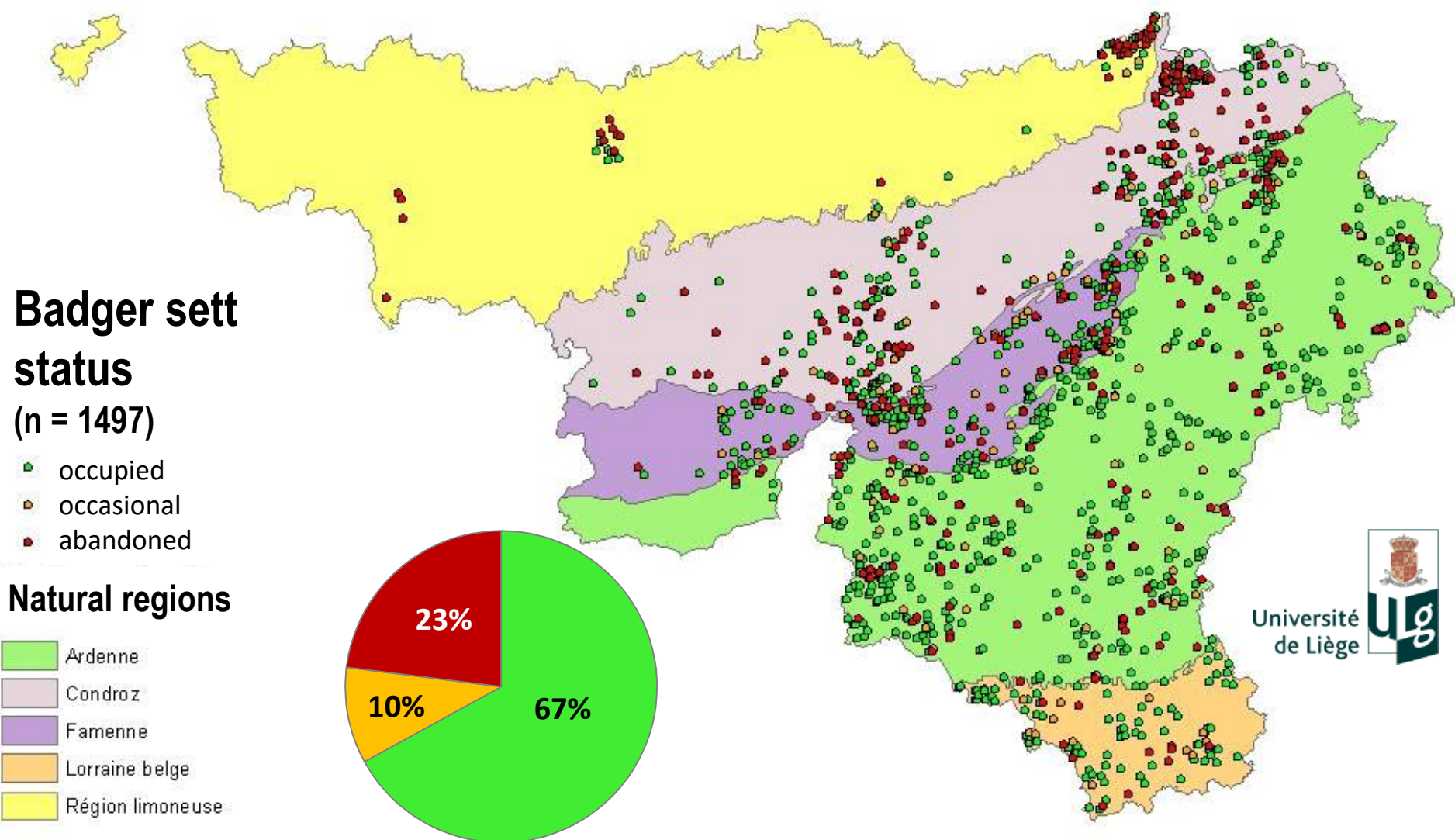
+

B) Counts → population estimate
C) Inventory of occupied setts per home range
D) GIS analysis of badger habitat preferences



A. Fifth den inventory

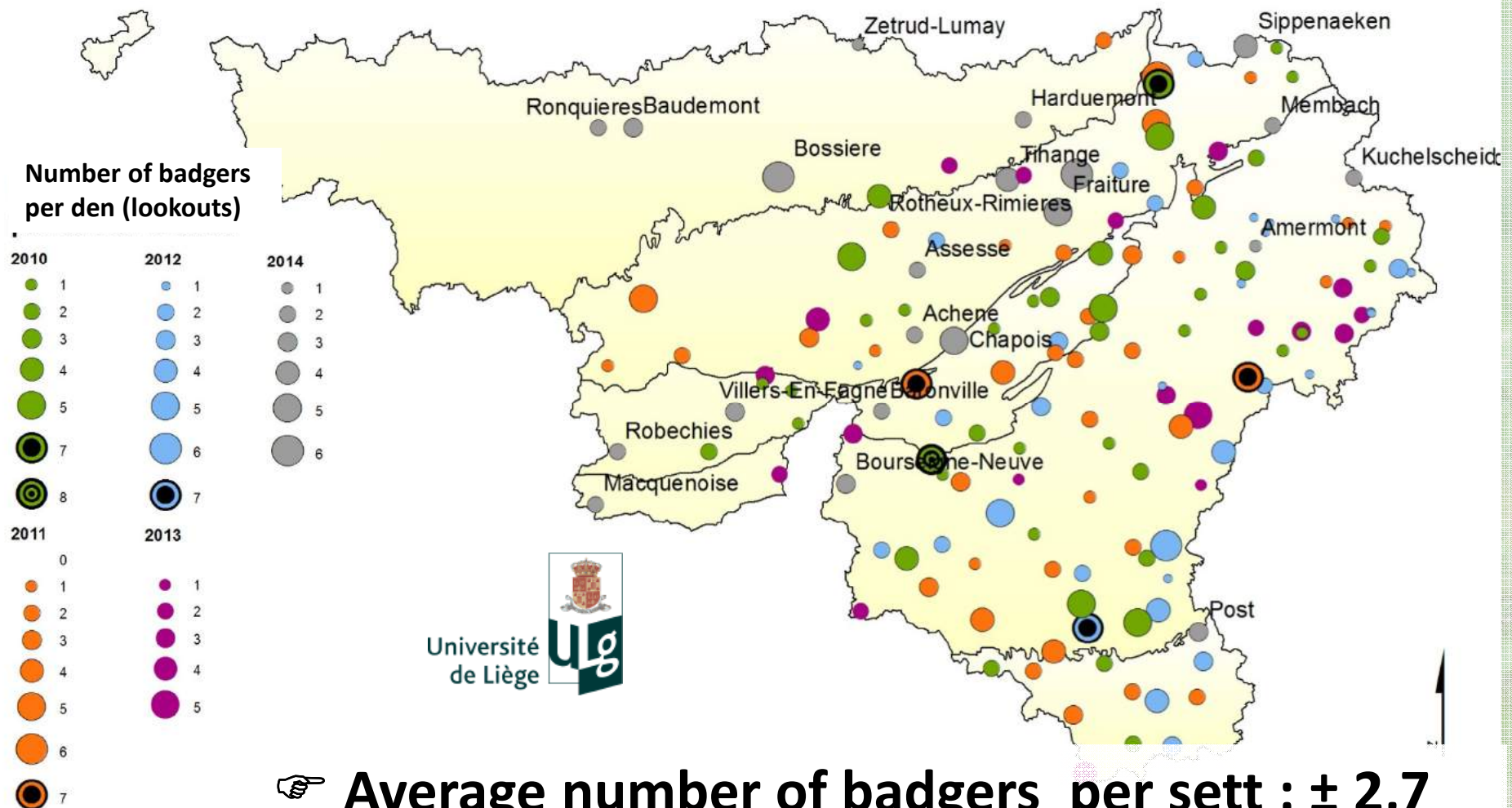
Distribution map of badger dens in Wallonia
(2006-2008) according their occupancy status (n=1497)



B. Population estimate

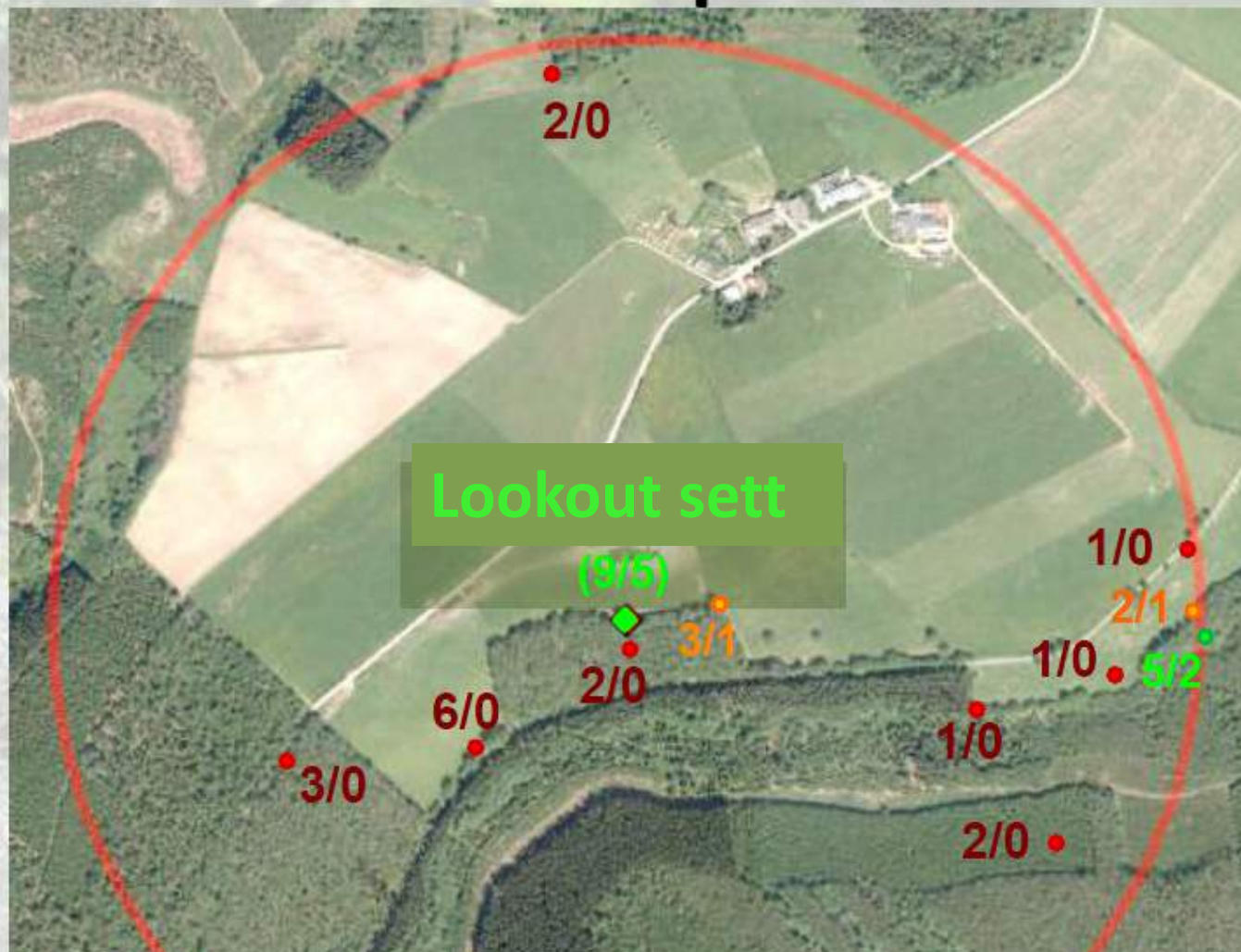
⇒ Sample of setts for lookouts (2010-2014)

⇒ 1 den/80 km² (≈ 140 setts counted)



➡ Average number of badgers per sett : $\pm 2,7$

Inventory of occupied setts per home range



Corrections for the population estimate :

- 👉 **Social group size : ± 4 badgers / home range**
- 👉 **Habitat Modelling : 22% of unknown dens**

Why to pay attention to badgers?

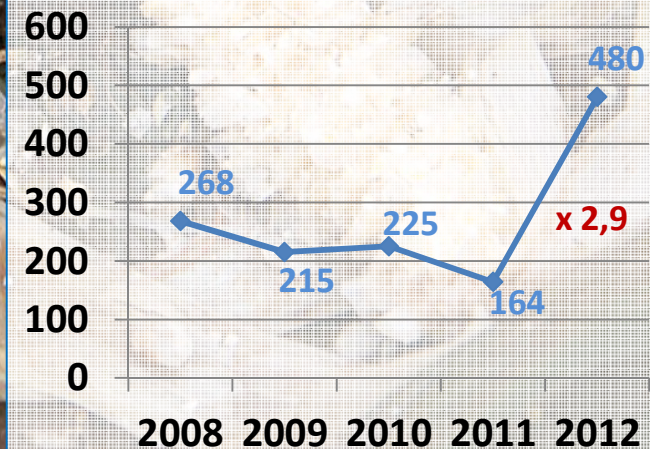
High level of maize damage in 2012...

☞ bill paid by the Region (protected species)

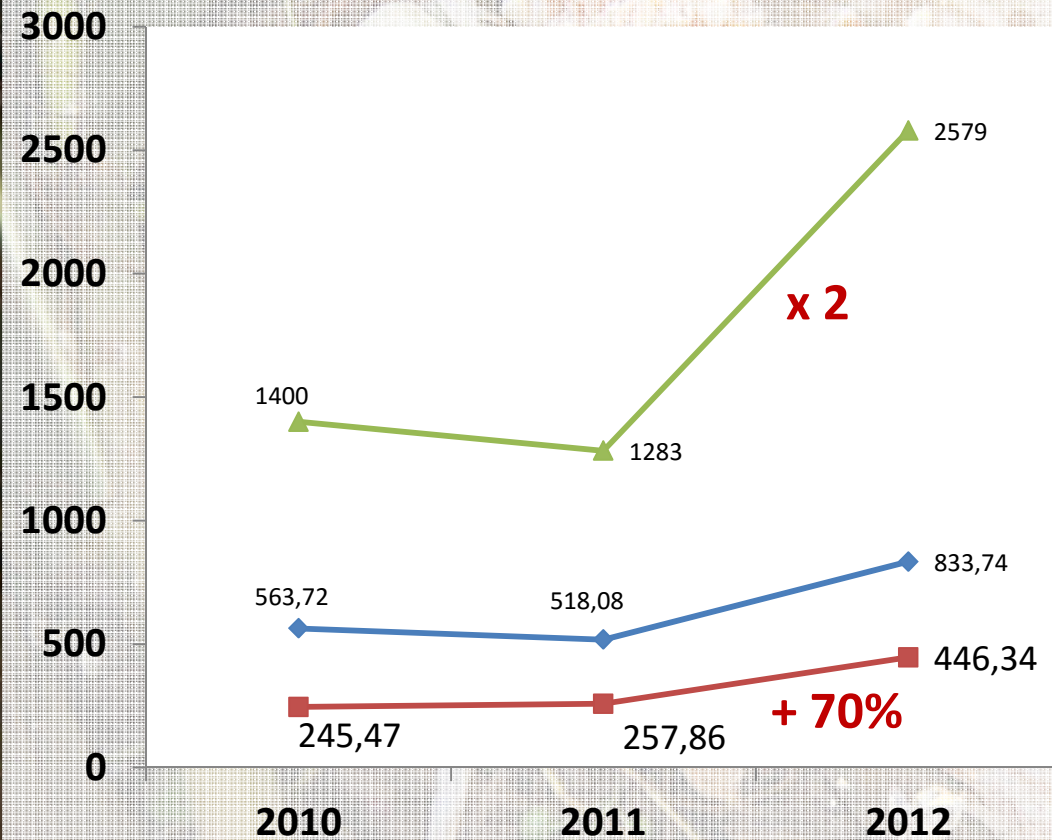
Total amount of compensations
per year



Number of claims



A. Known situation 2010 -2012



← ± 26 ares/parcel

◆ Mean amount per claim (€)

■ Mean amount per parcel (€)

▲ Mean damage surface per parcel (m²)

What happened in 2012 ?

-Some explicative factors

-↗ Claims

-Cold climate : ↗ palatability for badgers (and other maize eaters)

What else ?

? ! ? !



? ! ? !



→ Explosion of the badger ~~population~~ ?

NO

→ Population stability between 2009 – 2014

Evolution of the badger population level

Number of individuals

10000

9000

8000

7000

6000

5000

4000

3000

2000

1000

0

Mild winters!

**Normal winters:
snow and frost**

— Inferior limit
— Superior limit

2007

2008

2009

2010

2011

2012

In 2012, on the other side of the forest...

✓ Wildboar population ↗↗

✓ Huge maize damage due to wildboars (Payers = hunters)

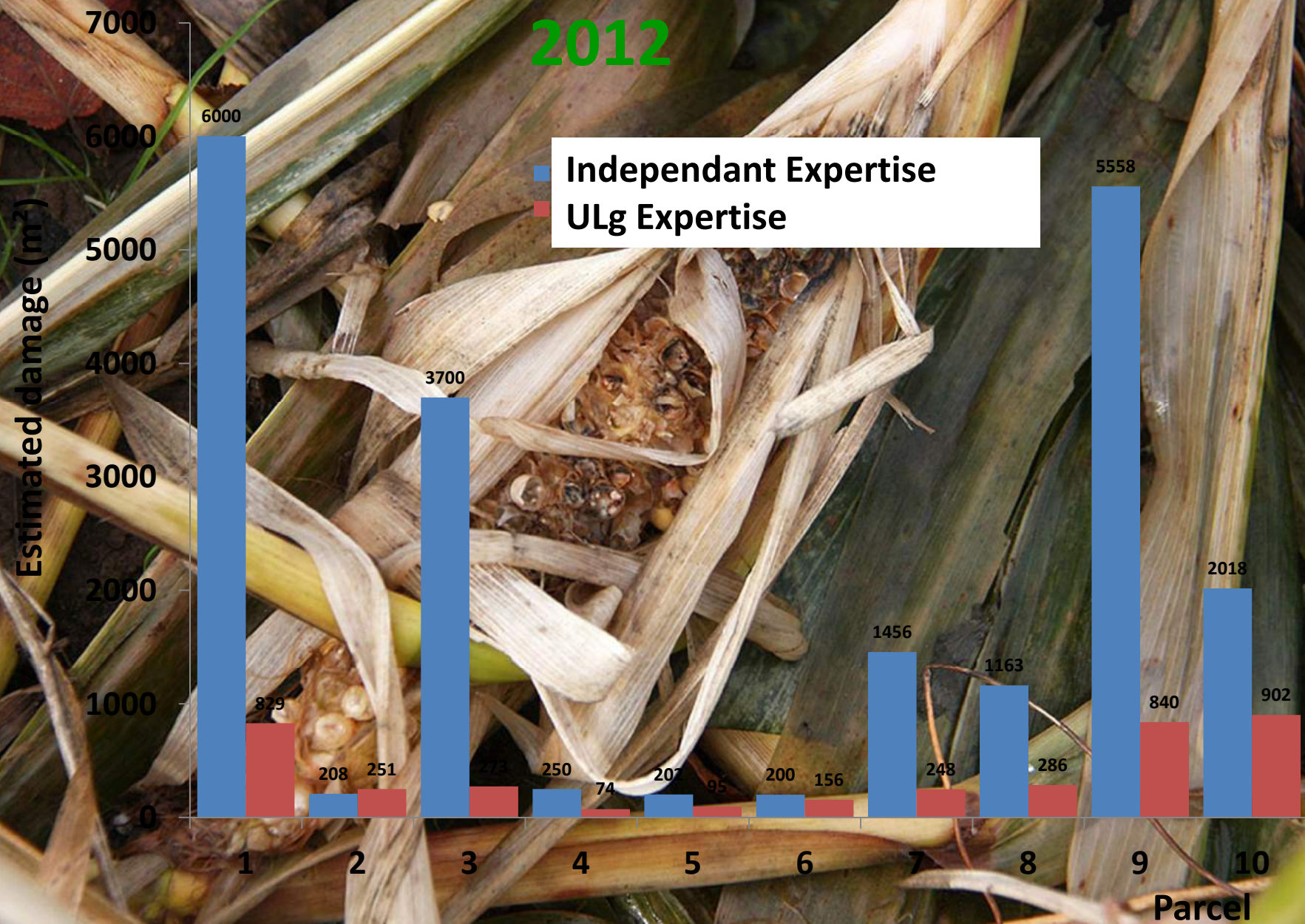
→ MAIN CAUSE OF A HIGH LEVEL OF DAMAGE DUE TO BADGERS :
misidentification of damage between maize eaters



Some facts about maize damage in Wallonia...

A time to confrontation : experts - ULg

2012



Damage assigned to badgers and ... biological limits !

		Social group size			
		1 ind.	2 ind.	4.132 ind.	10 ind.
Daily food intake	600g				
Mass of maize grains per cob	60 g				
Number of cobs eaten per day		10	20	41	100
Number of cobs wasted per day (20%)		2	4	8	20
Total damage per day		12	24	49	120
Depredations during 3 months		1080	2160	4410	10800
Depredations during 2 months		720	1440	2940	7200
Mean number of plants per ha	95000 plants/ha				
Damaged area after 3 months		114 m ²	227 m ²	464 m ²	1137 m²
Damaged area after 2 months		76 m ²	152 m ²	309 m ²	758 m²

The 2012 situation... a bit surrealist ?

Total maize damage surface concerned by claims in 2012 167ha

Number of badgers « needed » to cause such a damage 16.700 ind

☞ 3,5 times the whole badger population of Wallonia (4,700 individuals)

Work done by the ULg from 2013

- Methodological tests (standardization)
- Study of the badger damage level/parcel
- Organization of expertises/contra-expertises requested by the Region

→ Trainings !

- Identification of the ≠ maize « eaters »
- 3 years
- public : active experts (28) ; forestry agents (197) ; new candidates (157)
- « new experts » : 8



Methodological Tests

2013

- **Standardization test (25%)**
 - ✓ « 24 lines » Method (ULg)
 - ✓ Compared to an exhaustive (count every 6L)
- **Badger damage estimate (80 parcels)**

2014

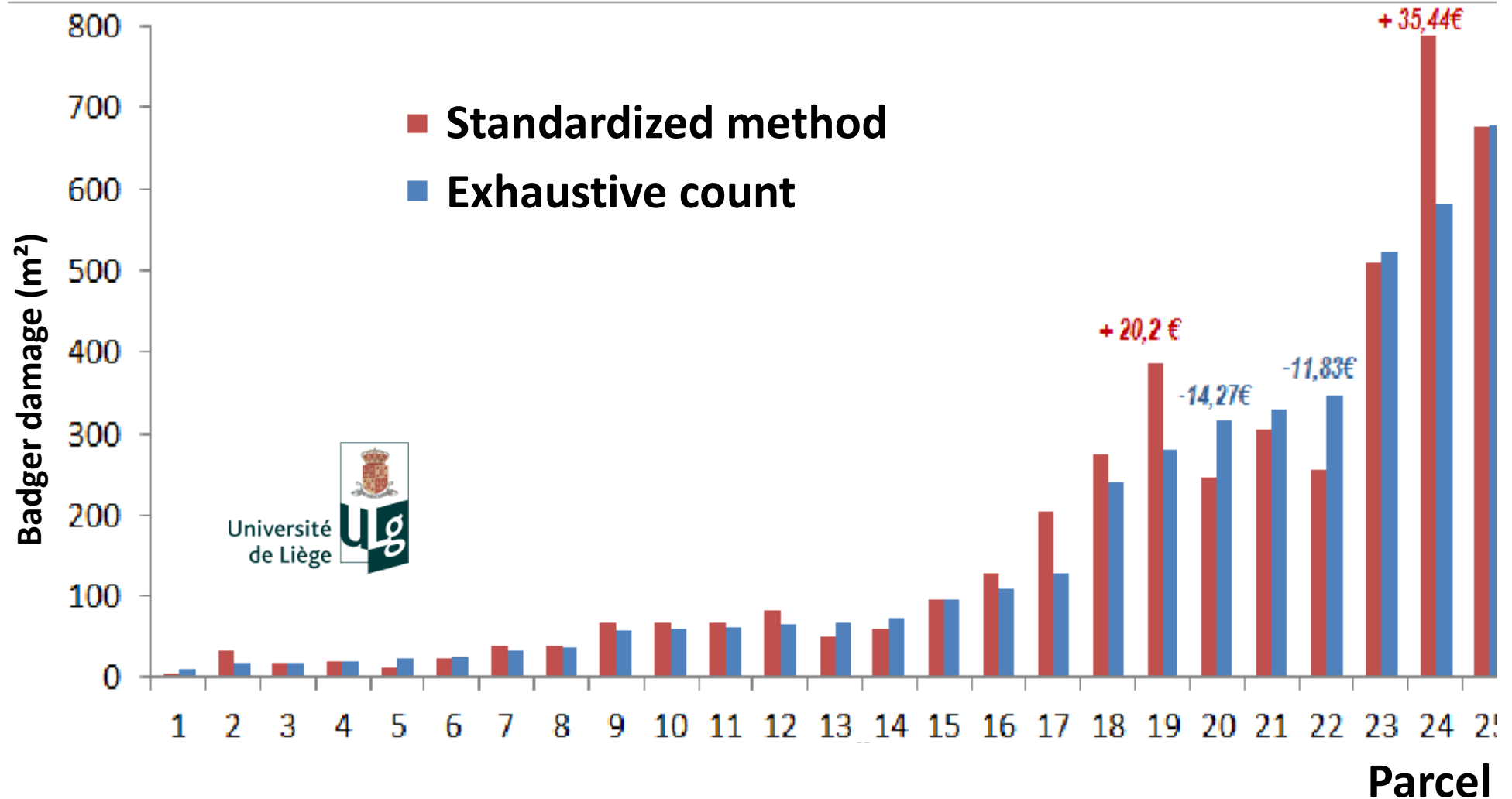
- **Damage estimate (badger/wildboar) in 25 parcels with a huge level of badger damage in 2013**
- **Expertises + contra-expertises**

The « 24 lines » method



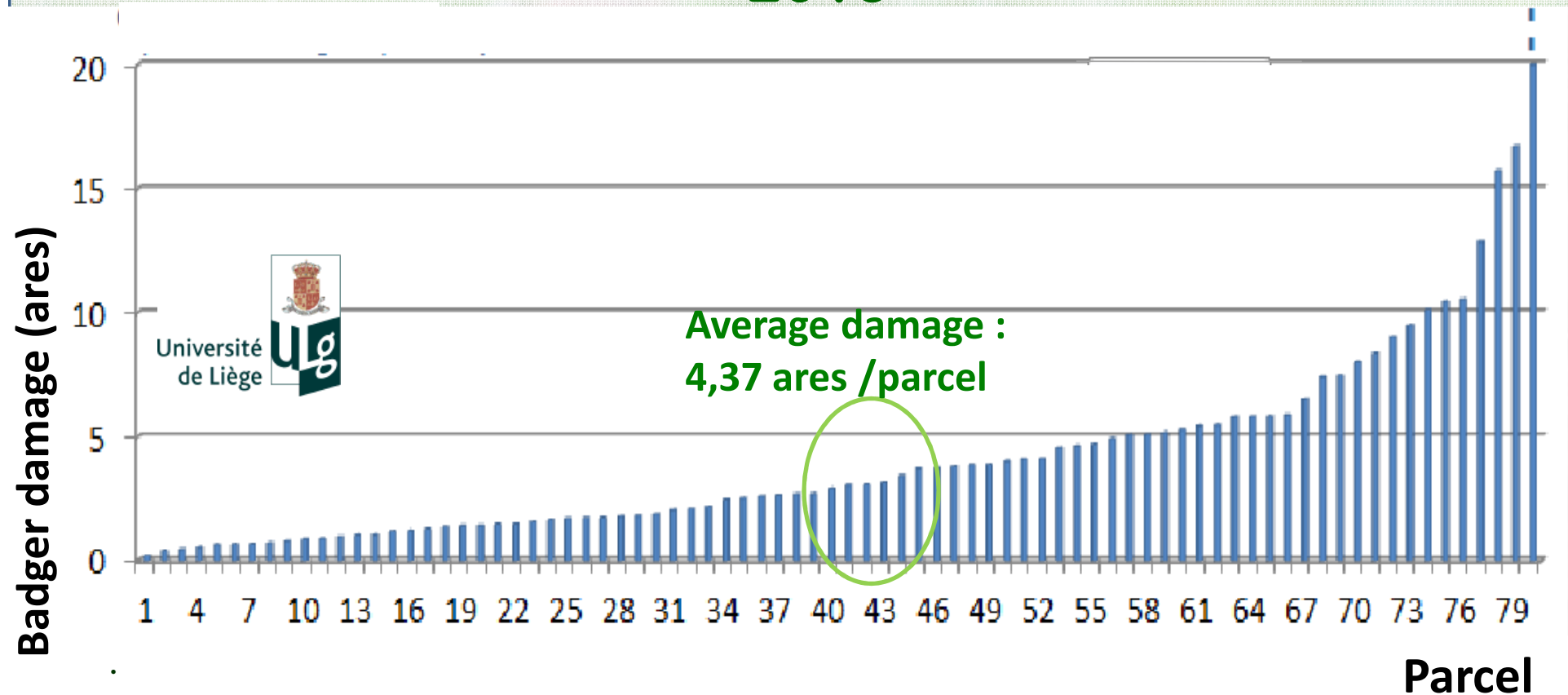
Is a 25% count at risk for the farmer?

« ULg method » (25%) *versus* « Exhaustive count »



Damage estimate (badger) in 80 maize parcels

2013

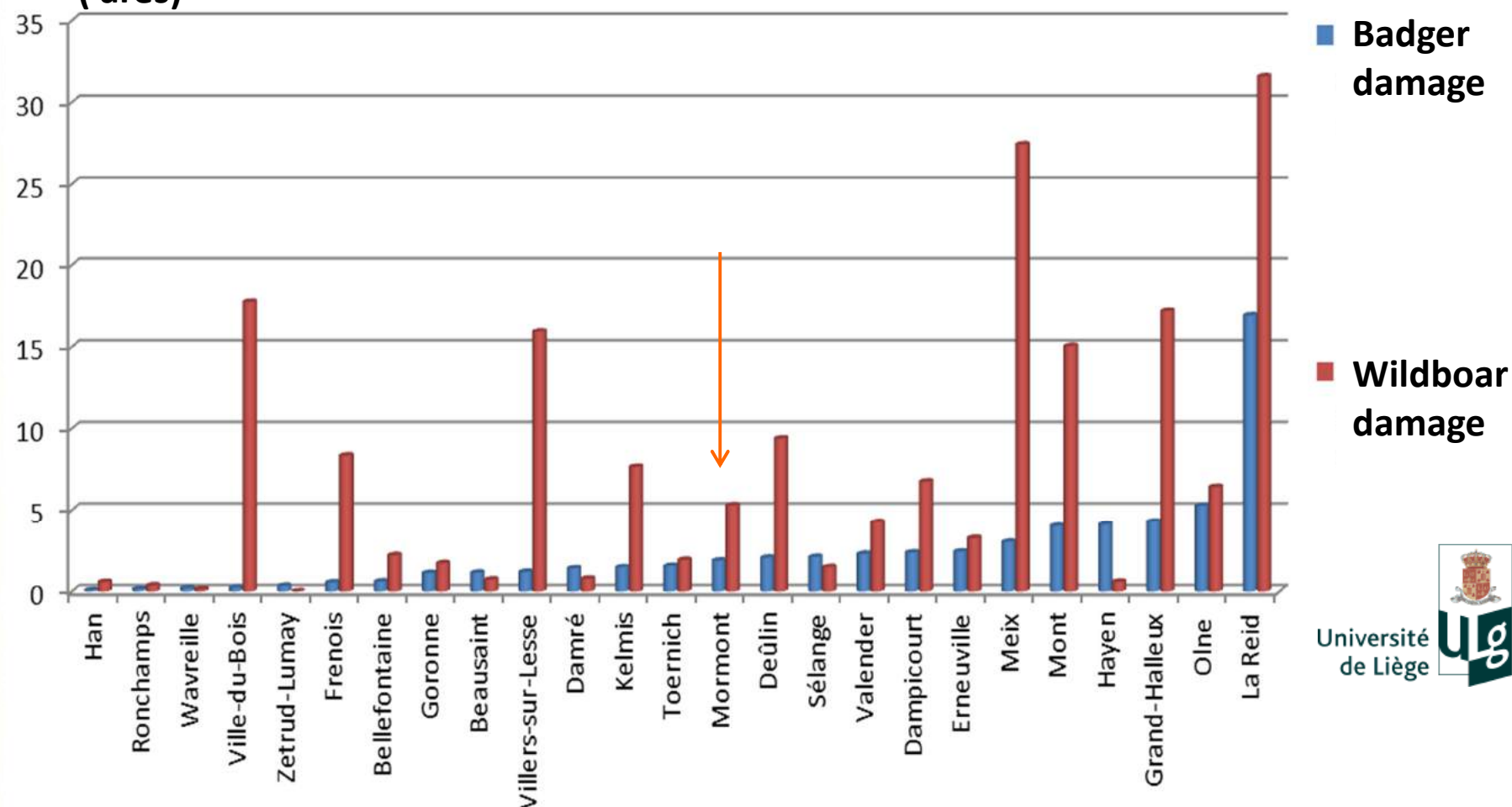


- in 95% of the parcels : 0,5 -10 ares
- in 4% of the parcels : 11-17 ares
- in 1 parcel : 40 ares (overestimation)

The average badgers damage in 2013 (45a/parcel) was it still high in 2014 ?

Level of damage/parcel
(ares)

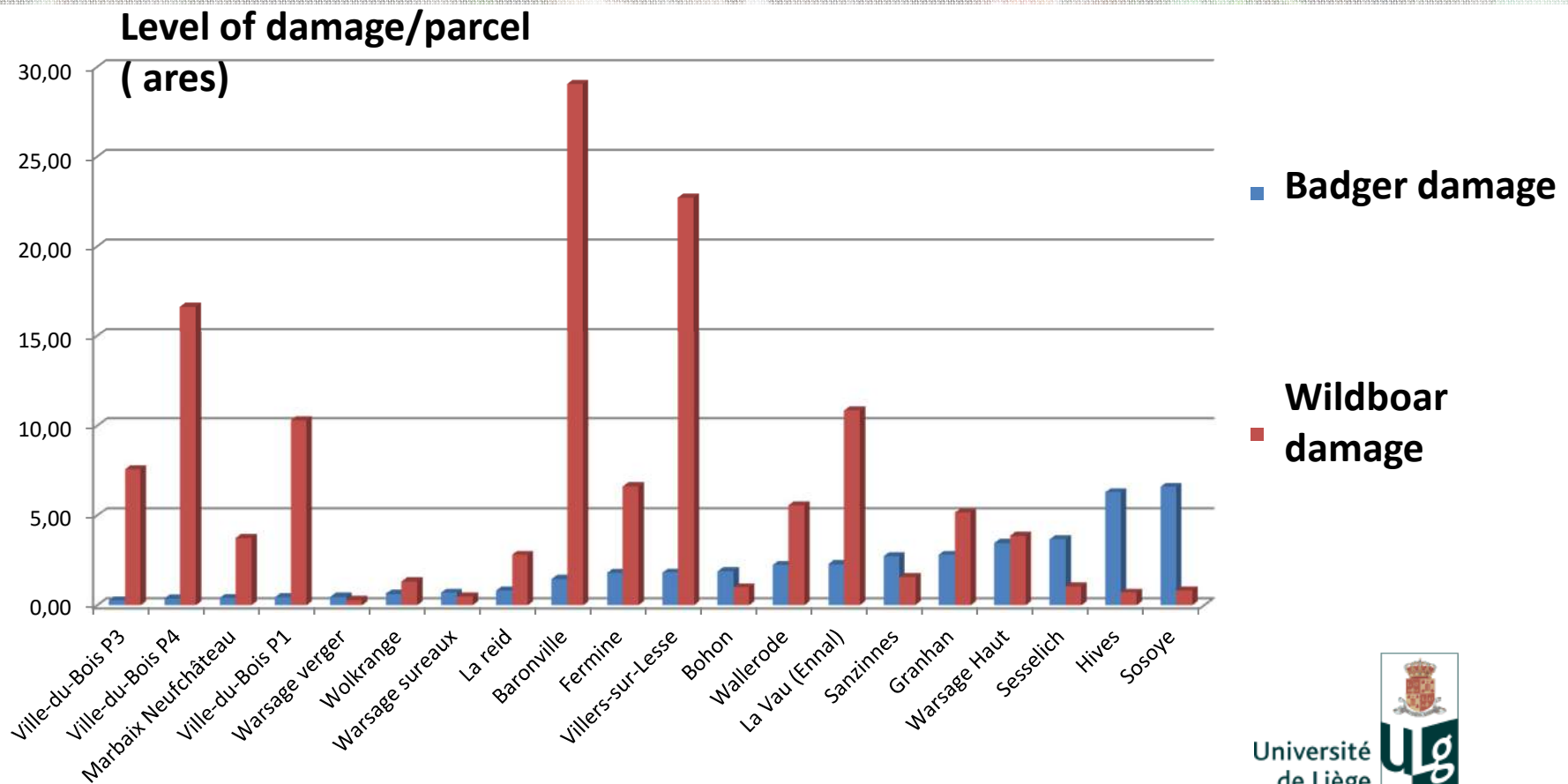
2014



Average damage per parcel due to badgers in 2014: 2,52 ares

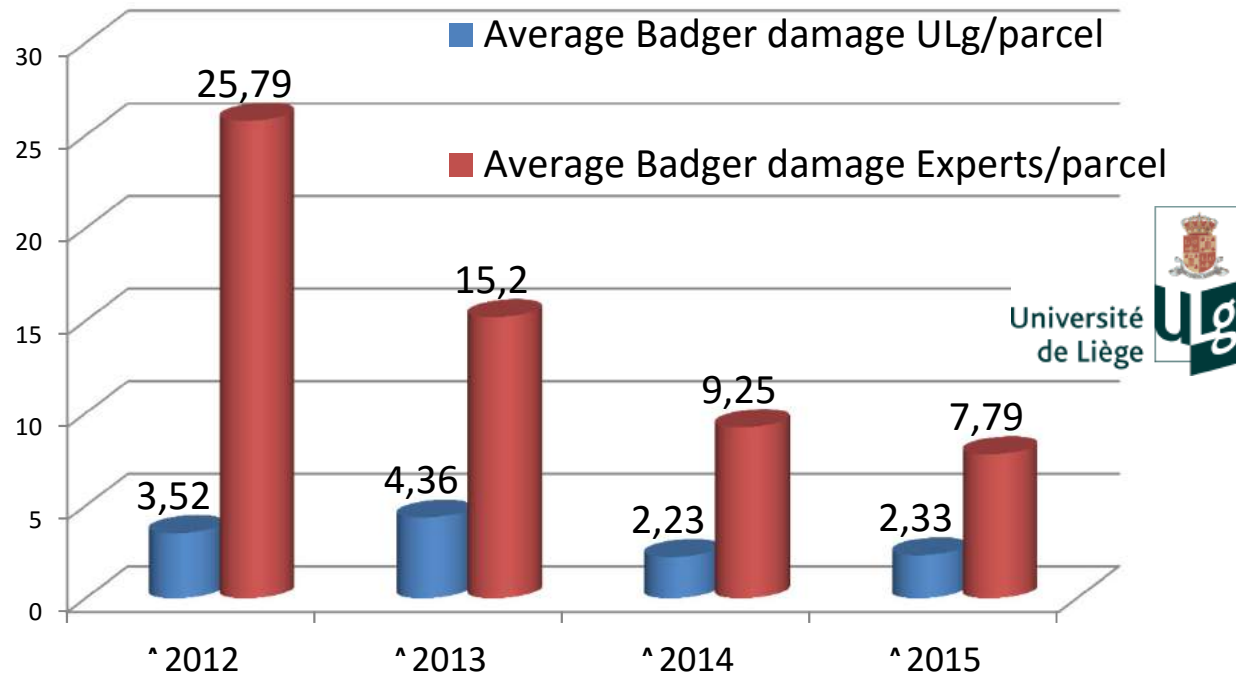
What we did again in 2015...

- **Damage survey : badger / wildboar**
- **New tests of standardization : 10%, 20%**



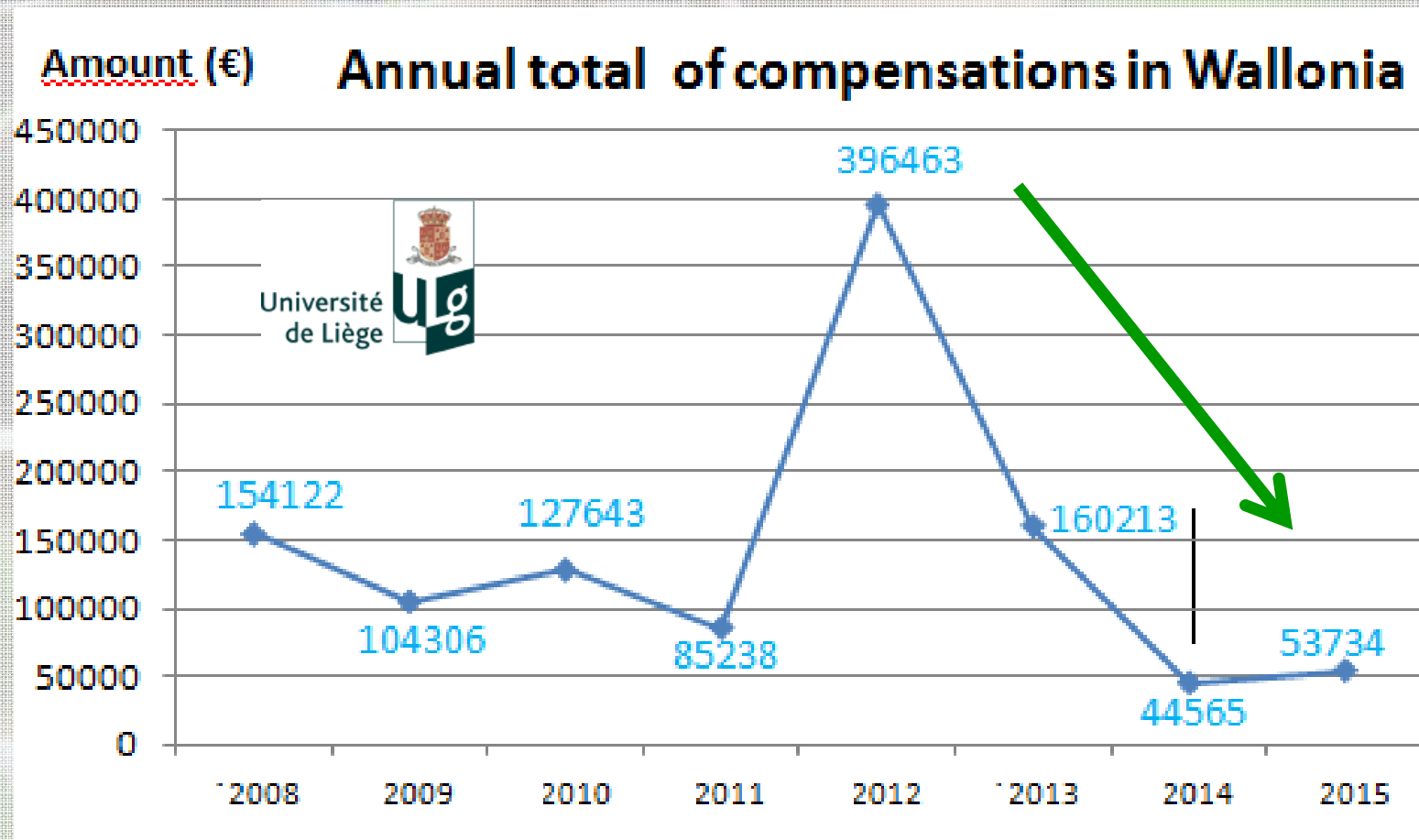
Did the process of expertise evolve with our results and methods ?

Badger damage/parcel (ares)

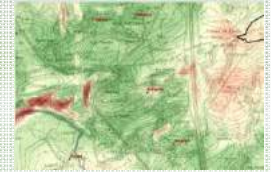


- Much progress on the experts'side (trainings)
- Visible improvment of the general situation

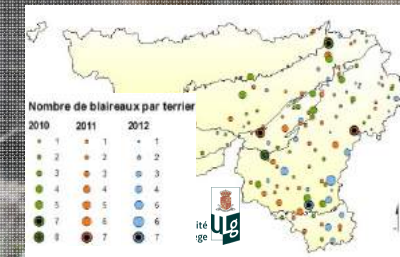
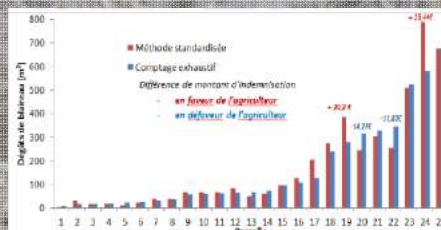
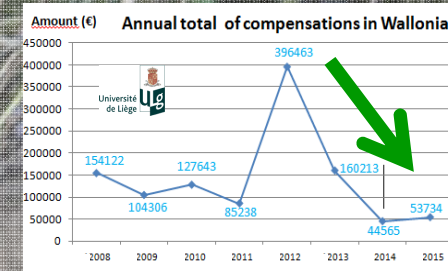
How did our work affect the Walloon budget ?



Conclusions



- ✓ **Closer to the biological limits of the badgers**
 - refinement of damage estimate
 - better damage identification
- ✓ **Importance to...**
 - ✓ **standardize a methodology of expertise**
(sampling 20% or 25%)
 - ✓ **monitor the badger population**
 - ✓ **work with all the field actors**
 - ✓ **valorize the rough work done by experts**



*Thanks
for your attention...*

