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# BLUETONGUE

## Belgium

Situation in ruminants

SCOFCAH, Brussels, August, 28 th 2006



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- Chronology
- Clinical findings
- Mesures in the zones
- Testing
- Spanish expertise
- Screening
- Actions concerning the vector
- Description of tests



- 
- **Chronology**
    - first 11 outbreaks
    - further evolution
  - **Limited areas**



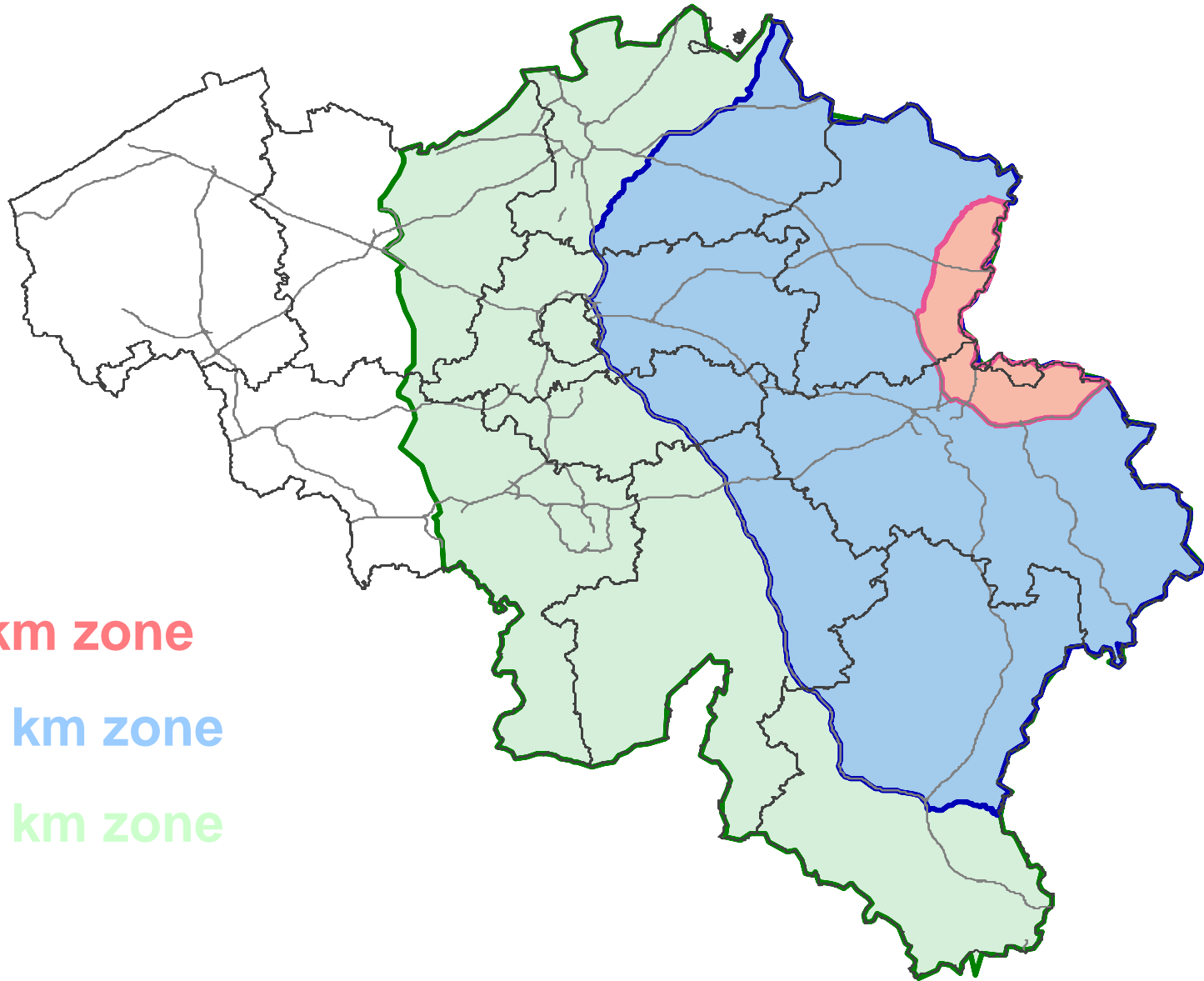
# Chronology of the bluetongue situation in Belgium

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August, 18 th 2006

1. Based on confirmation of outbreaks in The Netherlands
  - ➔ Belgium establishes 3 limited areas: (20 km, 100 km and 150 km)

# Zones established on 2006-08-18



•20 km zone

•100 km zone

•150 km zone



# Chronology of the bluetongue situation in Belgium

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August, 18 th 2006

1. Belgium establishes 3 limited areas
2. Samples for BT taken in farms (bovine and sheep) where undiagnosed healthproblems occurred since +/- one month.



# Chronology of the bluetongue situation in Belgium

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August, 19 th 2006

➔ BT tests positive in samples from sheep and bovine animals on 11 farms:

- Province of Limburg      2      (1 Bov. – 1 Sheep)
- Province of Liège      9      (6 Bov. – 3 Sheep)

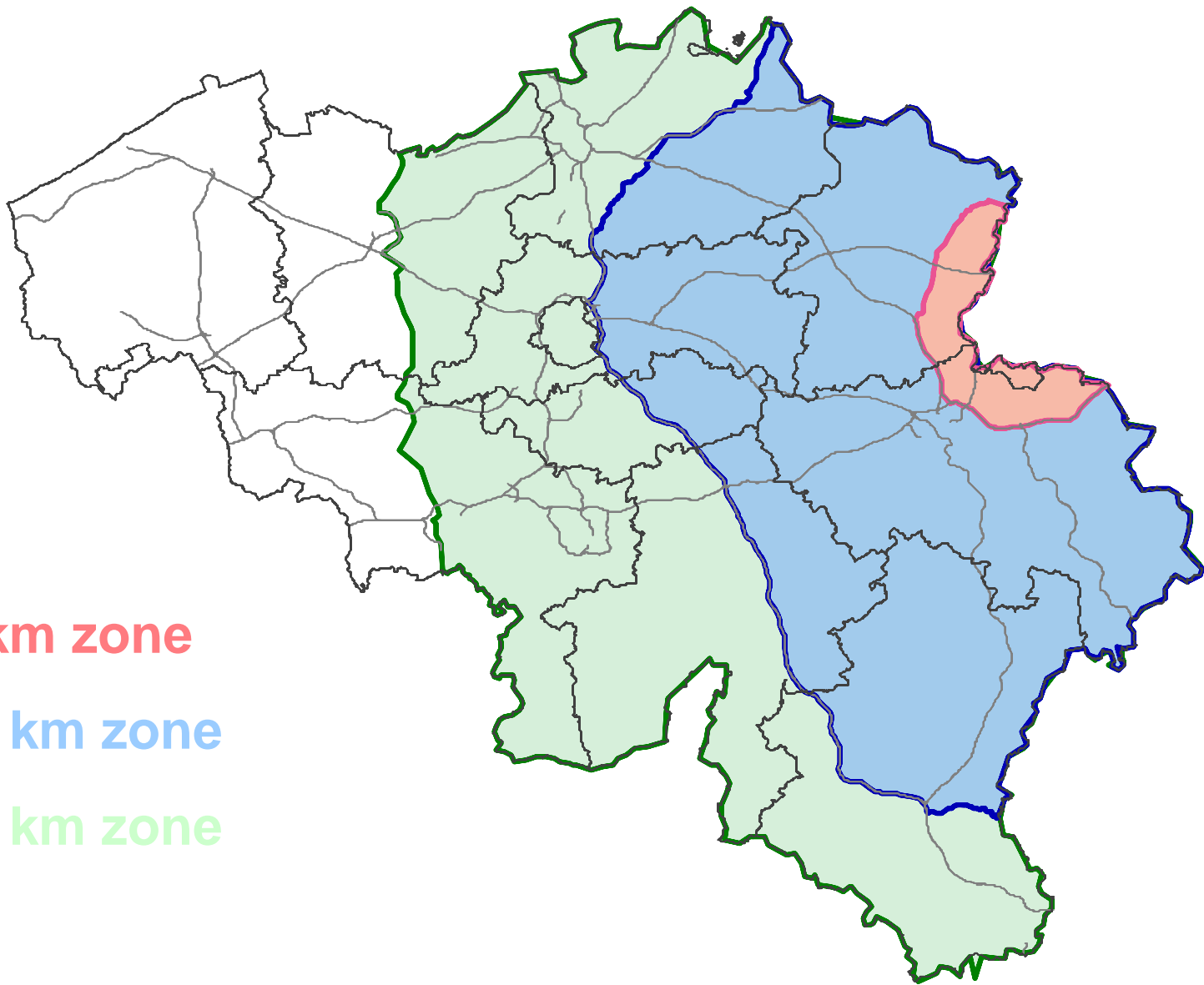


## Situation on 2006-08-19

<b>cases</b>		19th	TOTAL
Confirmed	SHEEP	4	11
	BOVINS	7	
Suspected	SHEEP		0
	BOVINS		



# Enlargement of the initial 20 km - zone

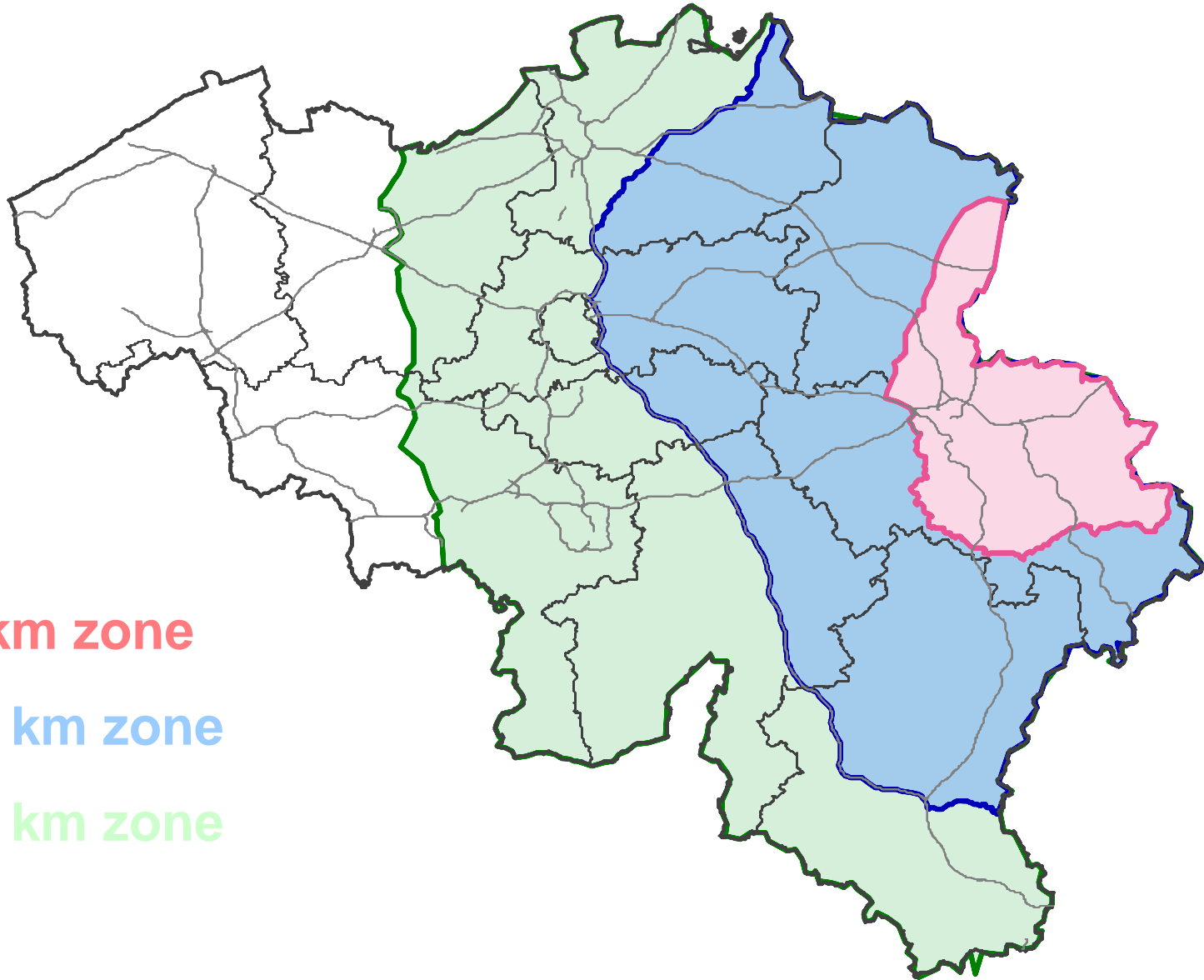


•20 km zone

•100 km zone

•150 km zone

# Zones established on 2006-08-19

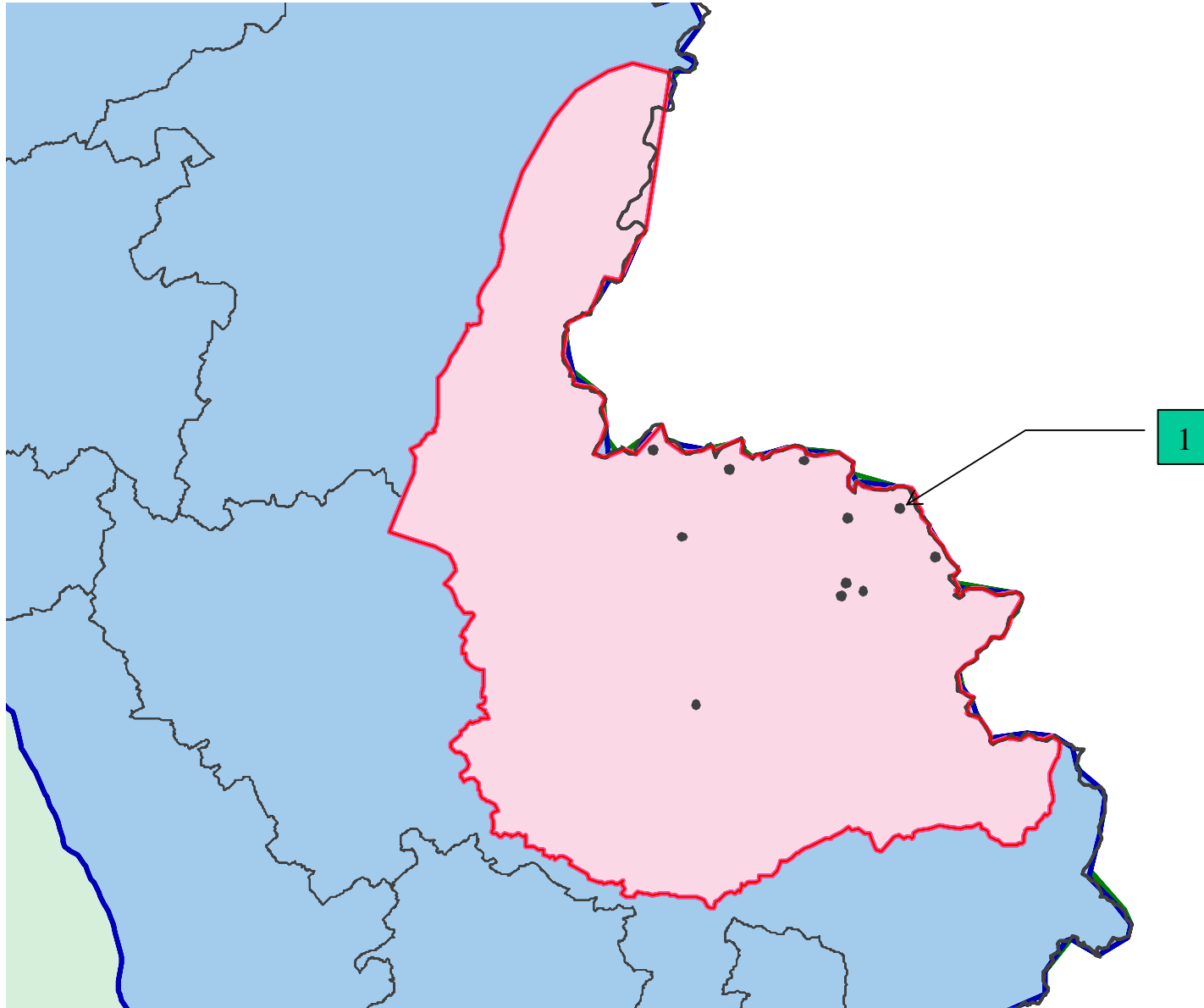


•20 km zone

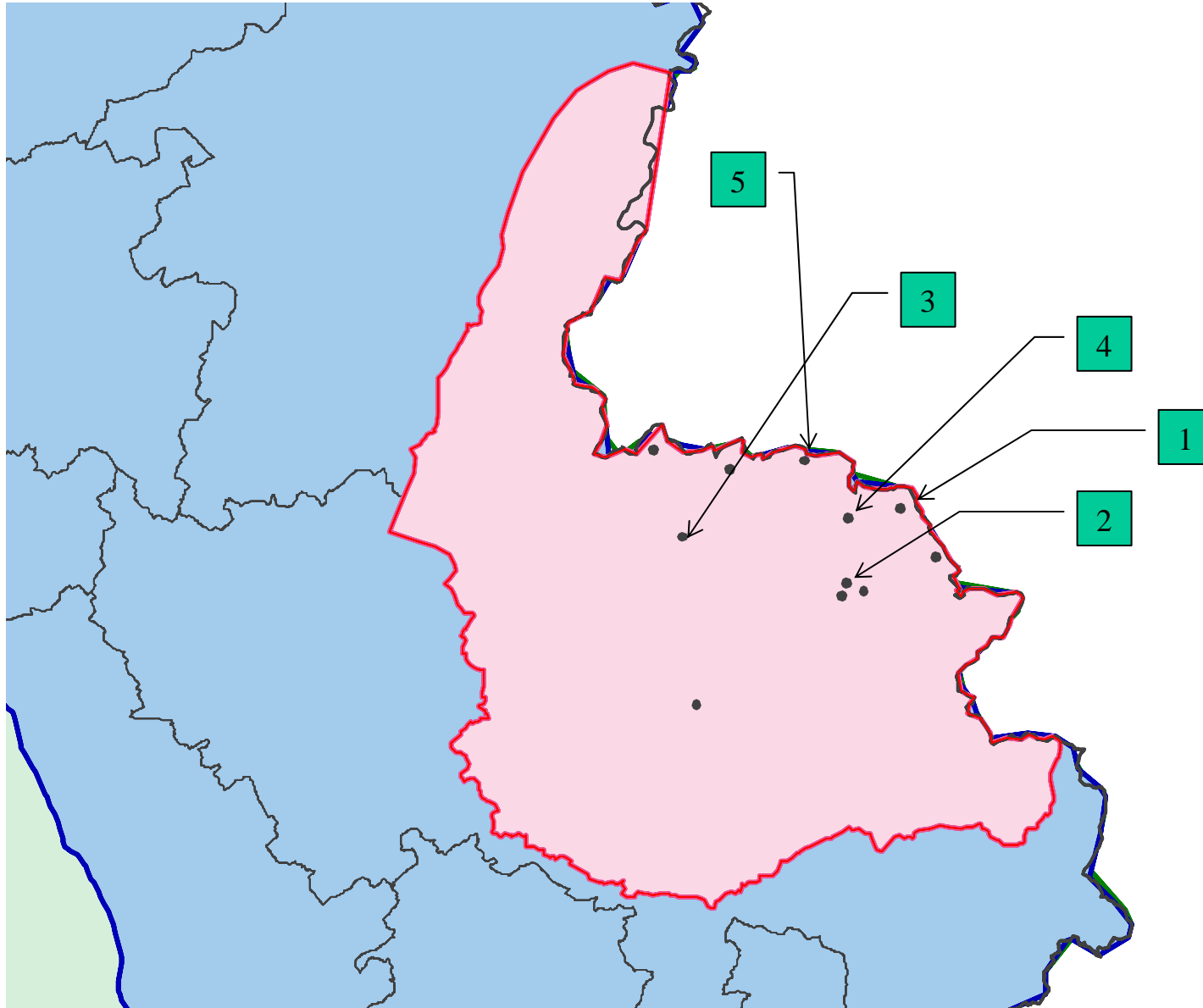
•100 km zone

•150 km zone

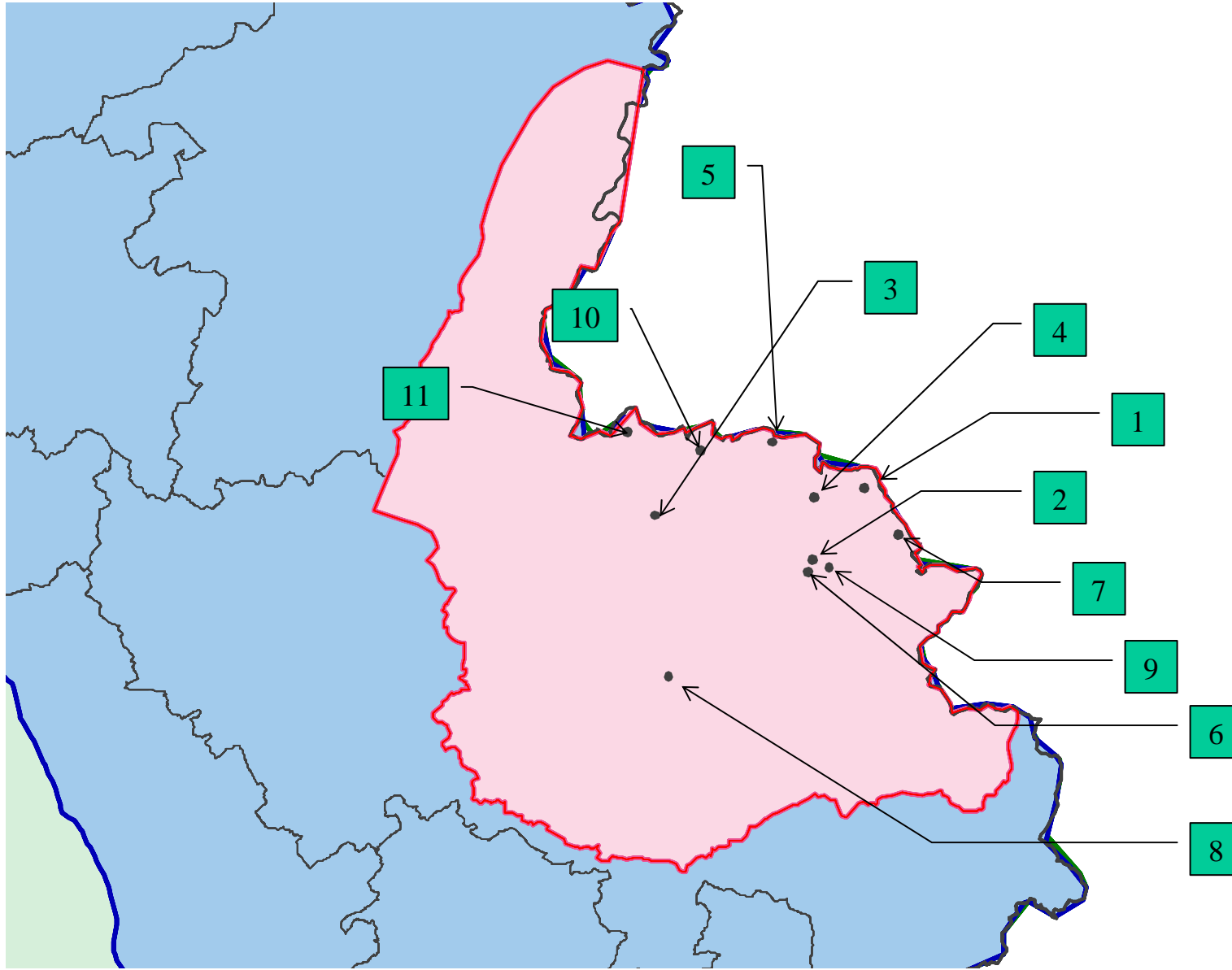
# The first 11 outbreaks



# The first 11 outbreaks



# The first 11 outbreaks



# Details on the 11 holdings



nr°	herd	species	province	date of confirmation	number of animals in the holding	sick animals in the holding	number of animals tested with positive result	number of sick animals that died
1	65029500	B	Liège	19/08/2006	63	30	2	1
2	65021267	B	Liège	19/08/2006	191	3	1	0
3	65011385	B	Liège	19/08/2006	66	2	1	0
4	65033745	B	Liège	19/08/2006	140	4	3	0
5		S	Liège	19/08/2006	3	2	1	1
6	65018428	B	Liège	19/08/2006	119	3	3	0
7	65038232	B	Liège	19/08/2006	108	1	1	0
8	65057873	S	Liège	19/08/2006	66	2	1	0
9	65044887	S	Liège	19/08/2006	55	2	2	0
10	70031890	B	Limburg	19/08/2006	93	2	2	1
11	70083882	S	Limburg	19/08/2006	9	1	1	1
				<b>bovins</b>	<b>780</b>	<b>45</b>	<b>13</b>	<b>2</b>
				<b>sheep</b>	<b>133</b>	<b>7</b>	<b>5</b>	<b>2</b>



## Situation on 2006-08-22

<b>cases</b>		19th	22nd	TOTAL
Confirmed	SHEEP	4	1	15
	BOVINS	7	3	
Suspected	SHEEP		4	4
	BOVINS			



## Situation on 2006-08-23

<b>cases</b>		19th	22nd	23th	TOTAL
Confirmed	SHEEP	4	1	2	17
	BOVINS	7	3		
Suspected	SHEEP		2	1	13
	BOVINS			10	





## Situation on 2006-08-24

cases		19th	22nd	23th	24th	TOTAL
Confirmed	SHEEP	4	1	2	1	28
	BOVINS	7	3		10	
Suspected	SHEEP		2	1	1	16
	BOVINS			10	13	



## Situation on 2006-08-25

<b>cases</b>		19th	22nd	23th	24th	25th	TOTAL
Confirmed	SHEEP	4	1	2	1		37
	BOVINS	7	3		10	9	
Suspected	SHEEP		2			3	17
	BOVINS				3	9	

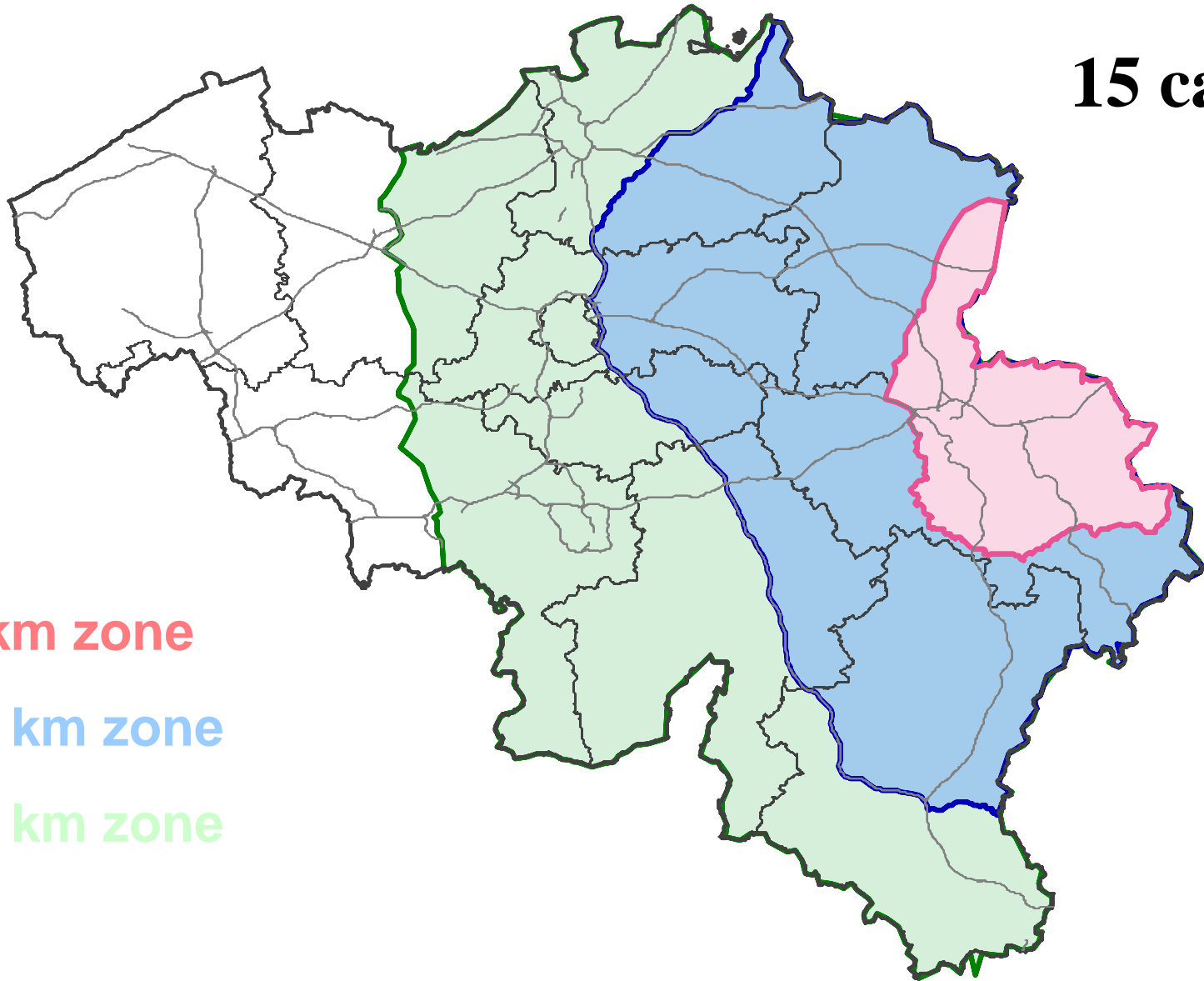


## Situation on 2006-08-26

cases		19th	22nd	23th	24th	25th	26th	TOTAL
Confirmed	SHEEP	4	1	2	1		2	46
	BOVINS	7	3		10	9	7	
Suspected	SHEEP		2				1	8
	BOVINS				3		2	



**15 cases**



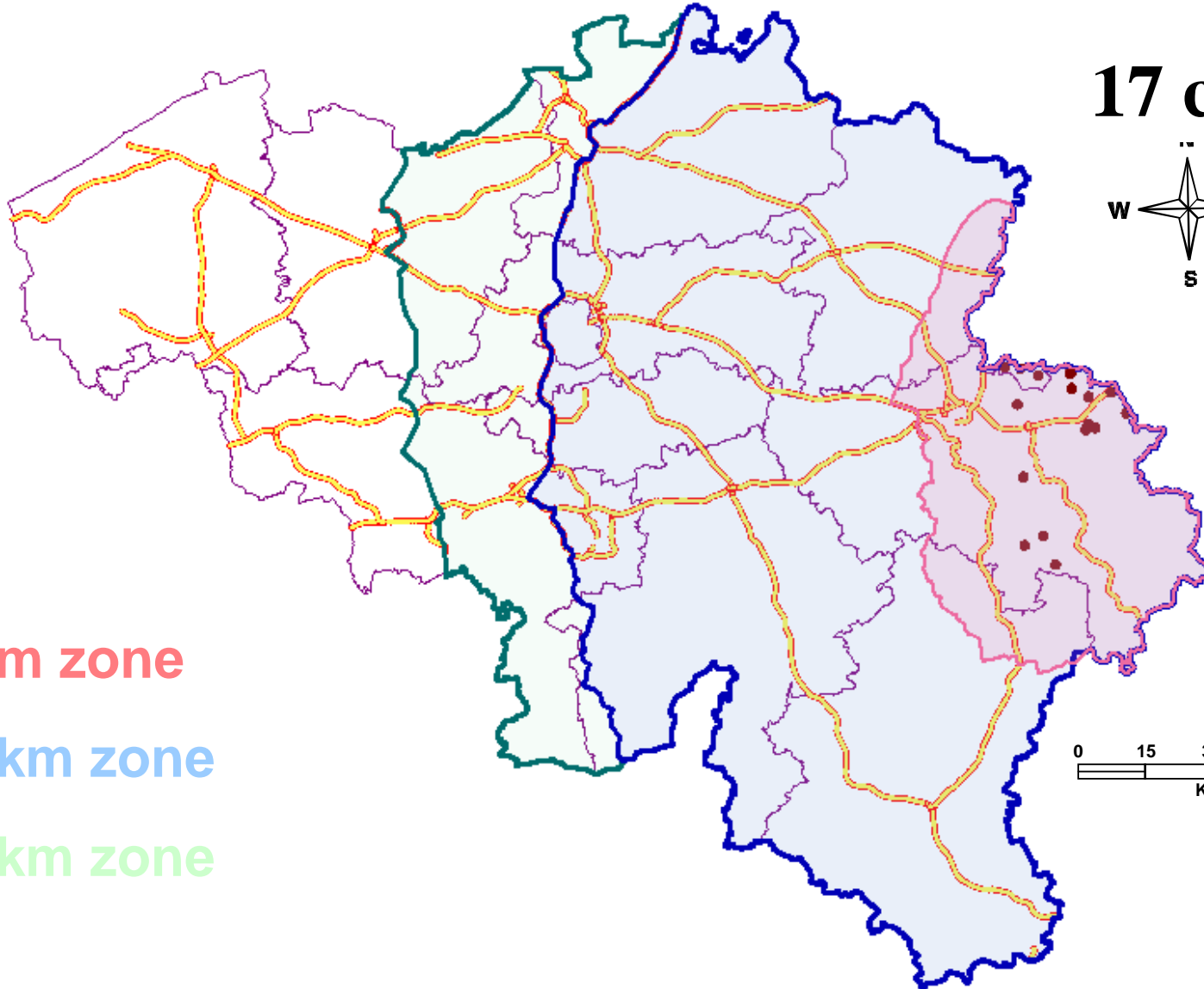
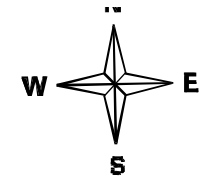
•20 km zone

•100 km zone

•150 km zone



**17 cases**

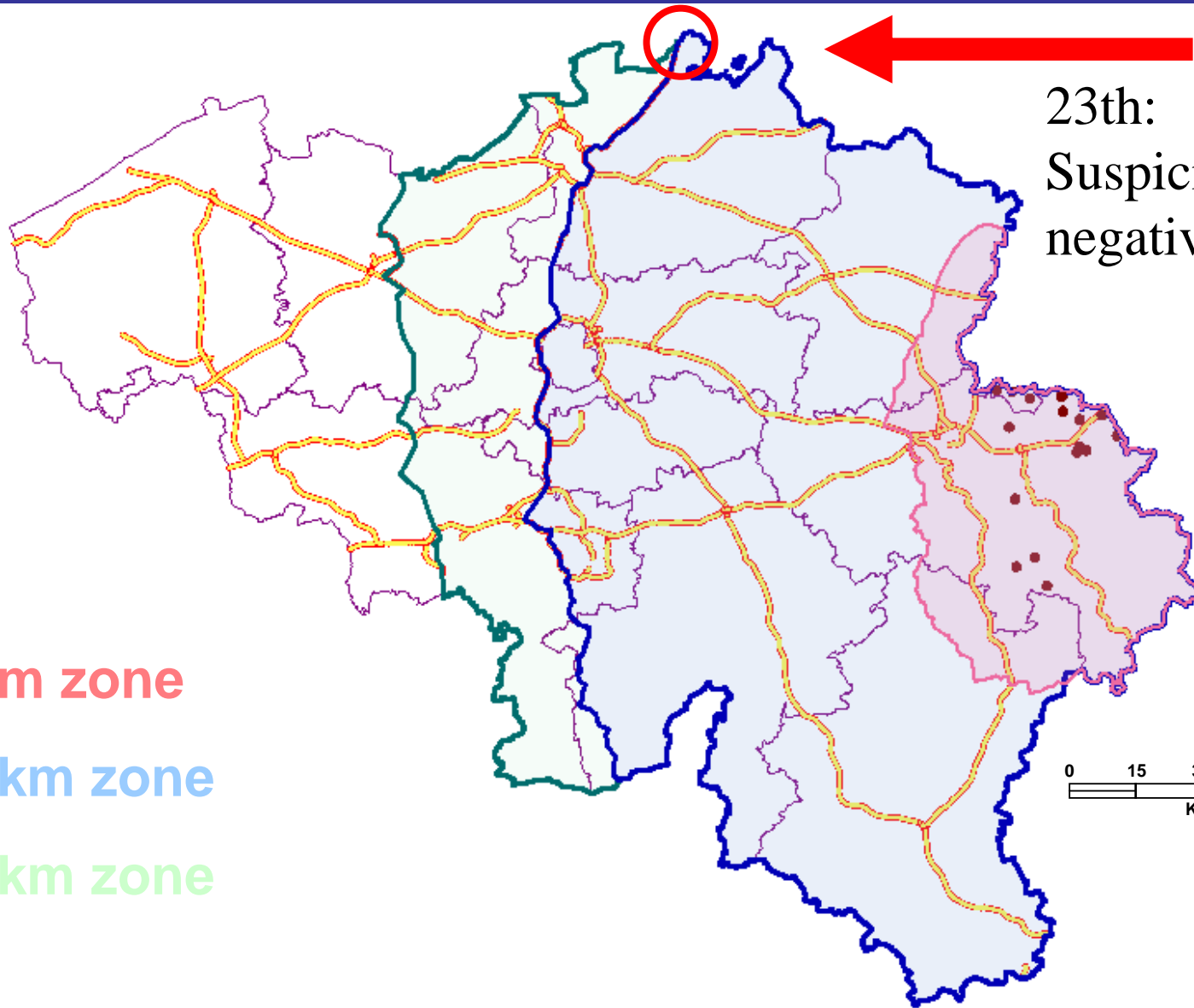


•20 km zone

•100 km zone

•150 km zone

# Zones since 2006-08-23 – 20.00h

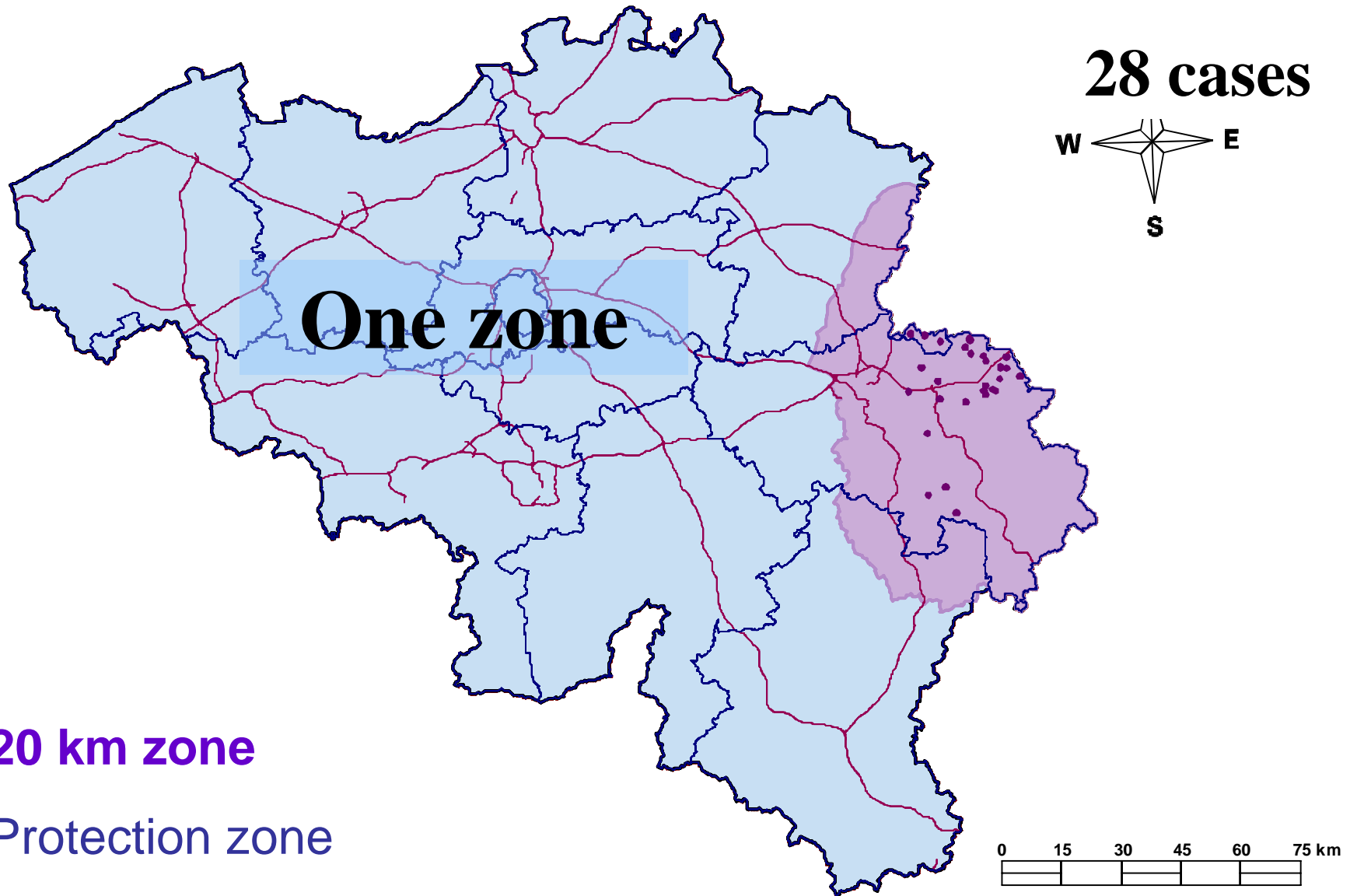


23th:  
Suspicion =  
negative

•20 km zone

•100 km zone

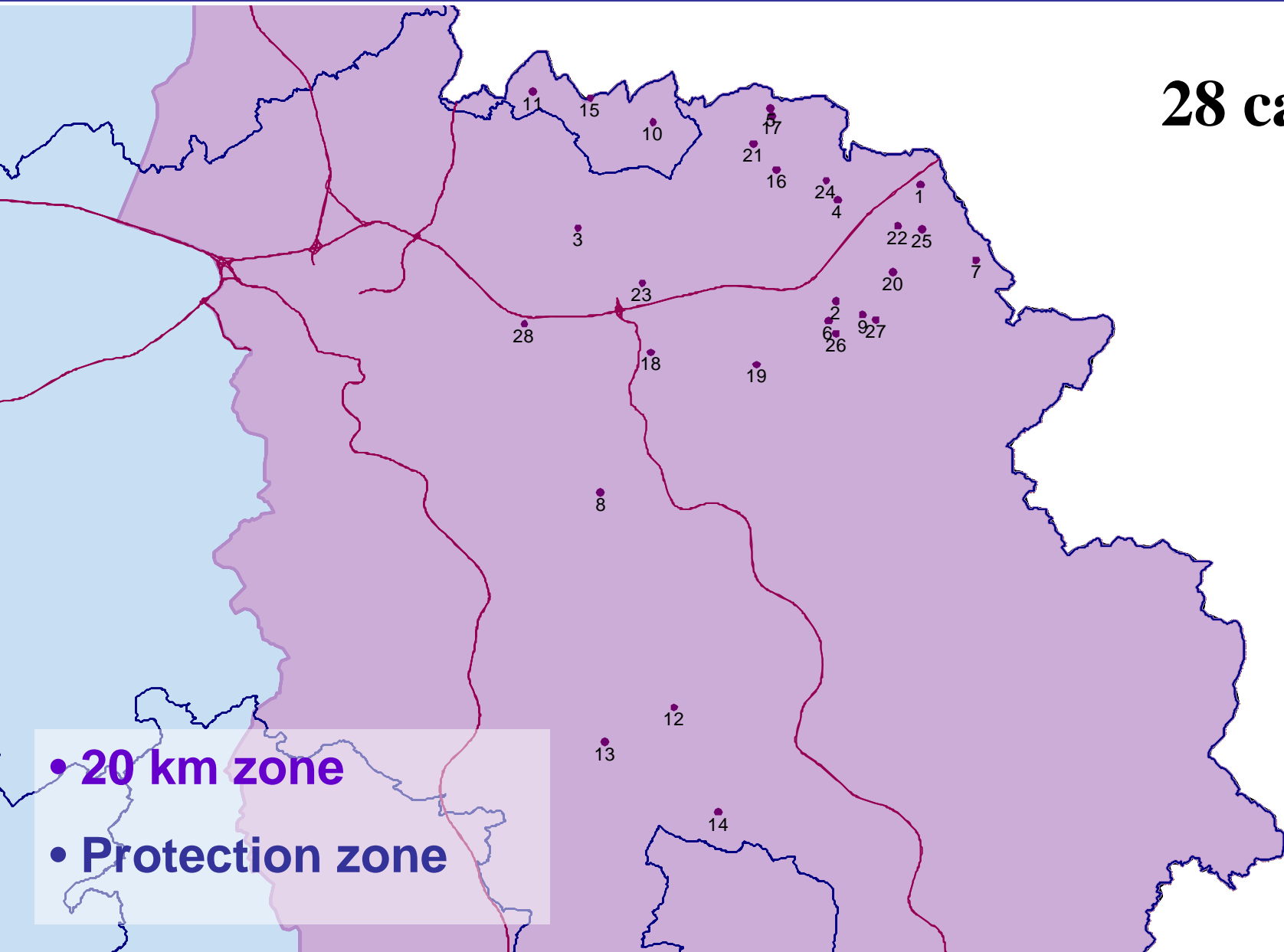
•150 km zone



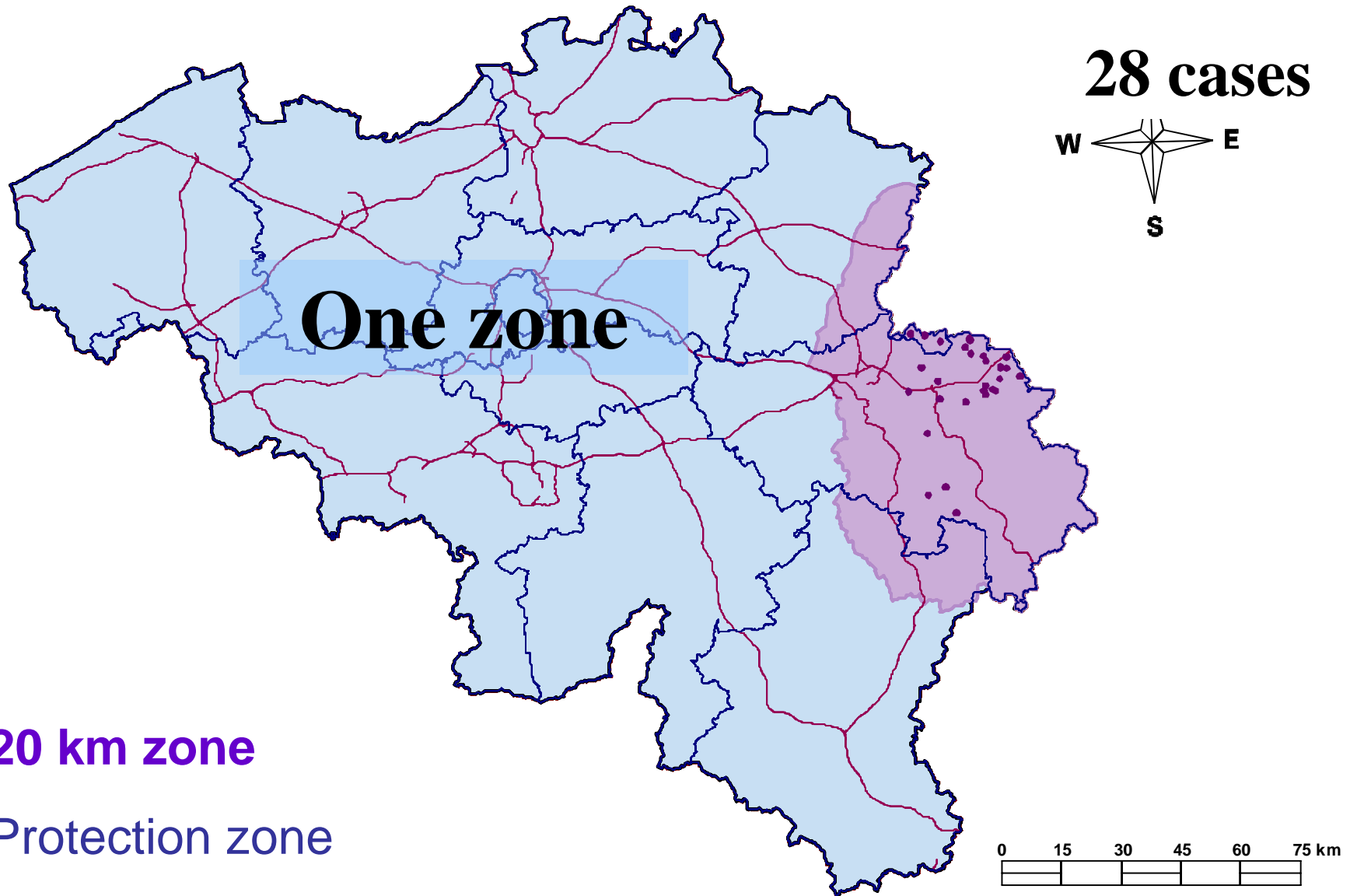
# Detail of "20 km zone"



**28 cases**



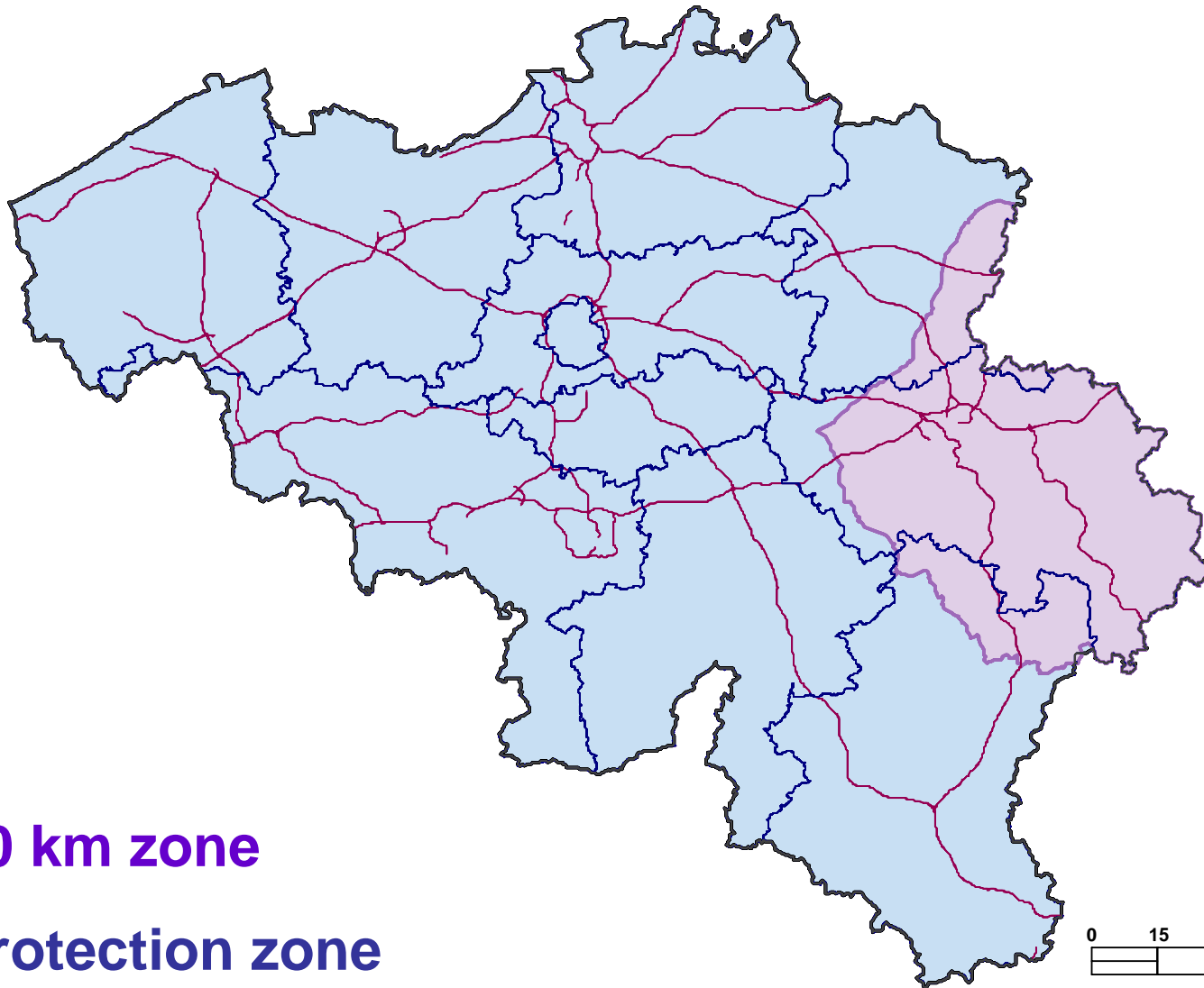




# Zones since 2006-08-25 – 20.00h



N  
**37 cases**  
S

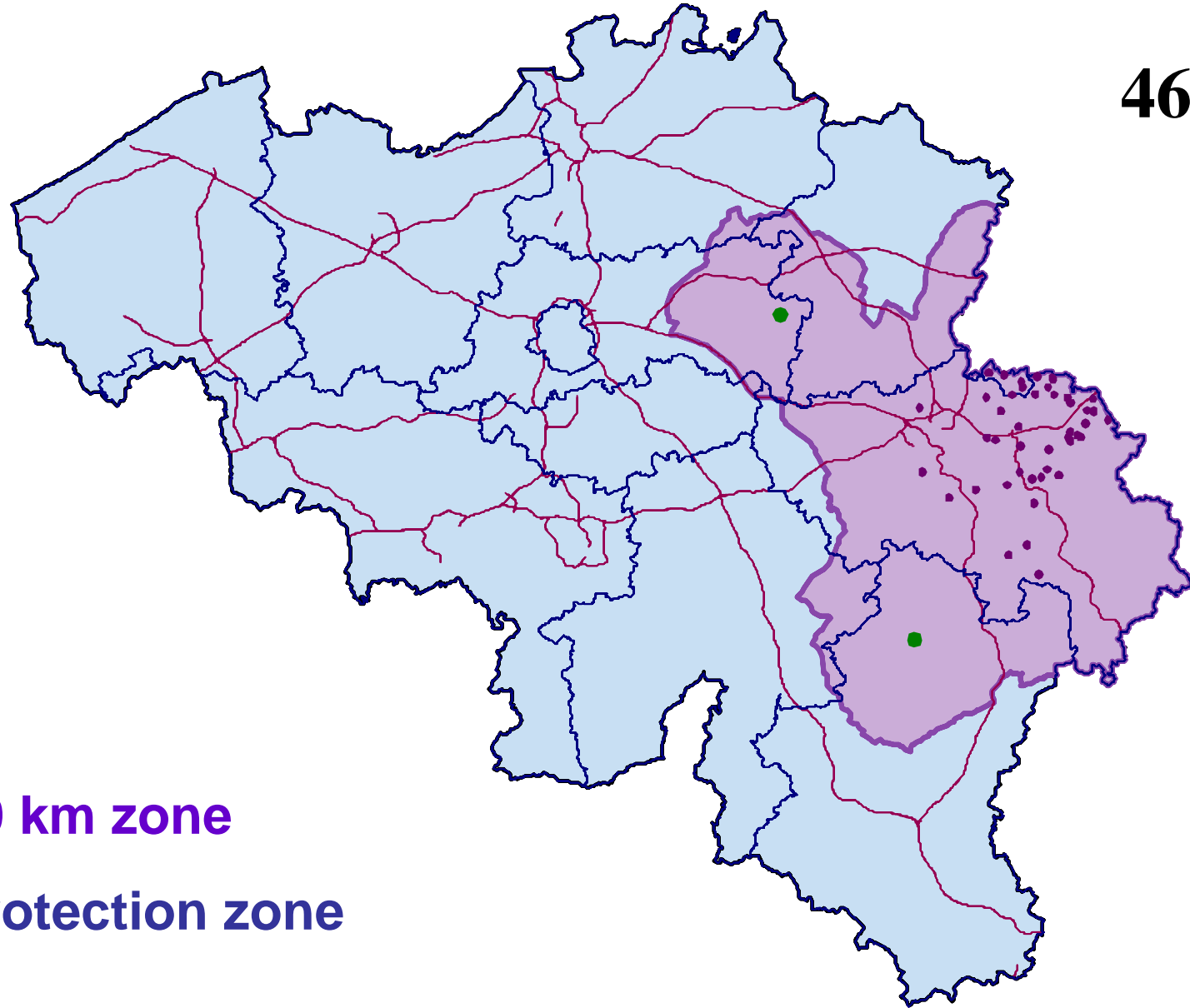
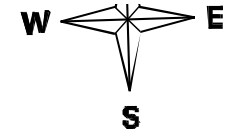


- 20 km zone
- Protection zone

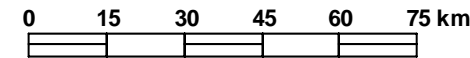
# Zones since 2006-08-26 – 17.00h



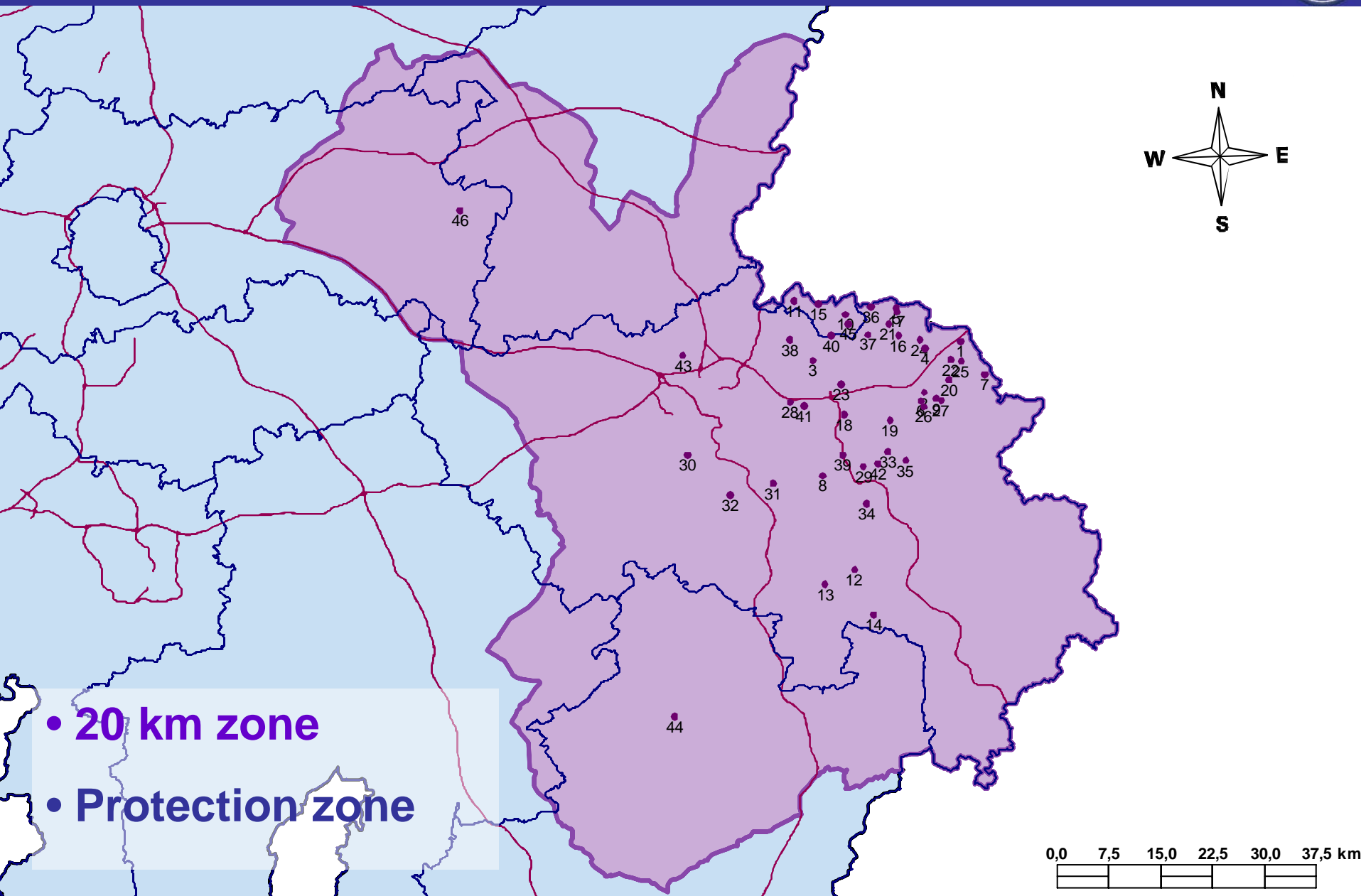
**46 cases**



- 20 km zone
- Protection zone



# Detail of "20 km zone"





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- Chronology
- **Clinical findings**

# Clinical findings on these 11 holdings



Nasal discharges and erosions



"Cliché ARSIA - Czaplicki Guy"



Oedema of udder and teats



"Cliché ARSIA - Czaplicki Guy"

# Clinical findings on these 11 holdings



"Cliché ARSIA - Czaplicki Guy"

Nasal discharges and erosions





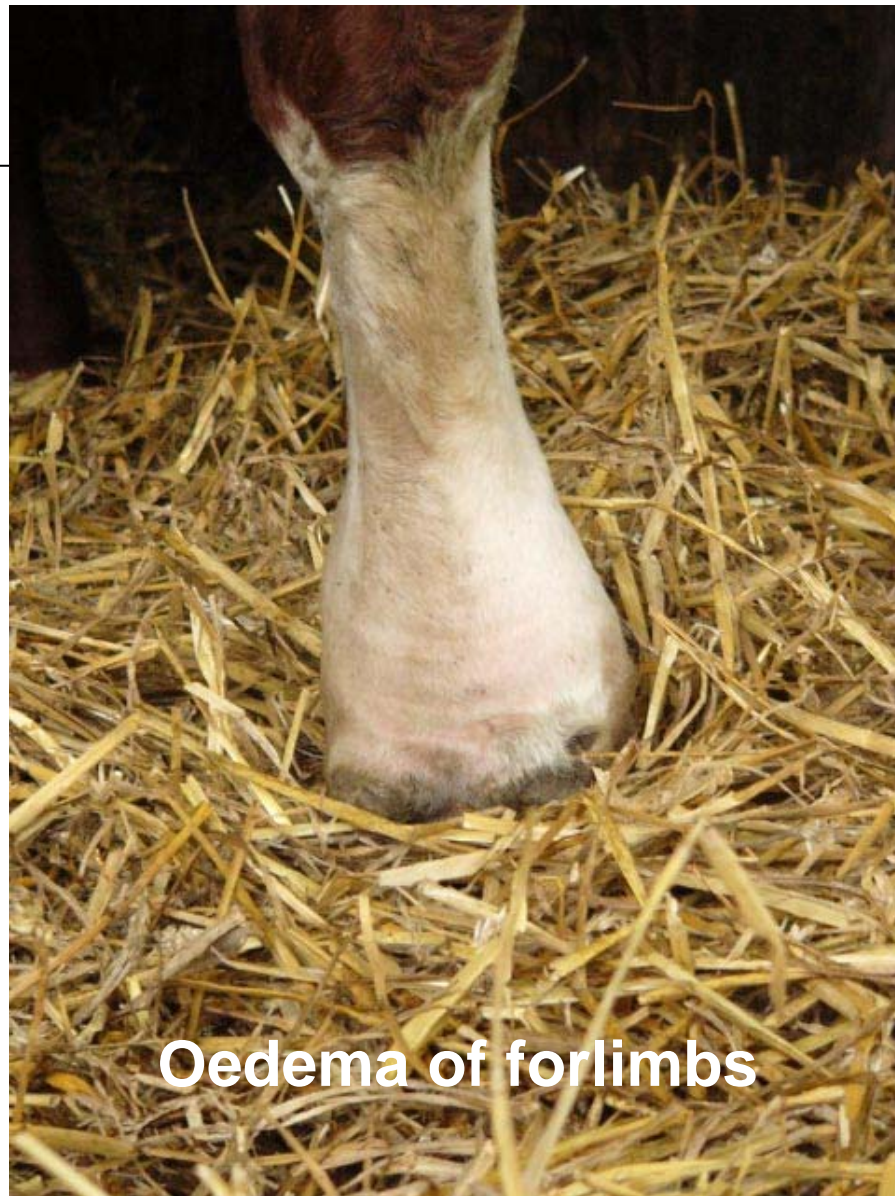
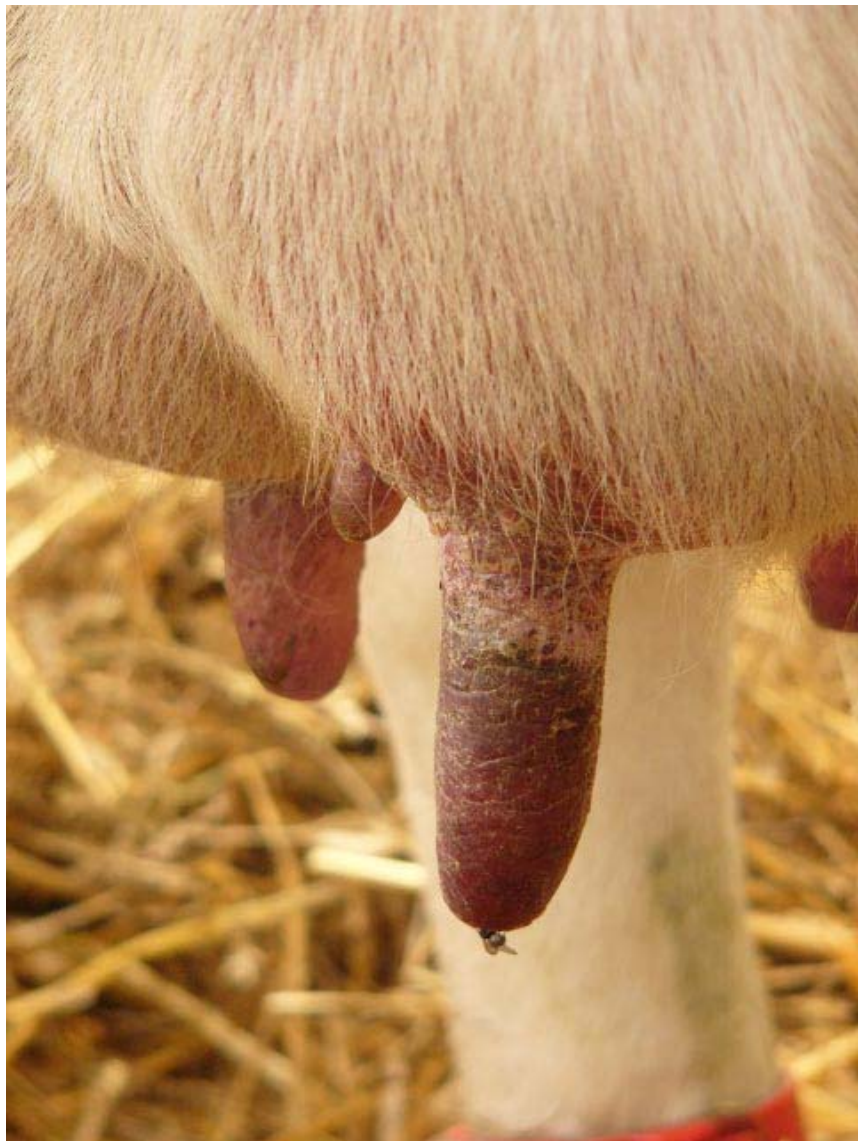


Oedema of uther and teats



"Cliché ARSIA - Czaplicki Guy"

# Clinical findings on these 11 holdings



**Oedema of forlimbs**

**"Cliché ARSIA - Czaplicki Guy"**

# General clinical findings (1)



species	date of first symptoms	number of sick animas	General clinical symptoms						
			fever	Digest	Resp	Nerv	skin / hoof	Musc	Repr
B	30/07/06	4	X	X	X		X	X	
B	Début juin	30		X	X		X		X
B	07/08/06	3	X	X	X	X	X	X	X
S	07/08/06	2	X	X	X	X	X		
S	18/08/06	2		X	X	X			
B	20/07/06	3		X	X	X	X		X
B	11/08/06	1			X		X		
B	20/07/06	2	X	X	X	X	X		
S	11/08/06	1	X	X	X	X			
S		1							
S		1							
S									
B		1							
B		1							
B	11/08/06	2	X	X	X	X	X		
B	11/08/06	1	X	X	X	X		X	
B	04/08/06	5	X	X	X	X	X		
		60							

# overall sickness and mortality



overall sickness and mortality						
number of herds	species	number of animals in the holding	sick animals in the holding	%	number animals that died	%
12	B	1354	57	4,2	2	0,1
10	S	231	17	7,4	2	0,9



- 
- CODA (nat. ref. labo)
    - sample taken in the 18th of august
    - Confirmation of virusisolation on Saturday 26th
  - BTV serotype 8
  - Further growth → samples will be send to other EU-labs



# Table of contents

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- Chronology
- Clinical findings
- **Mesures in the zones**



## Mesures in the different zones

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- **20 km area**
  - Stand still for all resident ruminants.
  - Inventory of all animals in the herd
  - Ruminants must be:
    - Treated with insecticides.
    - If possible → confined from:  
[dusk - 1 hour] till [dawn + 1 hour];
  - The buildings and their surroundings must be treated regularly with authorised insecticides
  - Semen, ova and embryo's may not be brought outside the zone



## Mesures in the different zones

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- **The rest of the territory of Belgium = protection zone (since 25th august 00.01h)**
  - Ruminants may not leave the zone (= export ban)
  - Animals for slaughter
    - may enter the 20 km zone if direct transport to slaughterhouse
  - Inventory of all animals in the herd
  - Semen, ova and embryos may not be brought outside the zone
  - Advise to keep ruminants inside or to treat them with insecticides





# Table of contents

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- Chronology
- Clinical findings
- Mesures in the zones
- **Testing**



## Sampling and tests

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- **Suspicion within the 20 km zone**
  - Only test ELISA
    - POSITIVE = confirmation
    - NEGATIVE = 2nd monster after 8 days
- **Suspicion within the protection zone**
  - Test ELISA and
  - Test PCR



## Sampling and tests

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- **Suspicion within the protection zone**
  - ELISA negative // PCR negative
    - negative
  - ELISA positive // PCR positive
    - Confirmation
  - ELISA negative // PCR positive
    - Confirmation
  - ELISA positive // PCR negative
    - further research



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- Chronology
- Clinical findings
- Mesures in the zones
- Testing
- **Spanish expertise**



## Visit of Spanish experts

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- 22nd august 2006
  - Dr. Luis ROMERO
  - Dr. Javier LUCIENTES
- Visit on 3 positive farms
- Meeting with the Belgian experts and scientific comitee



## Visit of Spanish experts

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- Suggested actions (priorities):
  - Capture & determination of the vector (limited time)
  - Determination on BT serotype
  - Serology
    - outside the 20 km zone
    - In-farm prevalency
  - Serology on historical samples (establishing index case)



## Visit of Spanish experts

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- Suggested actions:
  - Serological surveillance program
  - Entomological surveillance program
  
  - Co-ordination with NL-GER-LUX



## Visit of Spanish experts

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- How the virus got here?
  - 3 hypotheses:
    1. Wind?
    2. Movement of infected ruminants?
    3. Vector carried over by other animals?
      - Horses ?





# Table of contents

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- Chronology
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- Testing
- Spanish expertise
- **Screening**



# Organisation of the screening

---

## 1. Objectives:

- To establish the BLT infection status in the Belgian protection zone;
- The BLT infections will be established separately for the different provinces (9) which are included in the protection zone.



# Organisation of the screening

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- Sampling conform OIE
  - 95% confidence
  - Detecting a seroconversion incidence of 2% in cattle
  - 150\* bovins per province

\* assuming a 100% sensitivity and specificity of the ELISA test  
(based on the results of the VAR reflag)



## Organisation of the screening

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- Criteria for sampled cattle:
  - The holding to which the animals belong is not included in the 20km zone.
  - The animals where not housed during the night during June and August 2006.
  - The animals where not treated with insecticides during June and August 2006 (in preference dairy cattle are sampled)
  - The animals have at least 12 months of age.
  - Animals on pasture in the vicinity of brooks, creeks, rivulets, etc. are preferentially sampled.
  - The farmer is able to present (capture) the animals for sampling.



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- Chronology
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- Spanish expertise
- Screening
- **Actions concerning the vector**



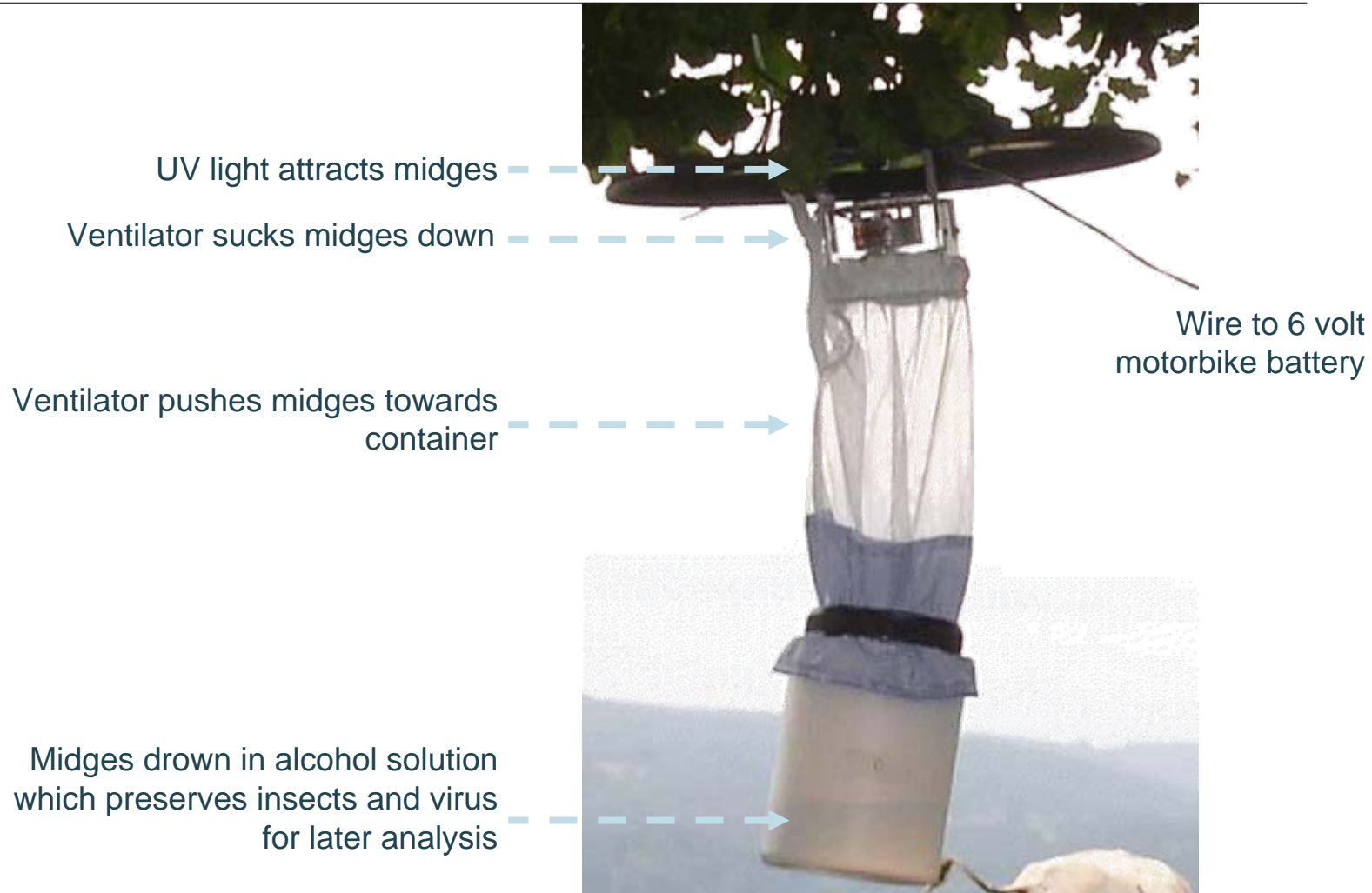
## Actions concerning the vector

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- No previous studies in Belgium on Culicoides
- Spain has send 5 Culicoides traps
- Installation 26th of August
  - Traps placed on 2 farms with outbreak
  - Province of Liege

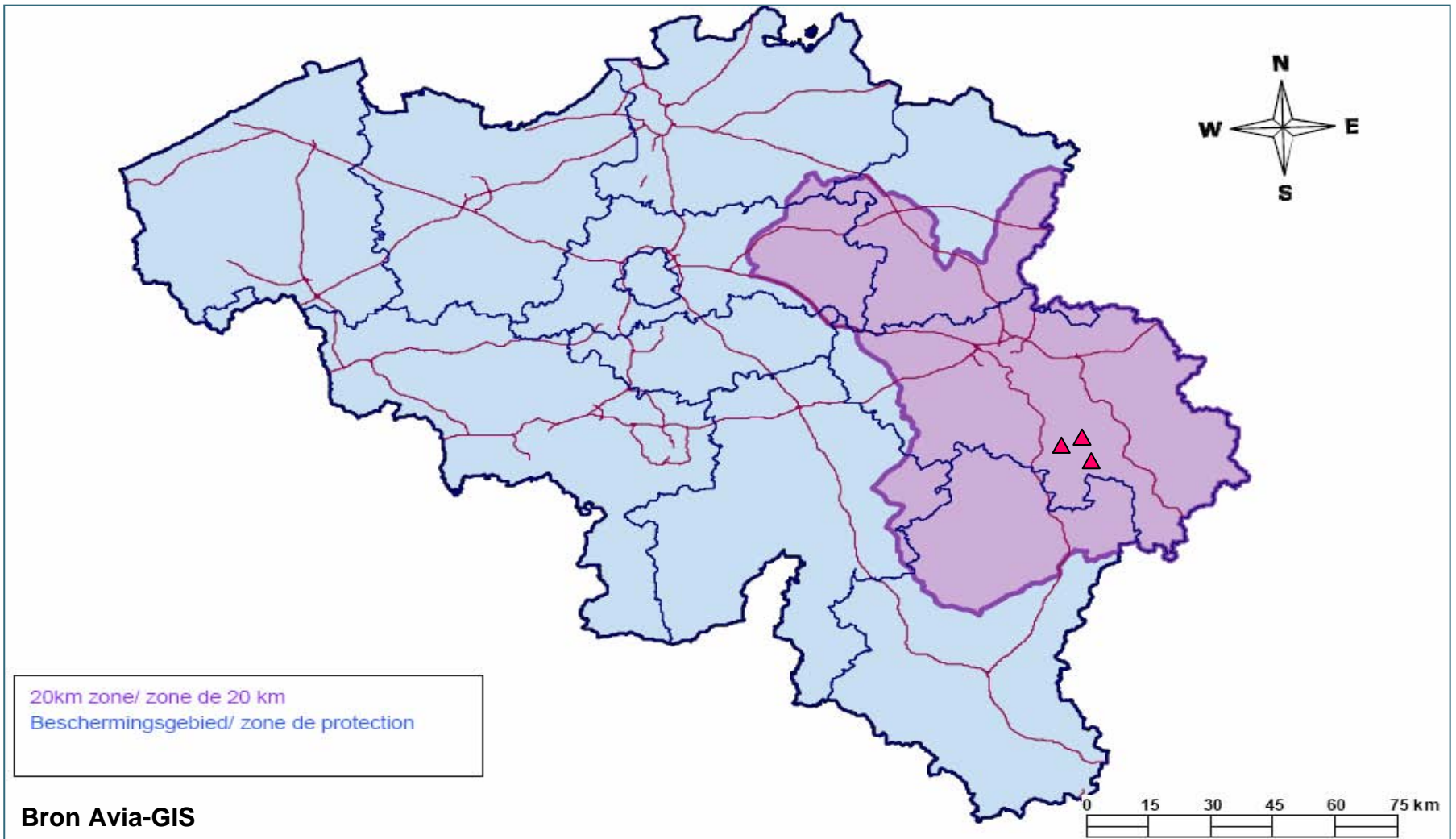


# Culicoides trap



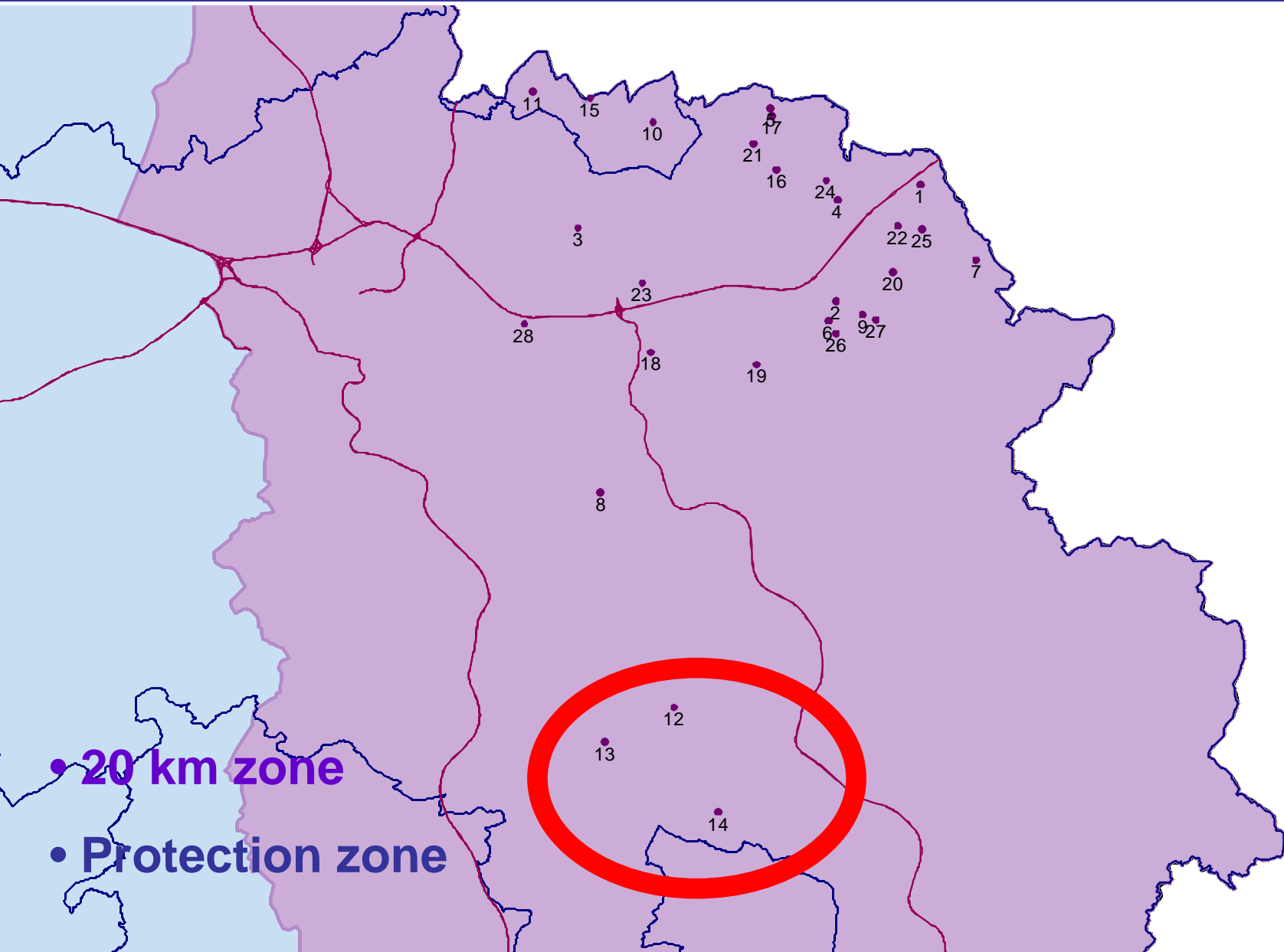


# Trapping area





# Trapping area



• 20 km zone

• Protection zone



# Trapping sites



Water  
Presence of organic material  
Presence of cattle

Traps harvested every two days  
New trapping sites if negative



# ONGOING ACTIONS

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- Surveillance outside 20 km zone
- Vector capture
- Epidemiological research
  - Historical samples
  - Traces
- In-farm
  - Supplementary sampling on positive farms
- Coordination with NL-LUX-GER-Com



## Website

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[www.afsca.be](http://www.afsca.be)

# Bluetongue

(french)



# Table of contents

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- Chronology
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- **Description of tests**



# 1. Biological samples used:

For antibody detection:

blood taken on dry blood tubes for serum

For virus detection:

- animal alive: whole blood taken on blood tubes with EDTA
- dead animal/slaughter: spleen or lesions of the mucosa



## 2. Antibody detection

### *2.1 Antibody test 1:*

Blue tongue competition ant-VP7 ELISA kit from ID.VET

### *2.2 Antibody test 2:*

Blue tongue Virus Antibody Test Kit, ELISA from VMRD



## ***2.3 Controls used in both kits***

- 1) Positive and negative kit control
- 2) Weak positive (home made)
- 3) Negative bovine serum
- 4) OIE strong positive reference serum (USDA)
- 5) OIE weak positive reference serum (USDA)
- 6) AGID strong positive serum (USDA)
- 7) AGID weak positive serum (USDA)
- 8) Positive goat serum (CIRAD)





## **3. Virus detection**

### **3.1 Nucleic acids extraction and denaturizing.**

### **3.2 RT-qPCR specific for blue tongue virus**

3.2.1 Fluorogenic RT-qPCR specific for segment 1

3.2.2 Fluorogenic RT-qPCR specific for segment 5













## Mesures in the different zones

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- **150 km area**
  - Ruminants may not leave the 150 km zone
  - Ruminants may enter the 100 km zone
  - Animals for slaughter
    - may enter the 20 km zone, direct transport to slaughterhouse
    - may enter the free zone, direct transport to slaughterhouse
  - Inventory of all animals in the herd
  - Semen, ova and embryo's may not be brought outside the zone
  - Advise to keep ruminants inside or to treat them with insecticides



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# BLUE TONGUE

## Belgium

Situation in ruminants

SCOFCAH, Brussels, August, 28 th 2006



# Further evolution



Situation on 2006-08-19

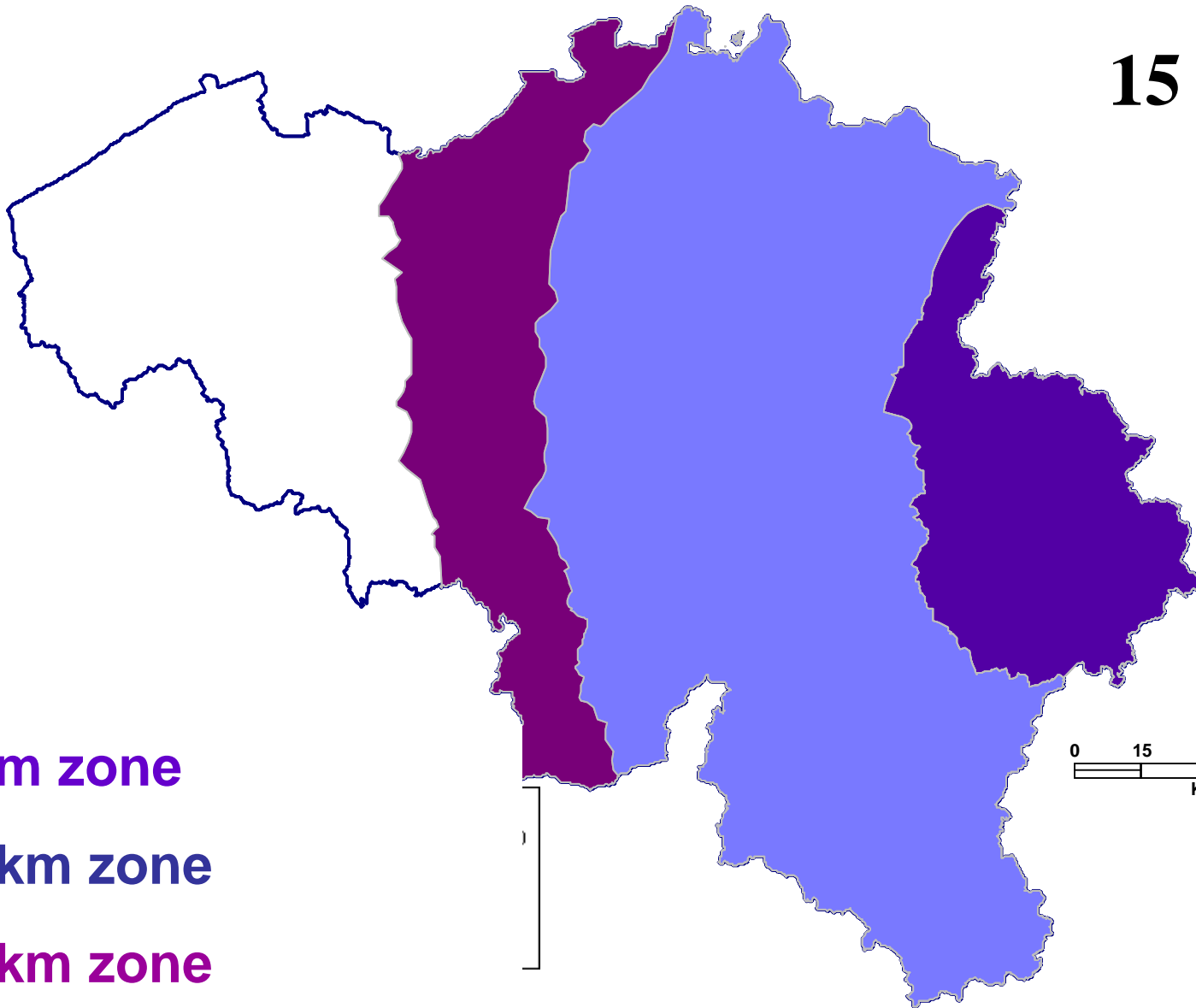
<b>cases</b>		19th	TOTAL
Confirmed	SHEEP	4	11
	BOVINS	7	
Suspected	SHEEP		0
	BOVINS		

# Adaption 100km zone 2006-08-22



**15 cases**

E



•20 km zone

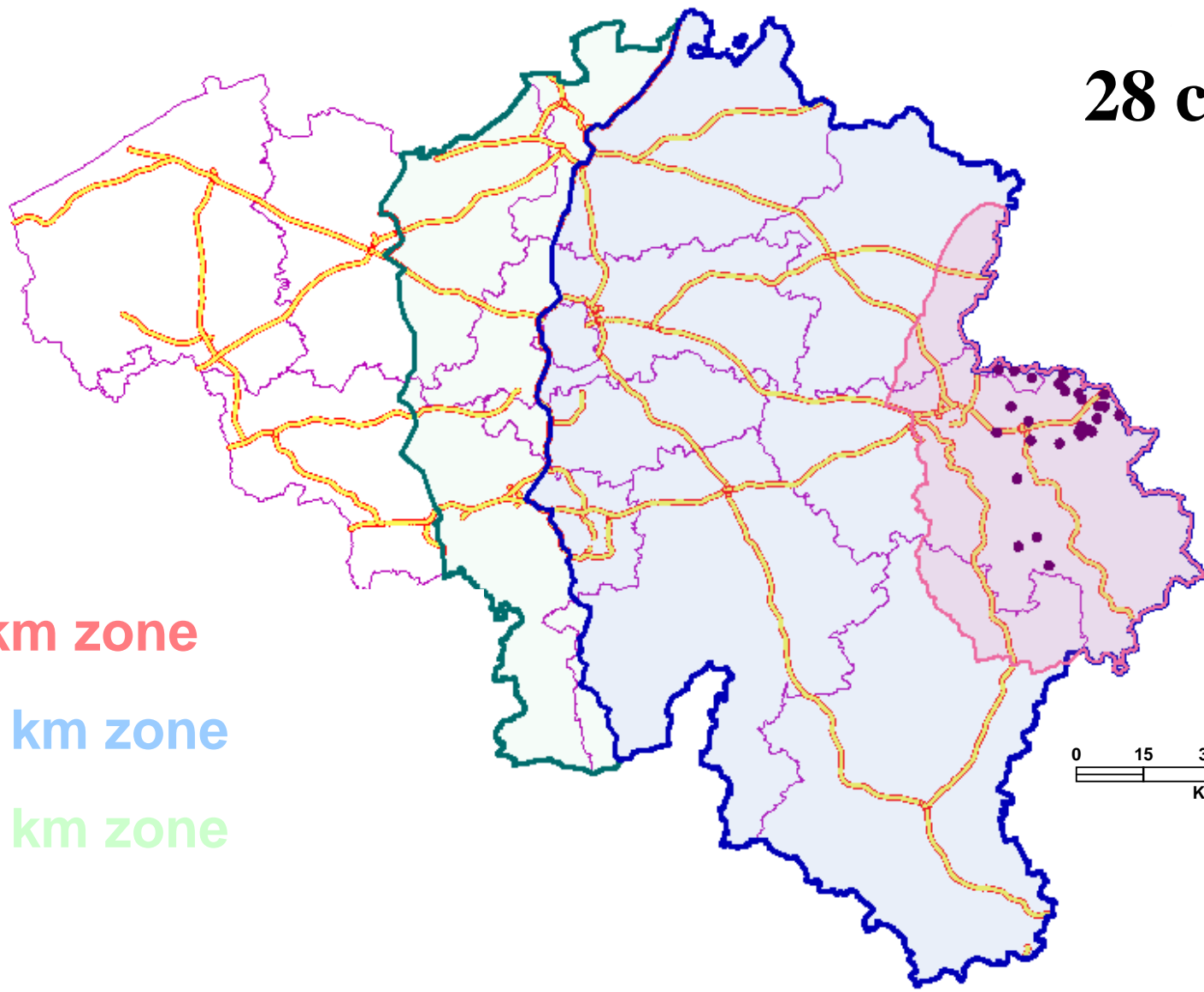
•100 km zone

•150 km zone

# Zones since 2006-08-24 – 14.00h



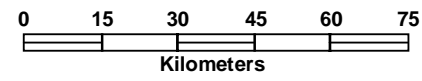
N  
**28 cases**  
V  
S



•20 km zone

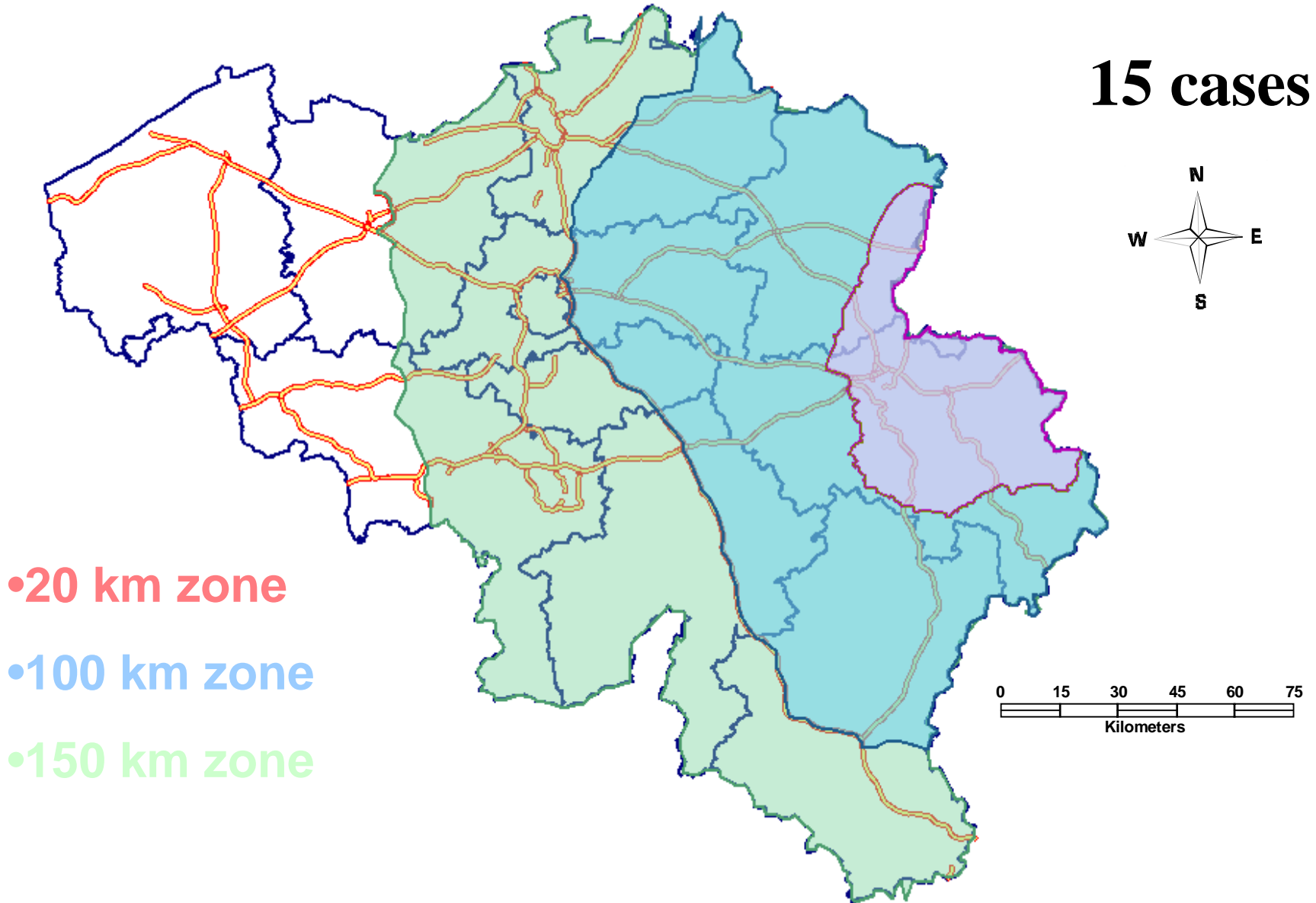
•100 km zone

•150 km zone





## 15 cases



•20 km zone

•100 km zone

•150 km zone