

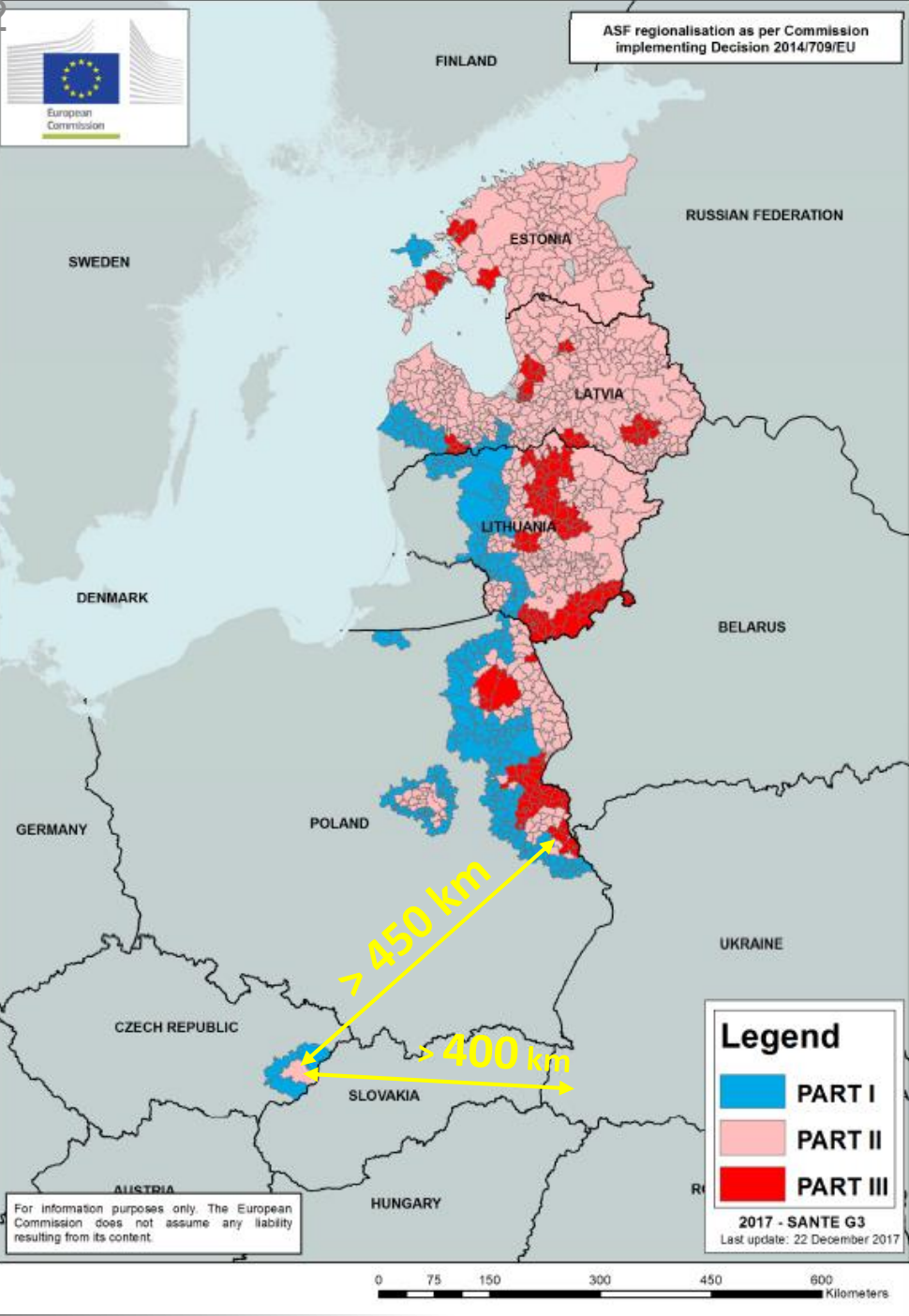


State  
Veterinary  
Administration

# From ASF infection in wild boar to eradication and free status recovery in the Czech Republic



ASF regionalisation as per Commission implementing Decision 2014/709/EU



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# First occurrence of ASF

First ASF positive carcass location:  
Přiluky, Zlín district  
Date: 26th June 2017

## Way of ASF introduction?



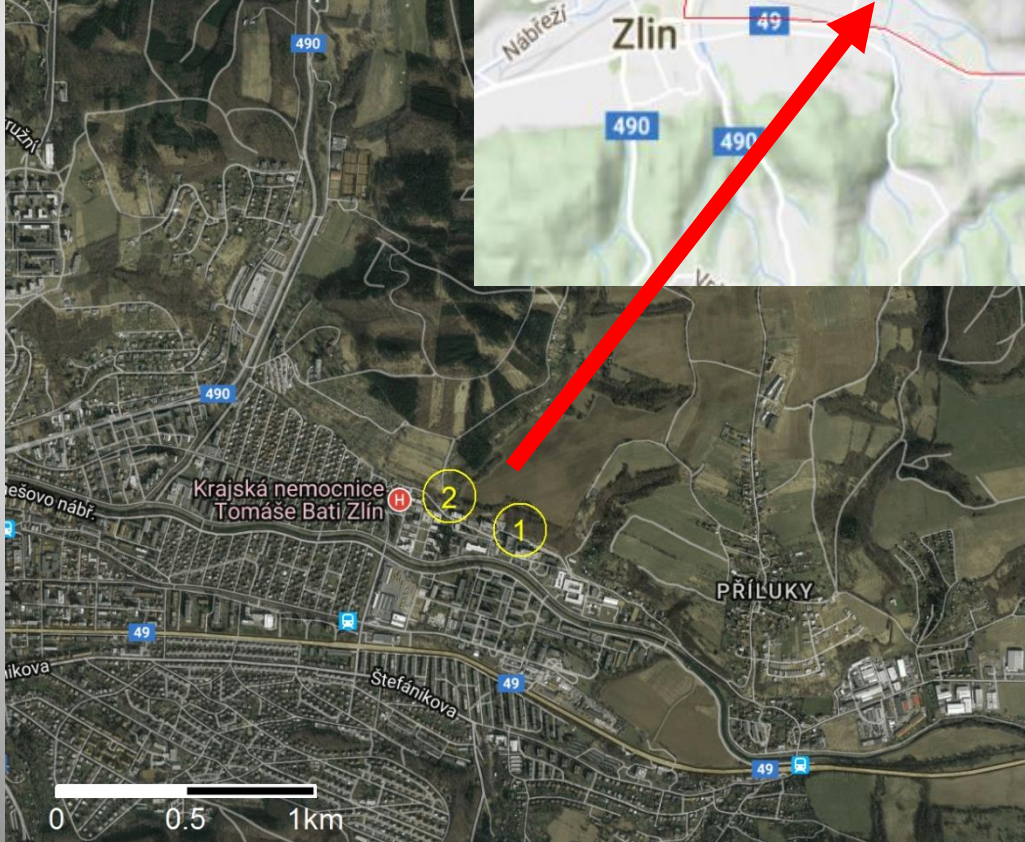
# First ASF case in the Czech Republic

- Zlín city - inhabited area
- 1<sup>st</sup> WB carcasses found nearby the local hospital



# First ASF case in the Czech Republic

The real source of infection?





**From the first case on 26/06, 2017  
to the last case on 8/02, 2018  
9 months – 228 days**

A total **230** cases of African swine fever have been detected in the wild boar population

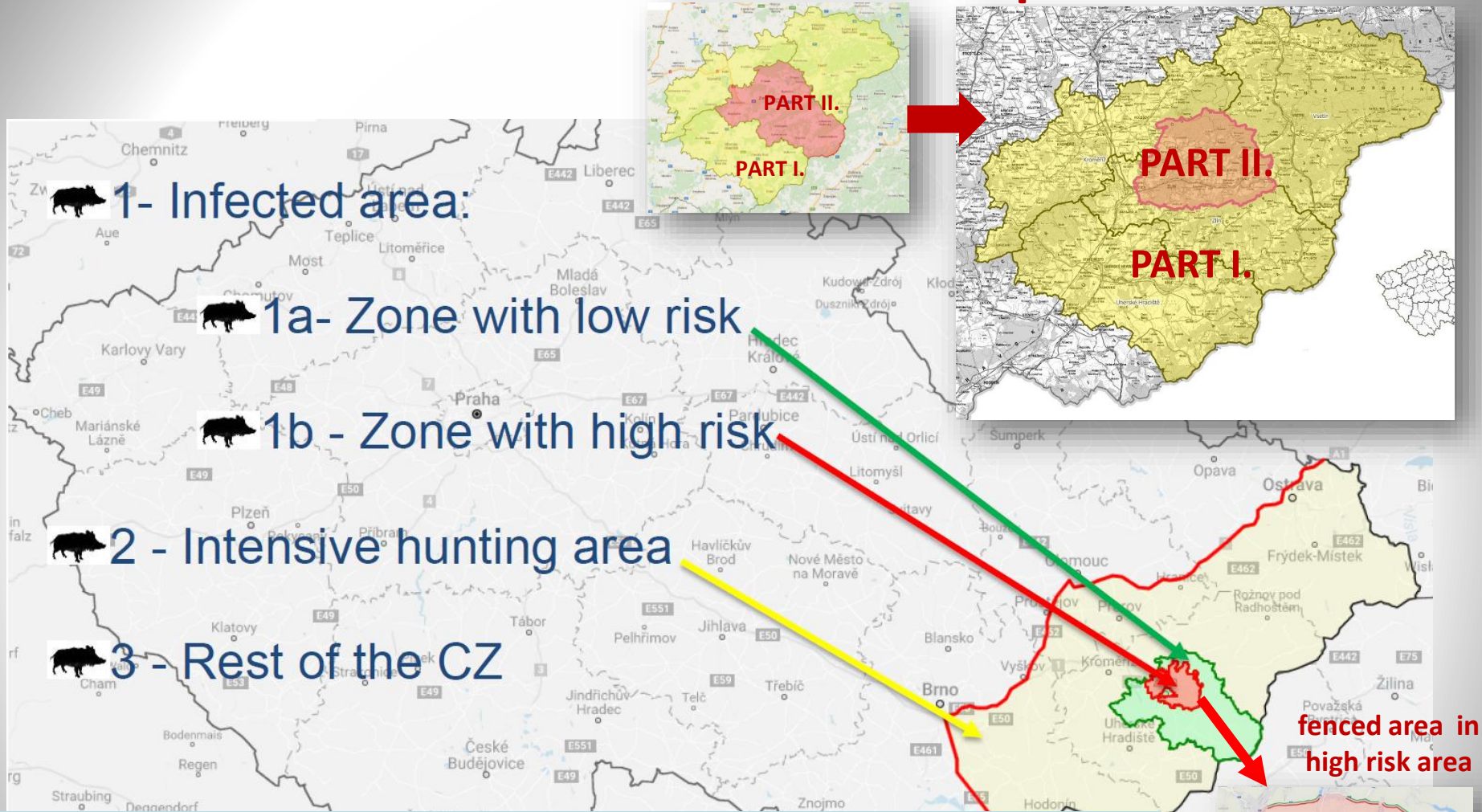
- The total number of positive cases in found dead wild boar: **212** (last positive cases **15/04,2018**)
- The total number of positive cases in hunted wild boar: **18** (last positive cases **8/02, 2018**)

**All positive cases have been detected only in part of district of Zlín.**

**NO OUTBREAK IN DOMESTIC PIGS !**



# Measures in 4 levels in the Czech Republic



- ✓ Intensive hunting area: 8500 km<sup>2</sup> (District Zlín excluded)
  - ✓ District Zlín: 1033 km<sup>2</sup>
  - ✓ Infected area with low risk: 1033 – 159 = 874 km<sup>2</sup>
  - ✓ Infected area with high risk: 159 km<sup>2</sup>
  - ✓ Infected area with the highest risk (inside the fences): 57 km<sup>2</sup>

## Number of wild boars and domestic pigs tested/positive (26/06, 2017 – 31/01, 2018)

### WILD BOARS

#### 1) Infected area (Part II according to the EU regionalisation)

- found dead 444 / 212 positive ( 47 %)
- hunted 3 758 / 18 positive ( 0,5%)

#### 2) Other areas of the Zlín region (Part I)

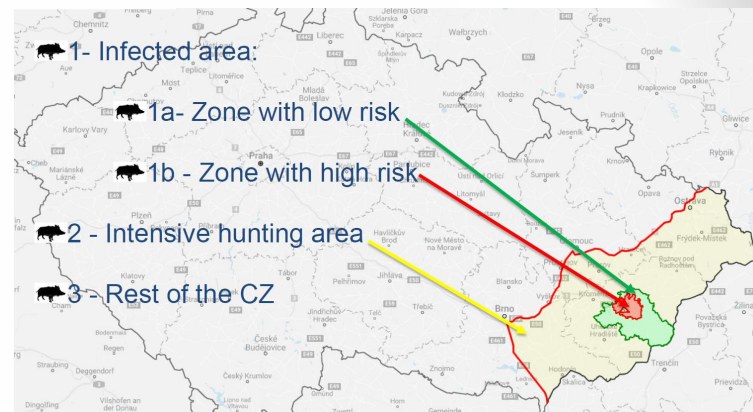
- found dead 154 / 0 positive
- hunted 11 563 / 0 positive

#### 3 Area with intensive hunting (without Part I and II areas)

- hunted 12 343 / 0 positive

#### 4) The whole Czech Republic (without Part I and II areas)

- found dead 2 299 / 0 positive

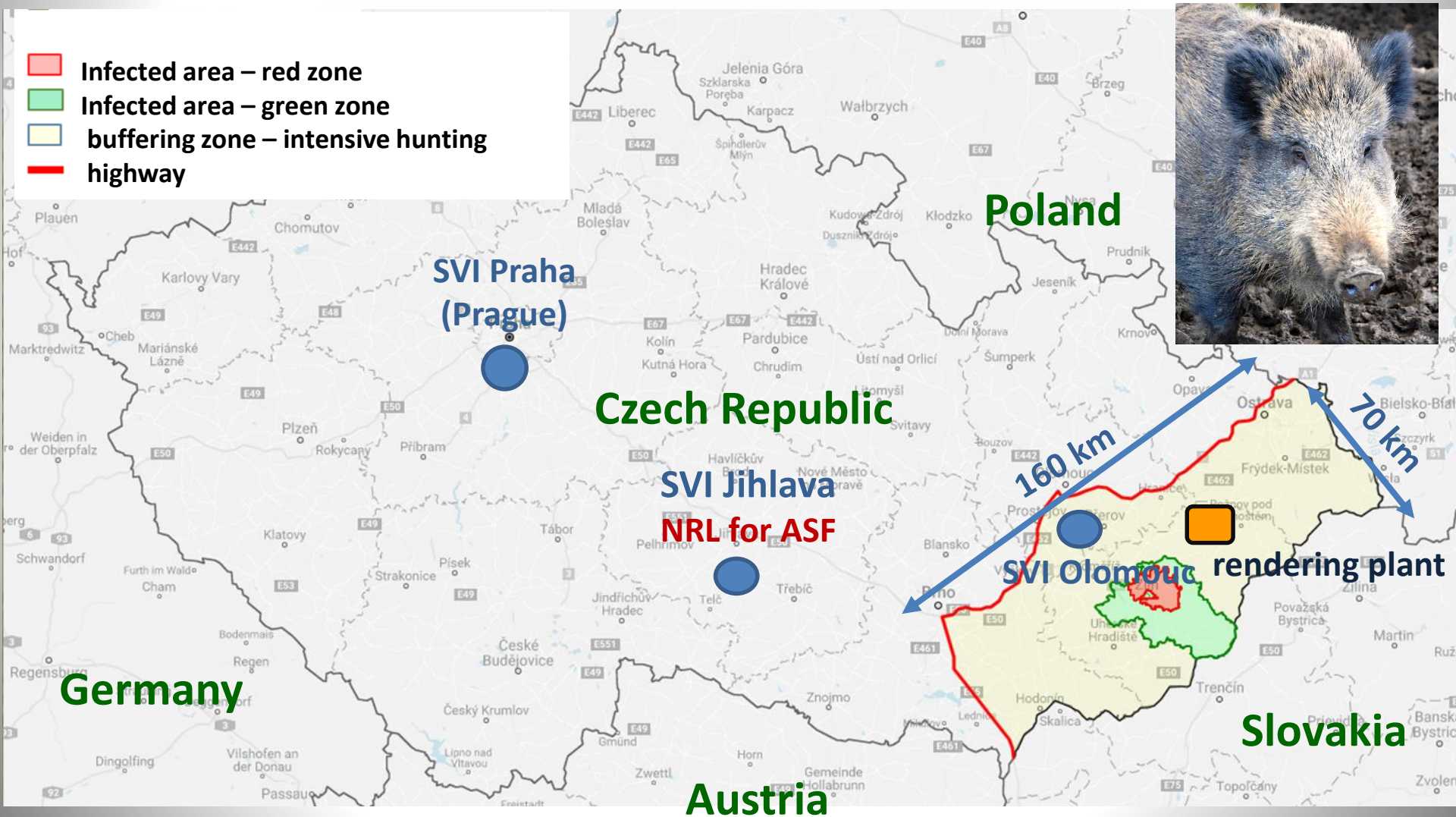


Total number of domestic pigs tested / positive	Part II		Part I	
	Active	Passive	Active	Passive
	337 / 0	109 / 0	723 / 0	1212 / 0



# Demarcation of the infected area and the buffering zone

In accordance with the Council Directive 2002/60/EC the whole District Zlín has been declared as an infected area (1 034 km<sup>2</sup>), 37 municipalities, 89 hunting grounds



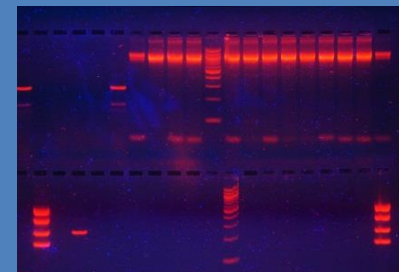
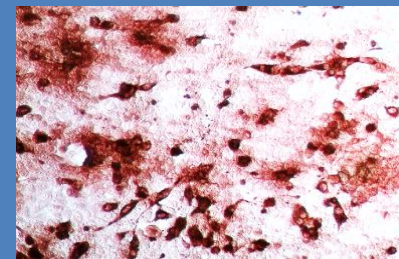
# ASF DIAGNOSTICS TESTS used in CZECH LABORATORIES

## ANTIBODY DETECTION TECHNIQUES

TEST	TYPE	REFERENCE
ELISA test	INGEZIM PPA Compac blocking ELISA	INGENASA
	ID Screen Indirect ELISA	ID.VET
	ID Screen Competition ELISA	ID.VET
	SVANOVIR® ASFV-Ab indirect ELISA -	Svanova
IPT test	Indirect immunoperoxidase test (IPT)	Gallardo et al. 2013

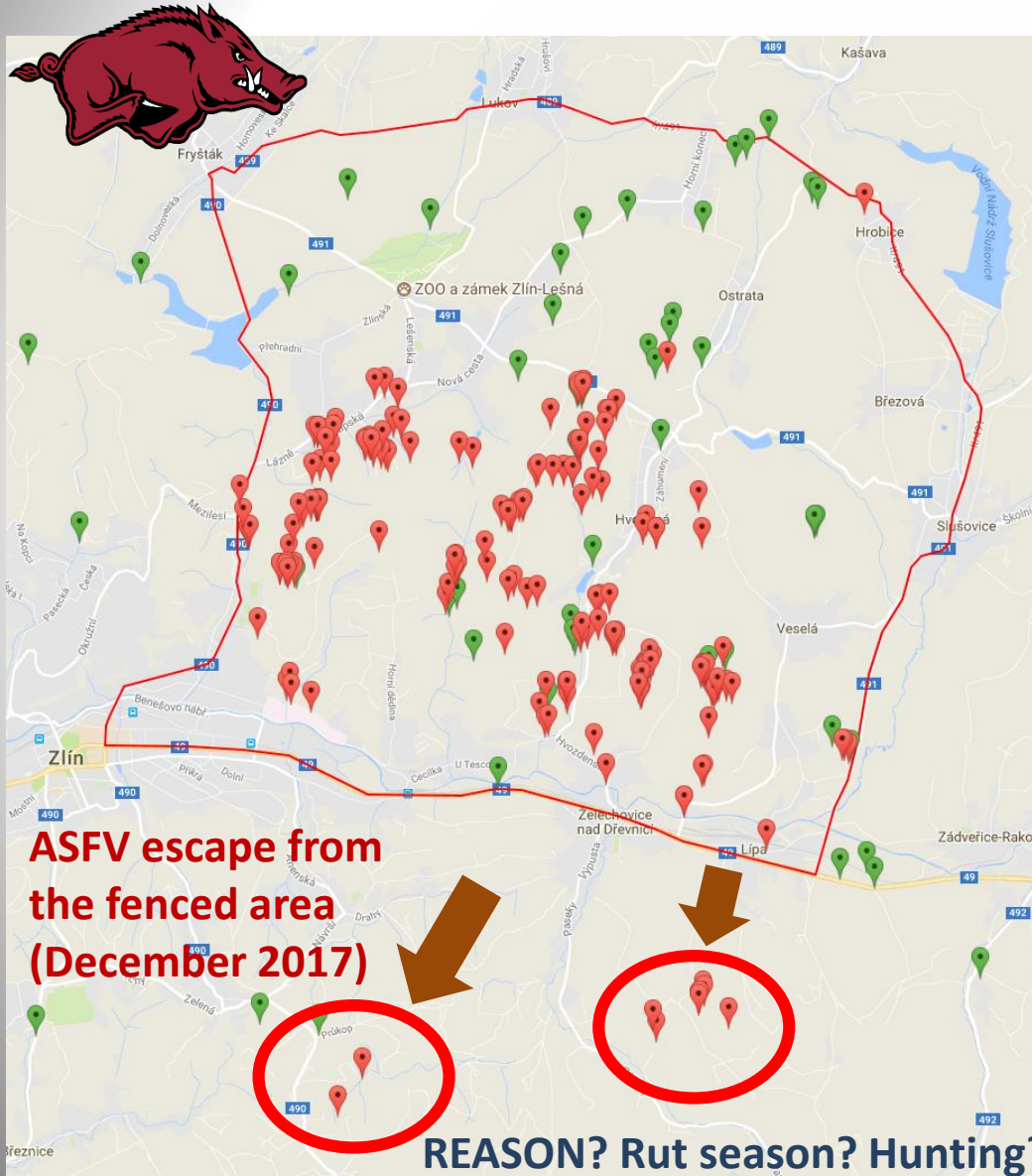
## DETECTION of the ASF VIRUS GENOME by PCR

TEST	TYPE	REFERENCE
Conventional PCR	OIE conventional PCR	Agüero et al. 2003
Real Time PCR	UPL Real-time PCR (UPL Probe)	Fernandez et al. 2013
	Taqman Probe (OIE - Real Time PCR)	King et al. 2003 Zsak et al. 2005
	ID Gene ASF Duplex qPCR	ID.vet Innovative Diagnostics

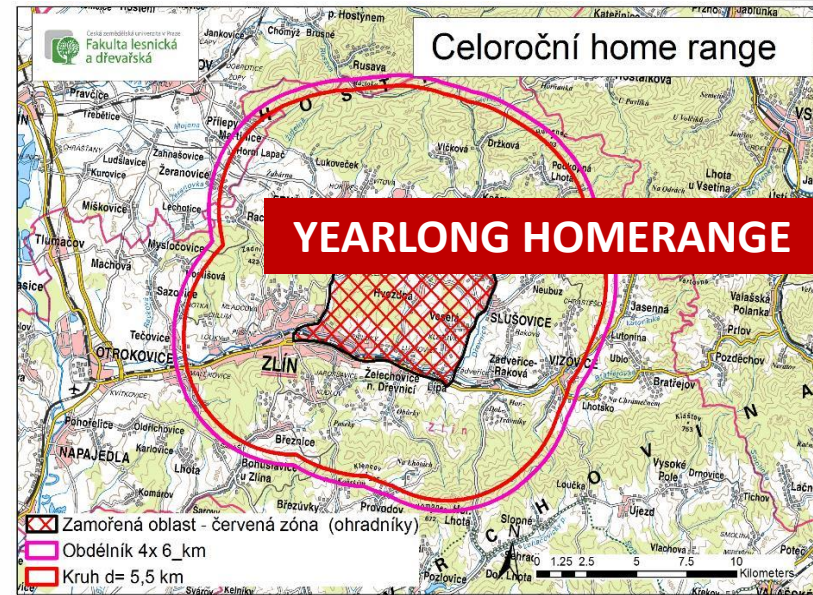


# Passive surveillance: wild boars found dead

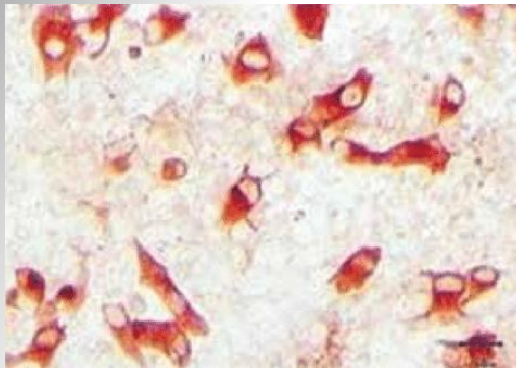
## high risk area (fenced area) inside the infected area



WB density in the fenced area:  
 more than 520 (found dead+hunted)  
 $WB / 57 \text{ km}^2 = 9.1 \text{ WB per } 1 \text{ km}^2$   
 21 May 2018

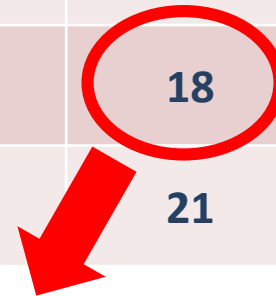


# WB positive cases: virology / serology



Positive ASF results: 26 June 2017 – October 2018

WB	both PCR and ELISA (IPMA) positive	only PCR positive	only ELISA (IPMA confirmed) positive	Total positive cases
Found dead	10	202	3	215
Hunted	9	9	18	34
<b>TOTAL</b>	<b>19</b>	<b>211</b>	<b>21</b>	<b>251</b>



Wild boars	ASF Virus (PCR)	ASF antibodies (ELISA, IPMA)
Found dead	212	13
Hunted	18	27
<b>TOTAL</b>	<b>230</b>	<b>40</b>

## Recovering „survivors“

- piglets / adults (1:1)

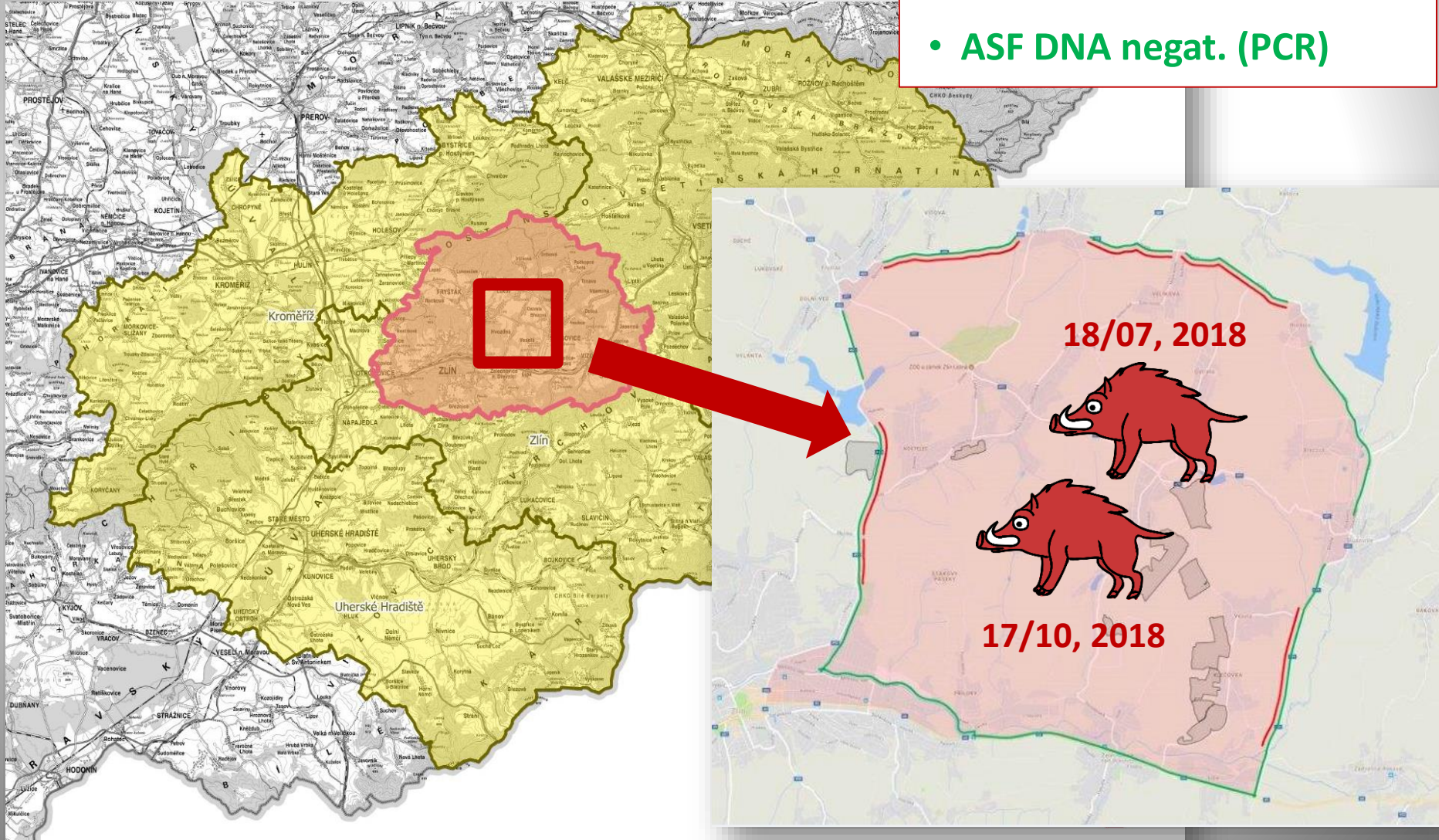


# Current situation: summer and autumn 2018

—2 new serologically positive cases in WB

—hunted WBs in the fenced area

- ASF Ab pozit. (ELISA + IPT)
- ASF DNA negat. (PCR)



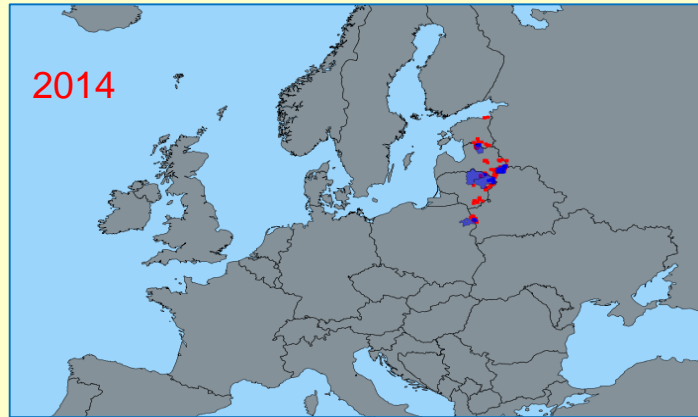
# Strategy and Measures applied



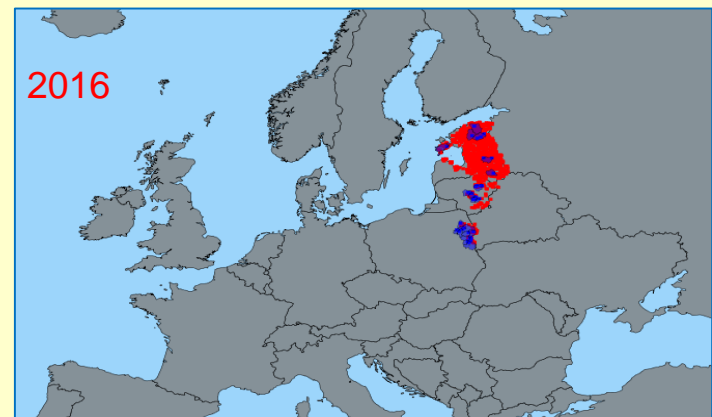
## Before the first case

### PASSIVE SURVEILLANCE

Since 2014, African swine fever (ASF) has been occurring in Estonia, Latvia, Lithuania and



Poland



From 2014, all wild boars found dead in the whole territory of the Czech Republic have been tested for ASF; this passive monitoring continues.

Numbers of found and tested dead wild boars – the whole Czech Republic 2014 - 2019												
Year	2014		2015		2016		2017		2018		2019 (to 24/02)	
No of tested / positive	243	0	348	0	404	0	1 622	191	1 404	21	59	0

**Motto:**

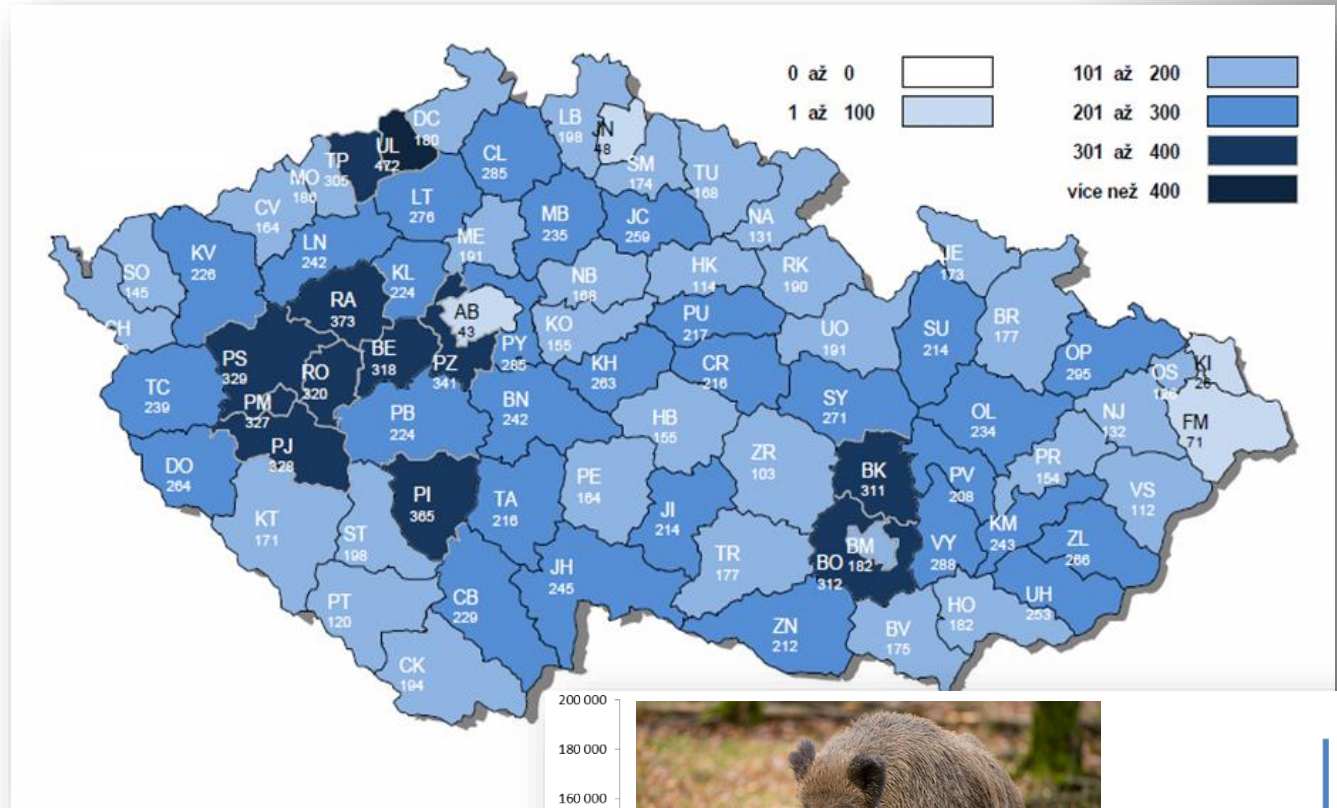
**Hunting is not a method for eradication of ASF  
in wild boar population because:**

- **the main source of infection are cadavers that remain infectious for a long time**
- **the stock of wild boar in the infected area is not precisely known, however relatively high**
- **lethality of the virus high: 95%,**
- **contagiosity low: 10%,**
- **persistence of the virus in the environment is very long**

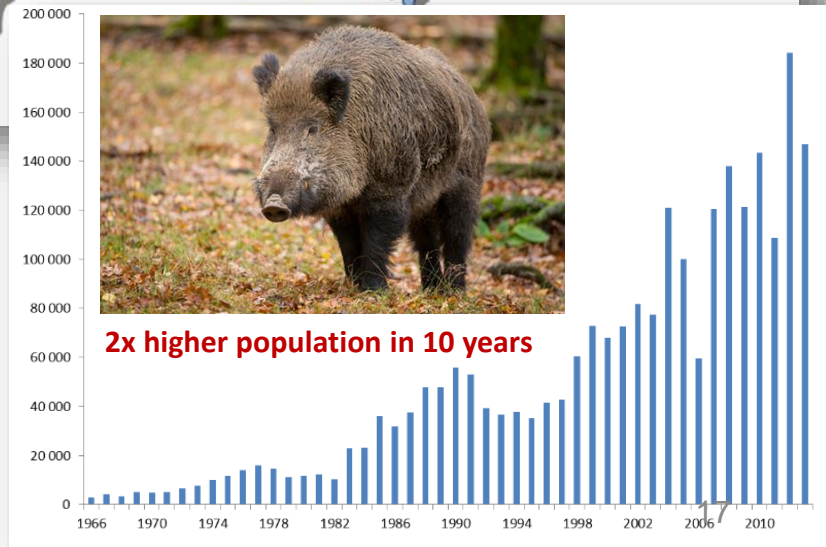


# The density of wild boar population in the Czech Republic (per 100 km<sup>2</sup>)

Hunting year	Hunting bag
2010	144 305
2011	109 563
2012	185 381
2013	152 468
2014	169 483
2015	186 148
2016	160 164
2017	225 000



- hunted animals: 1-4 / km<sup>2</sup>
  - real WB density?? = 1,5-2x higher
  - the population doubles every 10 years
  - motivated hunting in the whole country
- 10-12/2017 (38 EURO per hunted animal)



Strategy:

**STOP** – ALL HUNTING, KEEP CALM THE AREA

**SEARCH** – CADAVERS

**UNDERSTAND** – EPIDEMIOLOGICAL SITUATION  
AND INFECTED AREA

**MAKE** – MEASURES

- TO KEEP ANIMALS AT ONE PLACE – VIRUS WORKS
- DEPOPULATION AT THE FINAL STAGE



## Demarcation of the infected area

In accordance with the Council Directive 2002/60/EC the whole District Zlín has been declared as an infected area (1 034 km<sup>2</sup>), 37 municipalities, 89 hunting grounds

### General control measures applied in the infected area

- 1) Increased passive surveillance (each found dead wild boar is rewarded)
- 2) Ban of hunting (any species, any hunting system)
- 3) Ban of wild boar feeding
- 4) Ban of entrance for the general public into the high and higher risk areas (red areas)
- 5) Sampling and testing for both ASF and CSF (PCR) each found dead wild boar;

Carcasses are collected in a plastic bag, identified with a “seal” and carried to the nearest road where dedicated vehicles transport them to the rendering plant (about 70 km distance). An official veterinarian samples carcasses at the rendering plant.

# Collection and disposal of carcasses

one of the most important step in ASF control and eradication

Collection of WB carcasses with financial motivation ( 1€ - 25 CZK)

	Area	Reward in CZK
Finder reward	Czech Republic	2 000,-
	Area with intensive hunting	3 000,-
	Infected area – higher risk zone	5 000,-

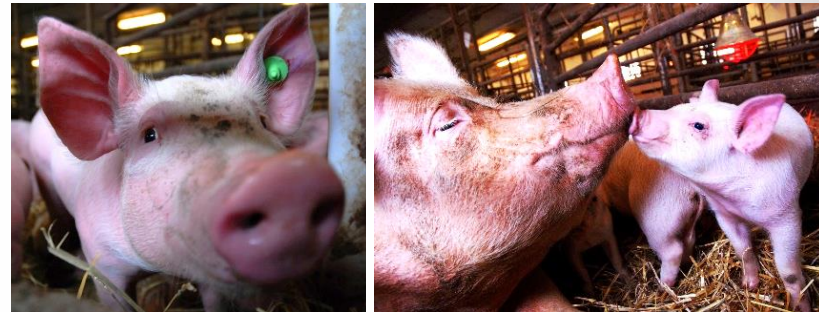
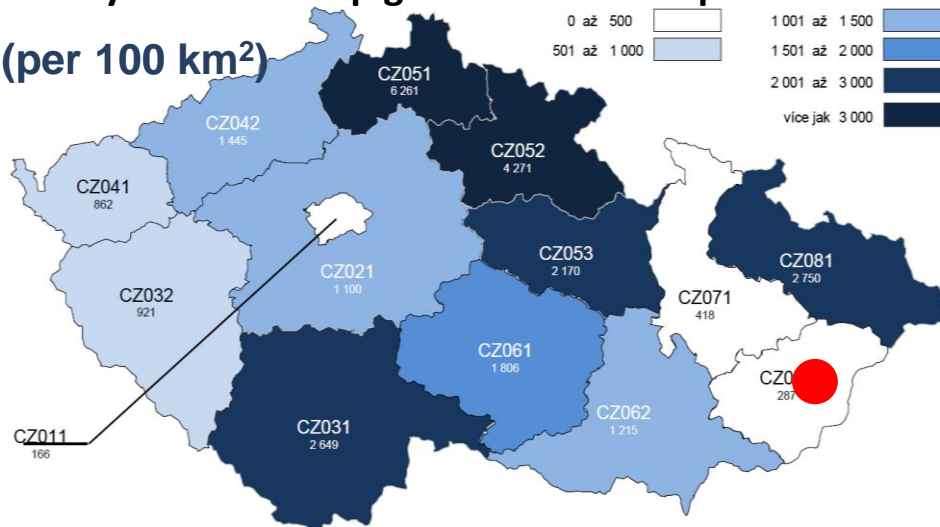


# ASF measures for domestic pigs in infected area

## INCREASE BIOSECURITY AND AVOID CONTACT BETWEEN WILD BOAR AND DOMESTIC PIGS

- ban on keeping of pigs in backyard farms
- enhanced passive surveillance in pig farms - farmers must report all sick/dead pigs in the infected area (all cases are tested for ASF)
- movement of pigs only with authorisation issued by the RVA for Region Zlín.
- ban on feeding with fresh grass, ban on straw bedding
- official controls in pig farms in accordance with Commission Implementing Decision 2014/709/EU. Targeted for **BIOSECURITY**.
- information campaign

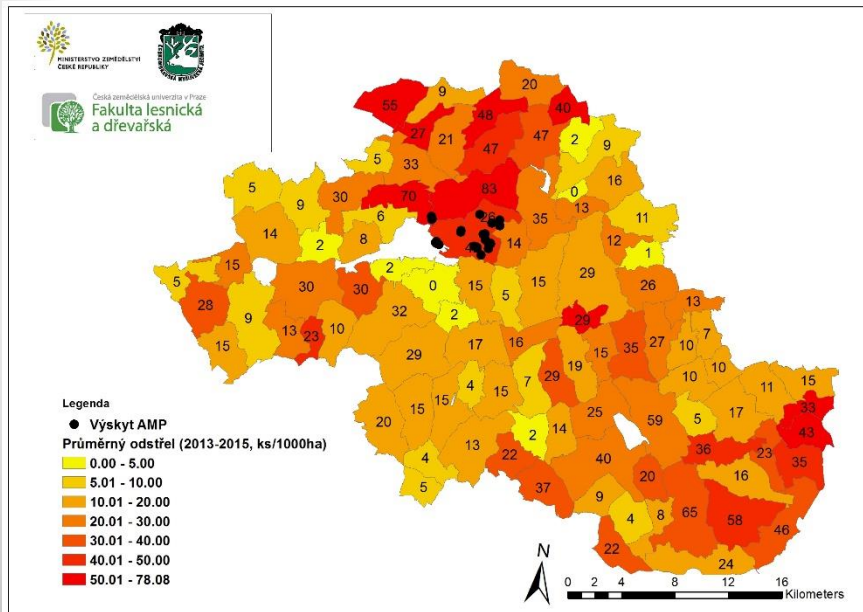
Density of domestic pigs in the Czech Republic  
(per 100 km<sup>2</sup>)



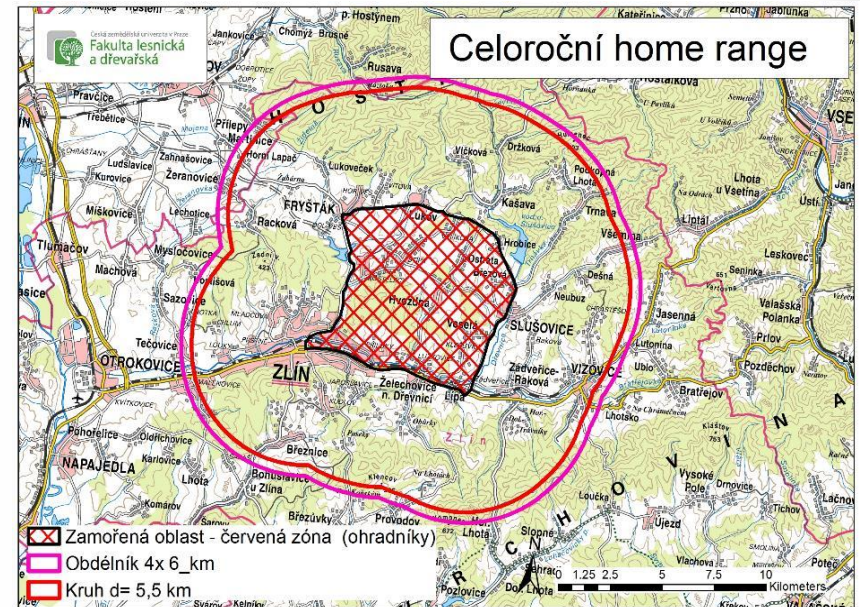
	farms	pigs
Czech Republic	2 160	1 353 935
Zlín region	83	74 088
<b>infected area</b> (district Zlín)	<b>23</b>	<b>16 301</b>

# After 1 month of intensive passive surveillance Setting high and low risk zone in infected zone

## Hunting

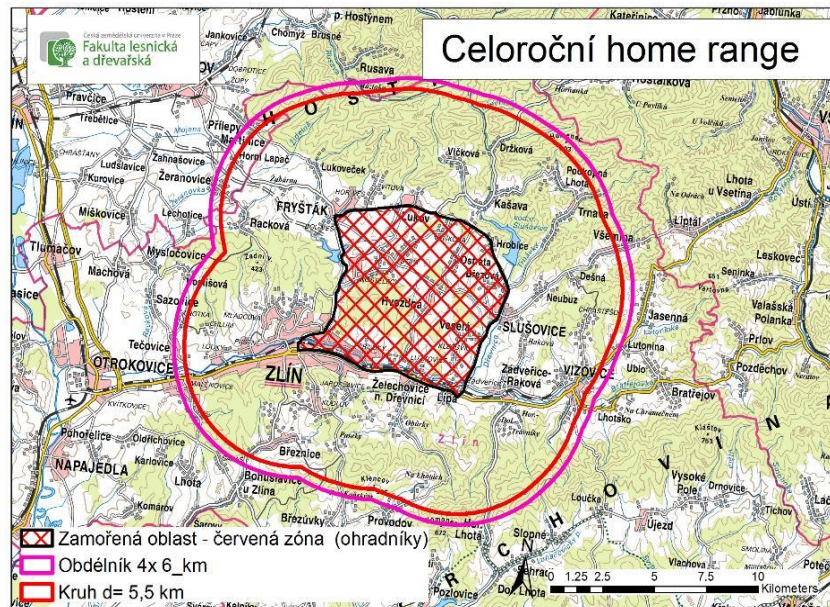


## Home range – 100% one year



## High risk sub-area

The size of the area was 159 km<sup>2</sup>. The area was a buffer zone around the higher risk sub-area (fenced area) and has been calculated considering the maximum annual increase of the home ranges of the wild boar living in the fenced area.

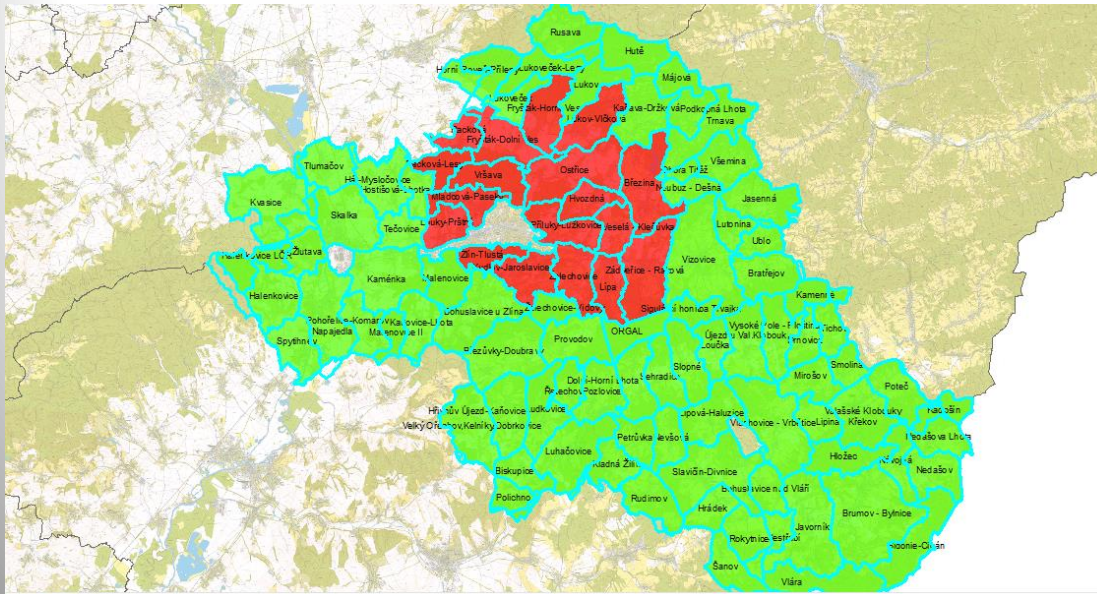


The higher risk area (red grid) surrounded by the perimeter of the wild boar maximum home range size.

## Low risk sub-area

It was the whole infected area (green) excluding the red high and higher risk areas.

The area was 874 km<sup>2</sup> large. All found dead and hunted animals are collected under biosecurity measures, tagged by seal, dispatched with authorised vehicles to a rendering plant where they were sampled by an official veterinarian and then disposed.



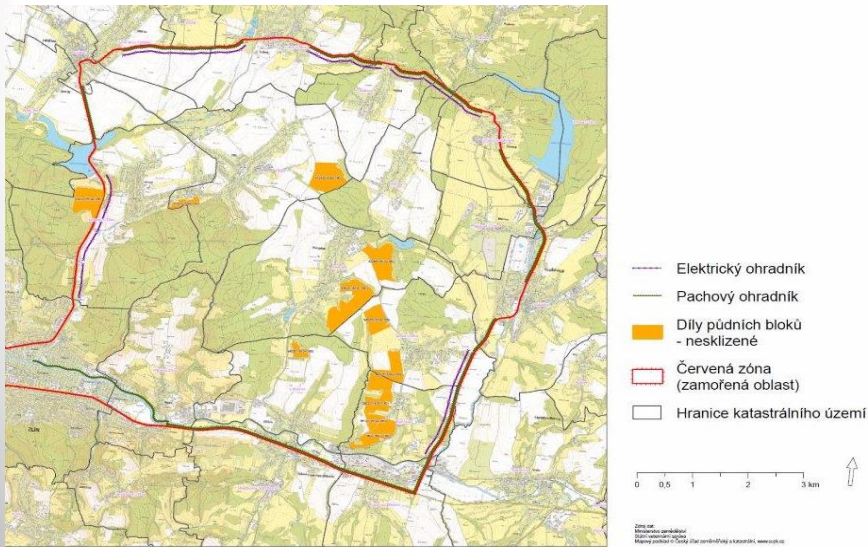


# Alternative measures



## Area 57 km<sup>2</sup> is defined as the “behind fence” area.

For minimalization of the possible movement of wild boar, all the perimeter of the high risk area has been fenced with a so called “**odour fence**”, and in addition, to increase fence efficiency, an **electric fence** has been added in the most permeable sectors (i.e. unpaved roads in the forest). The whole perimeter is about 32 km with 10 km of electric fence.



# Fences around the high risk zone

to prevent or complicate the WB migration - OUT and INTO



Area: 57 km<sup>2</sup>

Perimeter: cca 30 km

— electric fence (voltage 6500 – 11 000 V)

— scent fence