African swine fever in wild boar in the Czech Republic

SCoPAFF, Brussels, 25. 2. 2019
Petr Šatráň
First occurrence of ASF

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

Way of ASF introduction?

GPS 49°13'44.301''N, 17°42'1.996''E
First ASF case in the Czech Republic

- Zlín city - inhabited area
- 1st WB carcasses found nearby the local hospital
First ASF case in the Czech Republic

The real source of infection?

HOSPITAL

LOGISTIC DEPO – terminal for container transport

Cadaver with oldest estimated time of death

3,5 km
Molecular characterisation of the Czech ASFV isolates (EURL for ASF, INIA-CISA)

The p72 genotyping of the Czech Republic wild boar ASFV strains clustered the viruses within p72 genotype II circulating in the Eastern European countries since the first introduction in Georgia in 2007.

Further subtyping throughout the analysis of three independent ASFV genome regions, clustered the Czech Republic isolates within the CVR-I, IGR-2 and MGF1 variants. These are the variants mostly circulating within the EU countries as well as described in Moldova (2016), Ukraine (2012, 2015), Belarus (2013) and in certain areas of the Russian Federation.
### ASF - before the first case in the Czech Republic

**PASSIVE SURVEILLANCE - key element for early detection**

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

![Map of Europe showing ASF outbreaks in 2014 and 2016](image)

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

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019 (to 24. 2.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of tested /positive</td>
<td>243</td>
<td>0</td>
<td>348</td>
<td>0</td>
<td>1 622</td>
<td>191</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 404</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>59</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

The countrywide monitoring of ASF was a key element in early detection of ASF in the Czech Republic and allowed an immediate and effective response by the State Veterinary Administration.
ASF – Epidemiological situation from 26. 6. 2017 to 22. 2. 2018

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. 4. 2018)
• The total number of positive cases in hunted wild boar: 18 (last positive cases 8. 2. 2018)

All positive cases have been detected only in District of Zlín.

NO OUTBREAK IN DOMESTIC PIGS
Measures applied
ASF measures in 4 (5) levels in the Czech Republic

1- Infected area:
   1a- Zone with low risk
   1b - Zone with high risk
2 - Intensive hunting area
3 - Rest of the CZ

- Intensive hunting area: 8500 km² (District Zlín excluded)
  - District Zlín: 1033 km²
  - Infected area with low risk: 1033 – 159 = 874 km²
  - Infected area with high risk: 159 km²
  - Infected area with the highest risk (inside the fences): 57 km²
ASF - Total number of wild boars and domestic pigs ASF tested/positive (26. 6. 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

**DOMESTIC PIGS**

<table>
<thead>
<tr>
<th>Total number of domestic pigs tested / positive</th>
<th>Part II</th>
<th>Part I</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Active</td>
<td>Passive</td>
</tr>
<tr>
<td></td>
<td>337 / 0</td>
<td>109 / 0</td>
</tr>
</tbody>
</table>
ASF measures for domestic pigs in Part II

INCREASE BIOSECURITY AND AVOID CONTACT BETWEEN WILD BOAR AND DOMESTIC PIGS

- ban on keeping of pigs in backyard farms and in non-registered holdings in the infected area
- 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 bending
- 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 km²)

<table>
<thead>
<tr>
<th>Region</th>
<th>Farms</th>
<th>Pigs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>2,160</td>
<td>1,353,935</td>
</tr>
<tr>
<td>Zlín region</td>
<td>83</td>
<td>74,088</td>
</tr>
<tr>
<td>Infected area (Zlín)</td>
<td>23</td>
<td>16,301</td>
</tr>
</tbody>
</table>
ASF measures in wild boar in Part II

- **enhanced passive surveillance of WB found dead** (motivated searching of carcases)
- **ban on hunting** (any species, any hunting system) and later hunting of WB was allowed but only by **individual hunting and trapping** (selected and trained hunters)
- **ban on feeding** (only baiting allowed)
- **ban of entrance** for the general public into the infected area
- all hunted and found dead WB **must be disposed of in the rendering plant (+ tested for ASF)**
- unharvest fields left to provide food and shelter for wild boars
- **financial rewards**: each finding of **dead wild boar** - 194 €.
  - each **hunted young wild boar** (up to 50 kg) - 155 €.
  - each **hunted adult wild boar** (over to 50 kg) - 310 €.
  + **compensation** for piglet 39 €, one-year old 78 €, adult saw 125 € for hunted wild boar disposed of in the rendering plant.
Timeline of hunting regulations

- 26 June 2017: ASF confirmation
- 27 June 2017: Ban on hunting in the infected area
- 21 July 2017: Hunting in the low risk zone in infected area
- 24 August 2017: Trapping of wild boar in the high risk zone in infected area
- 11 September 2017: Individual hunting in the high risk zone in the infected area
- 16 October 2017: Hunting in collaboration with Police
Alternative measures
The density of wild boar population in the Czech Republic (per 100 km²)

<table>
<thead>
<tr>
<th>Hunting year</th>
<th>Hunting bag</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>144 305</td>
</tr>
<tr>
<td>2011</td>
<td>109 563</td>
</tr>
<tr>
<td>2012</td>
<td>185 381</td>
</tr>
<tr>
<td>2013</td>
<td>152 468</td>
</tr>
<tr>
<td>2014</td>
<td>169 483</td>
</tr>
<tr>
<td>2015</td>
<td>186 148</td>
</tr>
<tr>
<td>2016</td>
<td>160 164</td>
</tr>
<tr>
<td>2017</td>
<td>225 000</td>
</tr>
</tbody>
</table>

- hunted animals: 1-4 / km²
- 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)

2x higher population in 10 years
Active and passive surveillance in the buffering zone with the intensive hunting

22,215 hunted WB: all ASF negative
1,277 found dead: all negative

from July 2017 – to 25 November 2018

financial reward for each hunted WB
Electric fences around the infected area
Odour fences around the infected area

- synthetic foam with 3-Methylbutanoic acid (isovaleric acid)
- imitation of typical predators smell / odour
- strong pungent cheesy or sweaty smell
- it is a major component of the cause of unpleasant foot odour
- most durable product chosen – resistant against weather conditions (+ with slow evaporation)
- 5 m distance / 4 weeks period
- product: Pacholek koncentrát B, Ekoplant, s.r.o.
Passive surveillance: wild boars found dead
high risk area (fenced area) inside the infected area

21 May 2018

<table>
<thead>
<tr>
<th></th>
<th>total</th>
<th>negat.</th>
<th>posit. (virus/PCR)</th>
<th>prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fenced area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in</td>
<td>280</td>
<td>79</td>
<td>201</td>
<td>71.7%</td>
</tr>
<tr>
<td>out</td>
<td>134</td>
<td>123</td>
<td>11</td>
<td>-</td>
</tr>
</tbody>
</table>

WB density in the fenced area:
more than 520  (found dead+hunted)
WB / 57 km² = 9.1 WB per 1 km²

ASFV escape from the fenced area (December 2017)

REASON? Rut season? Hunting?

YEARLONG HOMERANGE
The speed rate of disease expansion

DIAMETER 11 KM / 11 MONTHS = SLOW speed = Ø 0,5 km/ 1 month
despite the high WB density (8-10 WB / km²)

Based on the estimated date of death of WB found
Higher risk area (fenced area) - unharvested fields left

115 hectares of unharvested fields (rape, maize and wheat) were left for wild boars providing both food and shelter.
Enhanced passive surveillance of WB found dead

Motivated or/and organised searching of carcasses

- very inaccessible terrain
- dense vegetation
Collection and disposal of carcasses
one of the most important steps in ASF control and eradication

Collection of WB carcasses with financial motivation:

<table>
<thead>
<tr>
<th>Finder reward</th>
<th>Area</th>
<th>Reward in CZK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Czech Republic</td>
<td>2 000,-</td>
</tr>
<tr>
<td></td>
<td>Area with intensive hunting</td>
<td>3 000,-</td>
</tr>
<tr>
<td></td>
<td>Infected area – higher risk zone</td>
<td>5 000,-</td>
</tr>
</tbody>
</table>
Increased passive surveillance of dead WB – motivated searching for carcases
Cadavers of dead wild boars constitute the greatest risk for the spread of ASF in wild boar population. SVA ordered that the users of hunting grounds in the infected area must carry out an intensive search for wild boar cadavers from 22. 03. 2018 to 22. 04. 2018.

56 cadavers were found during this action, 10 of them were ASF positive. However, these cadavers were 3-6 months old. So the infections and subsequent death of these wild boars occurred at the end of 2017 or early 2018.

Samples with positive results were sent to European Reference Laboratory for ASF, Madrid, Spain. Virological laboratory - no live virus present in the samples.
Active surveillance in the infected area

- individual hunting by local trained hunters allowed in the end of epidemic phase
- more than 1300 hunters trained by SVA (driven hunts still forbidden)

RED ZONE
- 607 (31 posit. = 5.1%)

GREEN ZONE
- 1711 (0 posit.)

2 318 hunted WB tested

26 January 2018
Hunting by police snipers in the infected area

Task: as fast as possible total depopulation inside the fenced area - quickly, silently, efficiently and with high biosecurity

- Individual hunting by Police snipers (Elite Squad, Police Special Unit, Airport snipers)
- Started from 16 October 2017 (3 days a week during 10 weeks)
- In total 157 WB hunted - 8 positive for ASF
- Snipers trained for hunting biosecurity
- Organization and coordination by RVA and by regional hunters

- Over night hunting (18:00 – 6:00)
- Mobile thermovision used
- Snipers with silencers

ALL hunted WB collected and rendered !!!
Collection of hunted WB during hunting by POLICE
Weekly incidence in relation to hunting measures

- **Number of WB found dead (441)** – part I. and II.
- **Number of ASF PCR positive found dead WB** - 204 (8 April 2018)

- **Week 34**: Hunting by trapping
- **Week 37**: Individual hunting by trained hunters
- **Week 51**: First positive WB cases outside fenced area
- **Hunting by Police snipers** week 42-52/2017 and week 4-5/2018
Weekly incidence: 3 peaks in the Czech Republic

- **EPIDEMIC**
- **SNIPERS**
- MOTIVATED and ORGANISED SEARCHING OF CARCASSES

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**2017**

**2018**

Carcasses „age“ – date of finding vs. date of death (estimated)
Disposal of hunted wild boars from the infected area to determined rendering plant

Samples taken in rendering plant by official veterinarien
Collection and disposal of hunted wild boars
Trapping of wild boars

- 32 traps in the area
- cage traps with sensors and cameras
- subsidies for traps = 315 € - 730 €

<table>
<thead>
<tr>
<th>Fenced area</th>
<th>total trapped</th>
<th>negat.</th>
<th>posit.</th>
<th>prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>in</td>
<td>40</td>
<td>36</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>out</td>
<td>66</td>
<td>66</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>
Thank you