GF-TADs

GLOBAL FRAMEWORK FOR THE PROGRESSIVE CONTROL OF TRANSBOUNDARY ANIMAL DISEASES

Biosecurity during hunting, carcass disposal and population management

Sixth meeting of the Standard Group of Experts on ASF in the Baltic and Eastern Europe Region
Vilnius, Lithuania – 28-29 November 2016

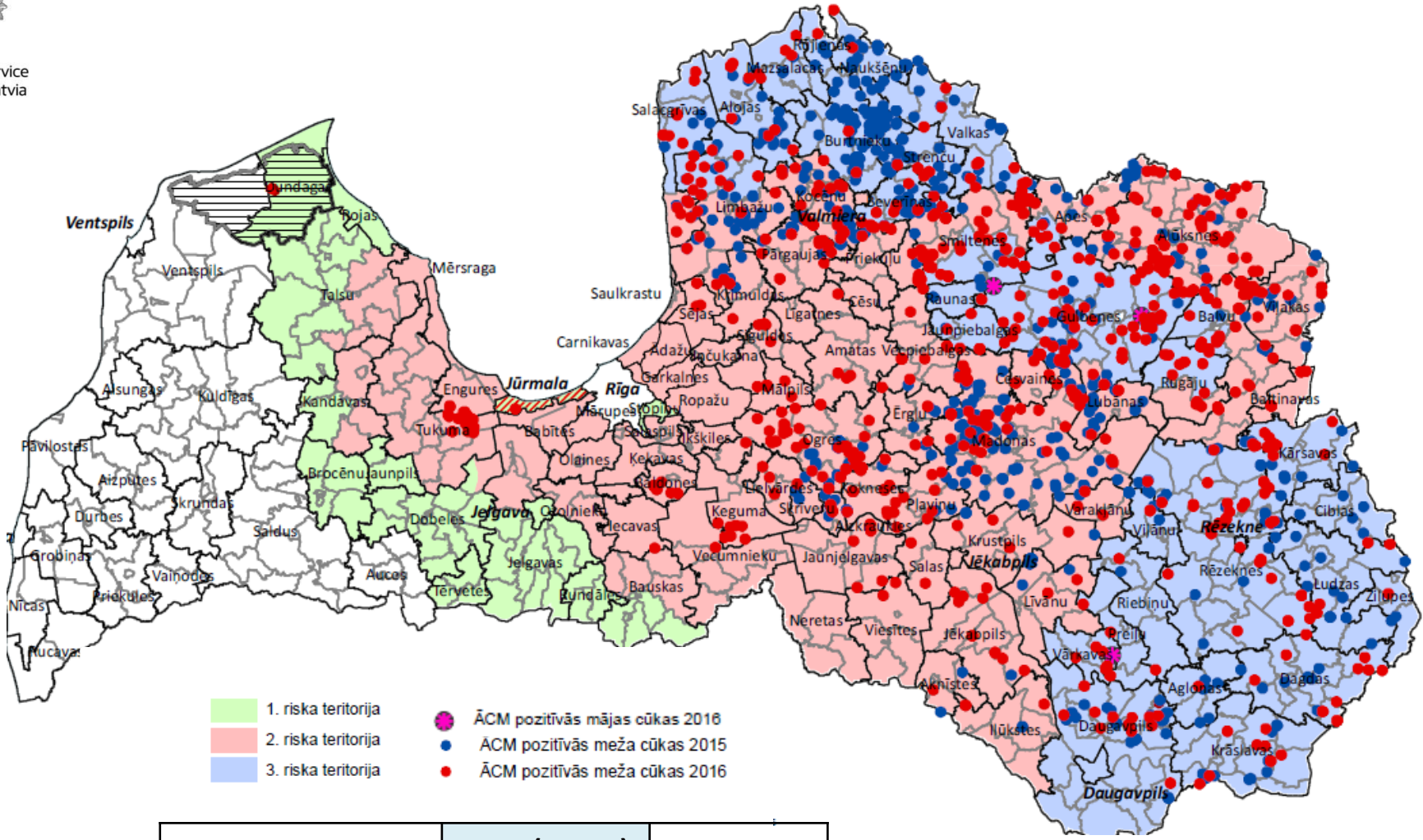
Vittorio Guberti
ISPRA, Italy

We shall discuss of:

- ASF epidemiology in wild boars
- ASF contagiosity
- Carcass collection and disposal
- Biosecurity during hunting
- Biosecurity in the forest
- Wild boar population dynamic

Food and
Veterinary Service
Republic of Latvia

Latvia: just by chance

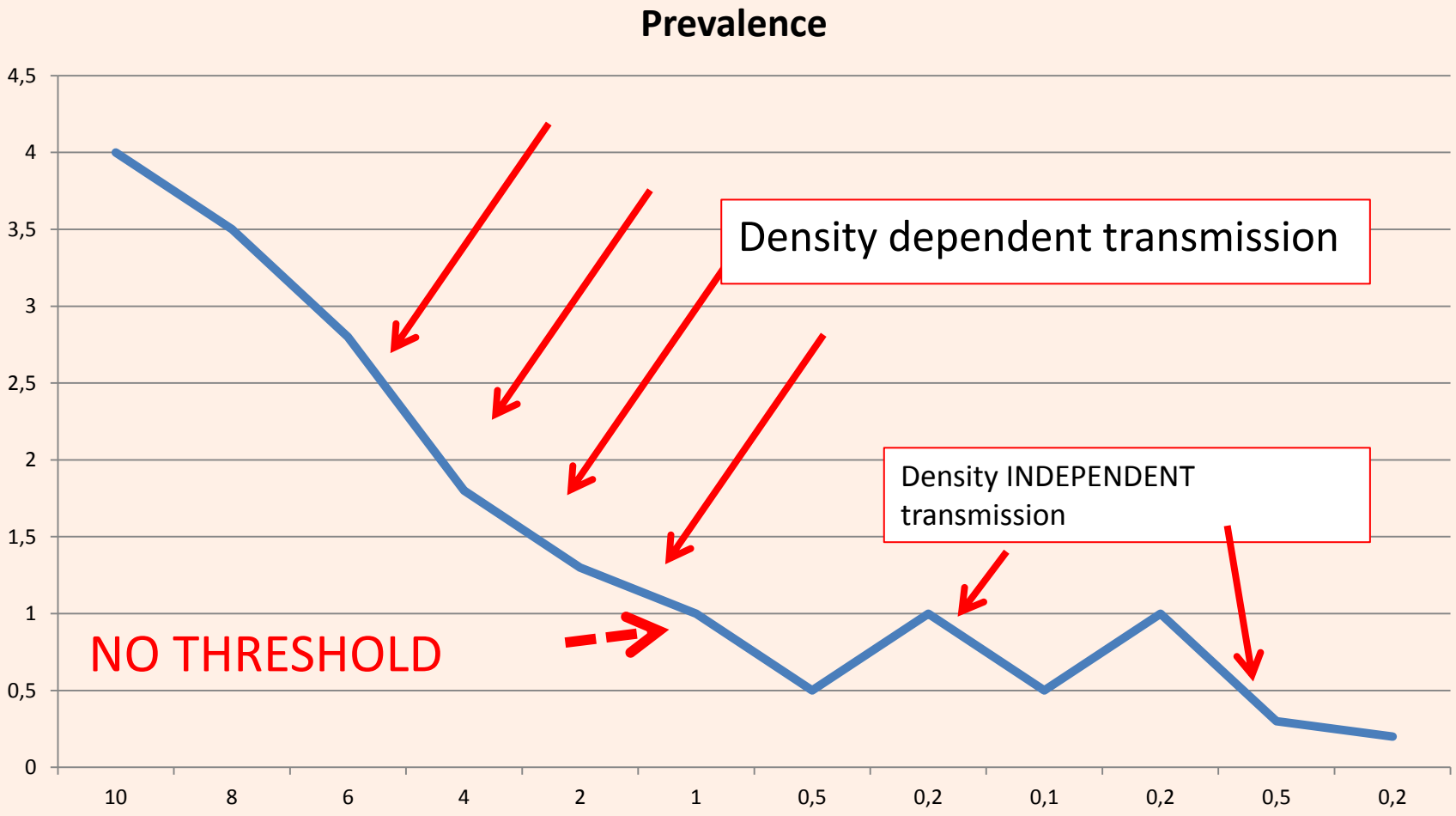


	2016 (26.10.)	2015
Cases	**893**	**1048**
Hunted	**447**	**422**
Found dead	**446**	**626**

Density independent transmission

- The virus is in the forest;
- The virus survives in infected material: being INFECTED WILD BOAR CARCASSES the main source of the virus
- The virus survives in the forest EVEN IF NO WILD BOAR are living in that forest (all dead because ASF and hunting/depopulation)
- When a new susceptible wild boar will enter in the forest it has a certain probability to get the infection…dependent on carcass number and not to wild boar density

ASF in not a truly density dependent infection.
The final tail of the infection is determined by carcasses



ASF Epidemiology

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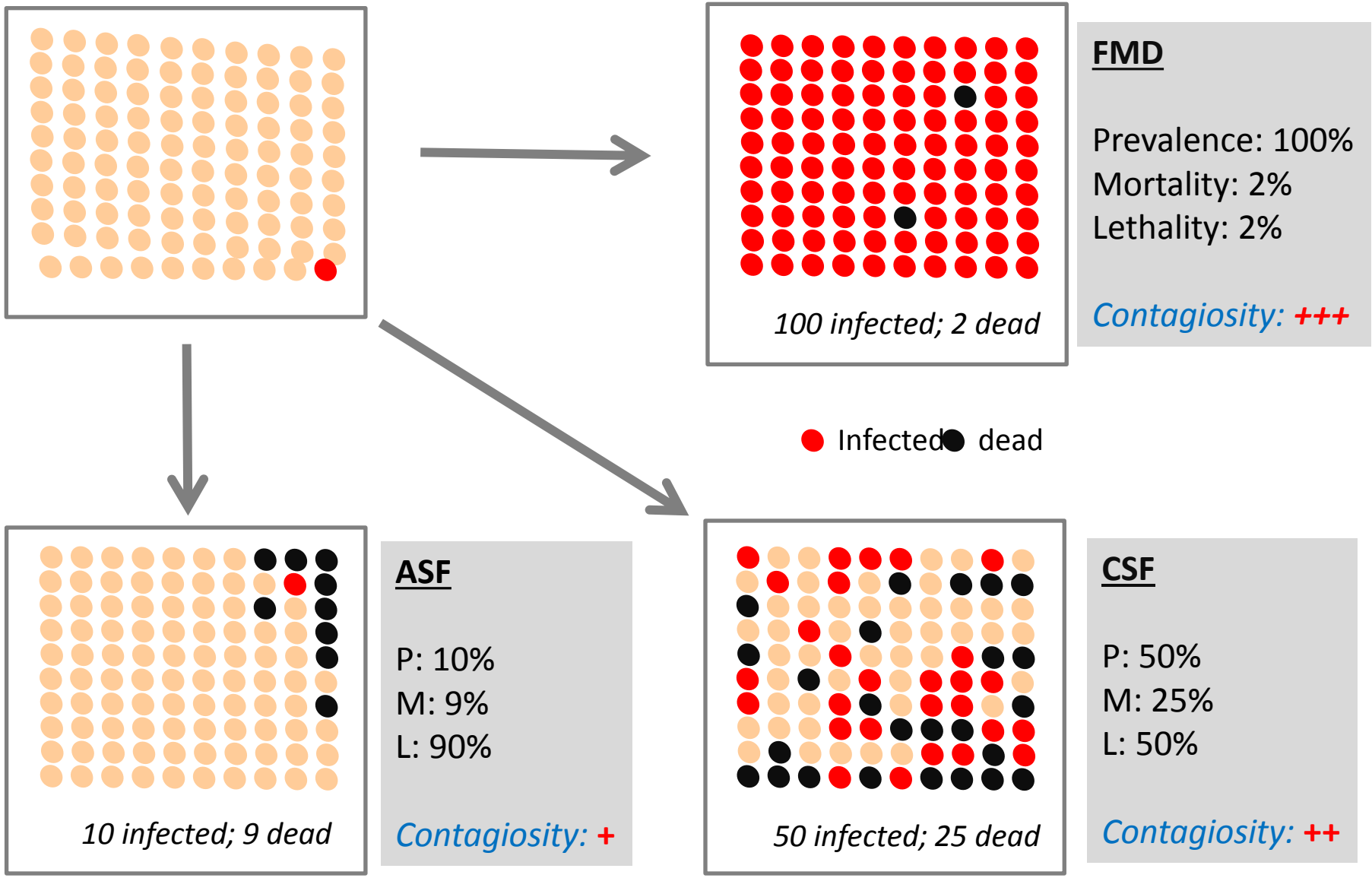
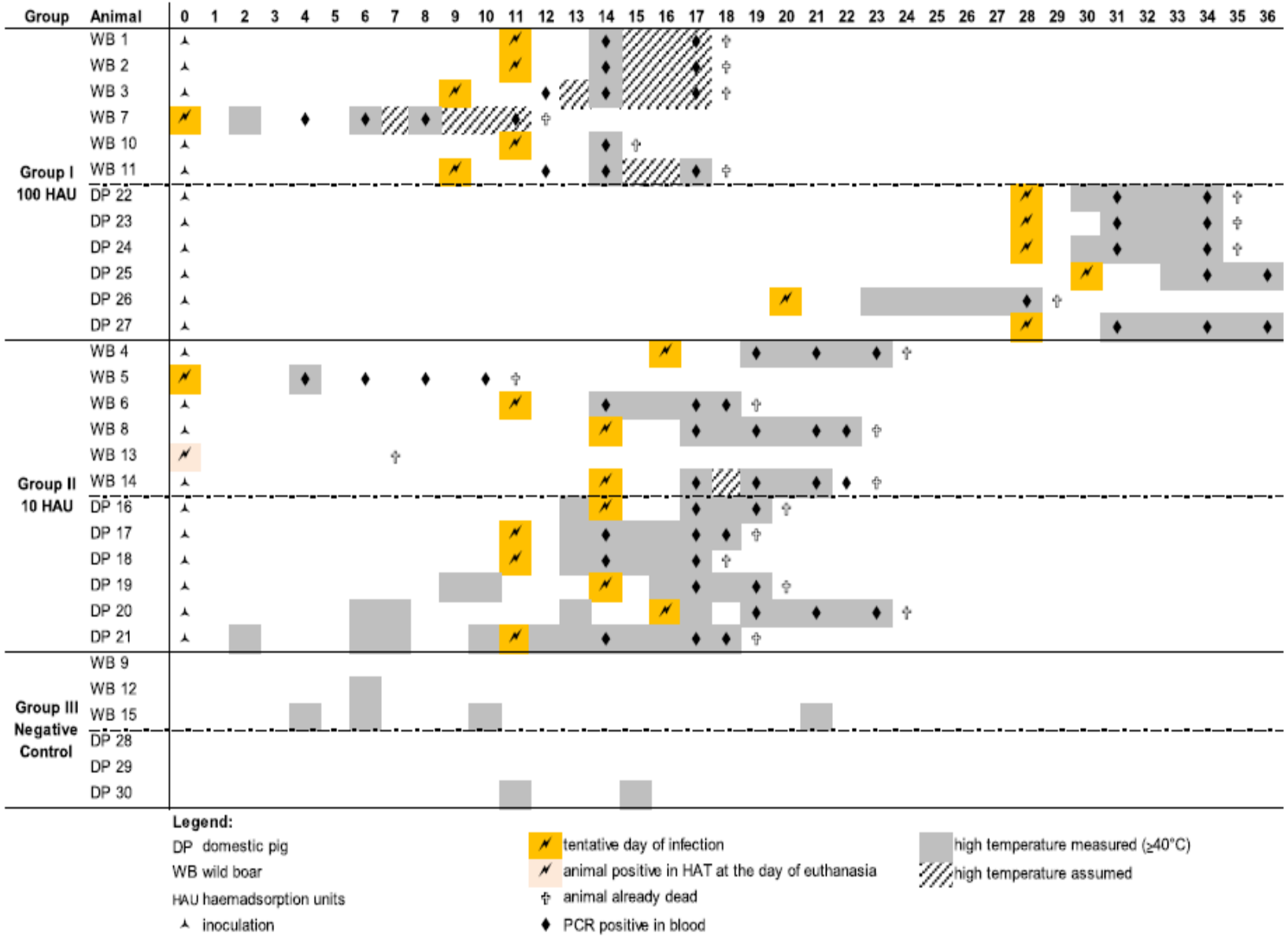
- Contagiosity index


100 infected; 2 dead
FMD
Prevalence: 100%
Mortality: 2%
Lethality: 2%
Contagiosity: +++
Infected
dead
10 infected; 9 dead
ASF
P: 10%
M: 9%
L: 90%
Contagiosity: +
50 infected; 25 dead
CSF
P: 50%
M: 25%
L: 50%
Contagiosity: ++

Low-dose infection of pigs and wild boar with ASFV



Pietschmann et al., 2015

Contagiosity index : 2 / 24 = **0,08 (8%)**

- ***Virus dose***

- ***Inoculation way***
  - *das virus „must“ go under the skin*
  - *no droplet infection !!*

- *Condition/Constitution of the animal*

- *Management, ….*

Lessons learned from experimental infections

Lethality high (>90%)
(number of deaths over number of infected)

Mortality low (<10%)
(number of deaths over number of individuals in the affected population)

Contagiosity low
Slow infection… takes its time…

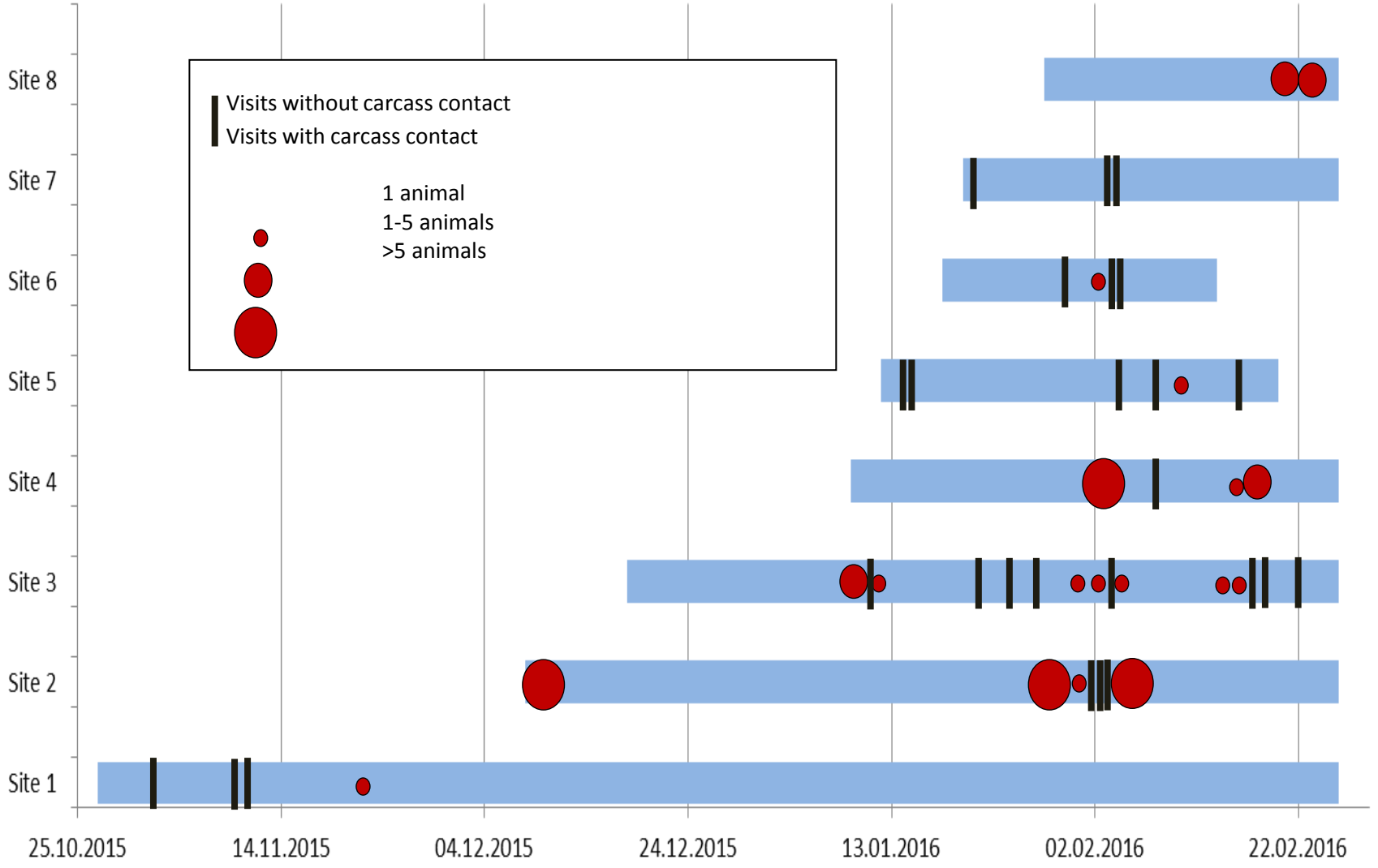
Not necessarily a density dependent process

Low contagiosity and virus survival in infected dead wild boar EXPLAIN:

- Absence of a real epidemic wave; the virus moves slowly 20-40 km/year)
- The re-appearance of the virus in the same hunting grounds form which it disappeared several months before;


Night life

Carcass study



A directly trasmitted virus wich transmission is complicated by infected maggots, insects and carcasses (the density independent part of the transmission)

Insects

- Role of maggots during summers
- Role of scavenging insects in attracting wild boars
- Role of scavenging insects in the virus overwintering

BIOSECURITY IN FOREST

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- Reducing the viral load in the environment

Reduced number of infected wild boar

Reduced probability to indirectly introduce the virus into a pig farm (back yard/non commercial)

- Reducing the probability to observe the long-distance geographical spread of the infection; **JUMPS**

Disposal of carcasses

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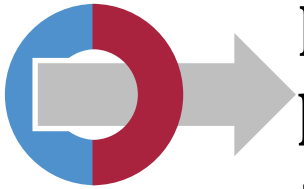
Disposal of carcasses reduction of the environmental load



Reducing the environmental load of the virus: management of infected carcasses

- Infected wild boar carcasses are actively searched in order to reduce the environmental load of the virus
- Infected wild boar carcasses: maintain for long time the virus in the environment (NO GEOGRAPHICAL SPREAD)
- The virus, through infected carcasses, overcomes the low density/absence of wild boars during certain periods of time;
- Infected carcasses removal reduces the environmental load of the virus => less infected wild boars, less probability to have outbreaks in domestic animals;

Detection of carcasses

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- Awareness
- Economical incentives
- Public bodies involvement (Forest workers, Army etc.)
- Hunting regulations
- Trained dogs;
- Etc.

(Take a walk on the Baltic sea shore)

Photo: I.Koloda (LV)

Collection of carcasses

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Private cars cleaned and disinfected

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How deep

- No magical recipes
- Depends on soil (sand, rocks etc.)
- As deep as possible (sic!!!) winter?
- Use of repellents (available from the market; kerosene, gasoline etc.)

Best options

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- Each found dead carcass should be considered as positive (but always tested)
- Carcasses should be safely transported and disposed (rendering) and possibly stored in the hunting ground until transport is provided under Veterinary supervision;

- Carcasses could be buried/burned locally
- Private cars: always disinfected

- How to guaranteed that dead wild boar are buried in a proper way?

Check at least **59** buried animals!! You will have a good estimate on how your system works!!

Biosecurity during hunting

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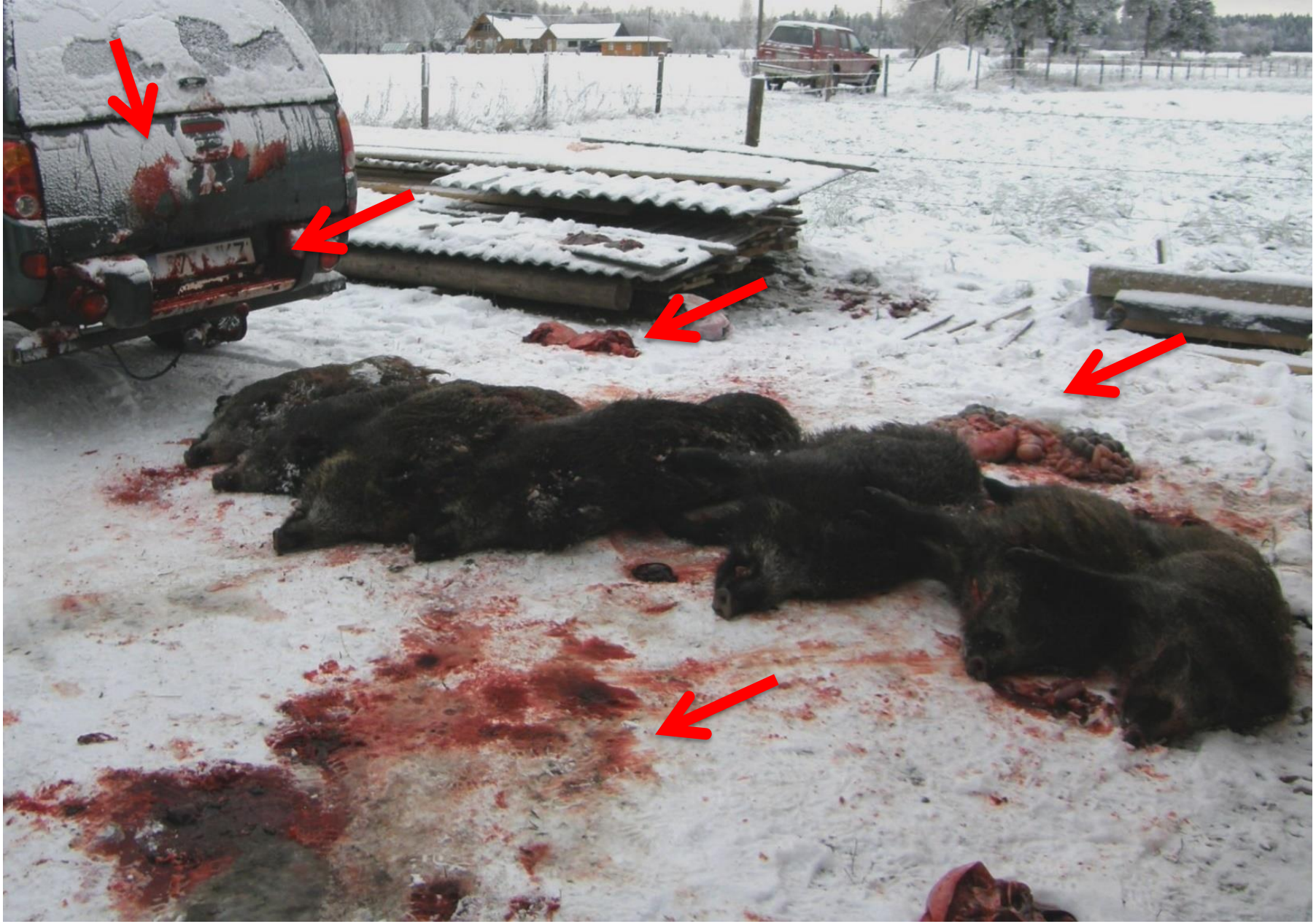
- Aim of hunting: reduce the wild boar population size and density
- Aim of biosecurity during hunting: reduce the virus JUMPS;

- If hunting will indirectly increase the long distance spread of the virus: **hunting is counteractive in respect to ASF eradication/control**;

- It would be better to leave an infected dead wild boar die in the forest, rather then to take the risk of spreading the virus outside the infected forest.



Driven hunt with dogs – effective method to reduce the population density but also effective in contaminating hunting tools

1 Training

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- Hunters shall be authorised to hunt in the at risk or infected area area only after a specific training on basic hygiene and biosecurity practices;

- Provide trainings for hunters;
- Explain the epidemiological role played by wild boars;
- Explain the major risk linked with hunting activities;
- Unfortunately: explain that they have no advantages in declaring the presence of the infection in their hunting grounds

2: from forest to dressing area

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- TRANSPORT OF SHOT ANIMALS

  Transport of hunted animals to the dressing facility shall be carried out using dedicated vehicles. Private cars shall be parked outside the hunting house, possibly on the main road.

- Difficult to ask and thus to achieve;
- Cars could be highly involved in spreading indirectly the virus;

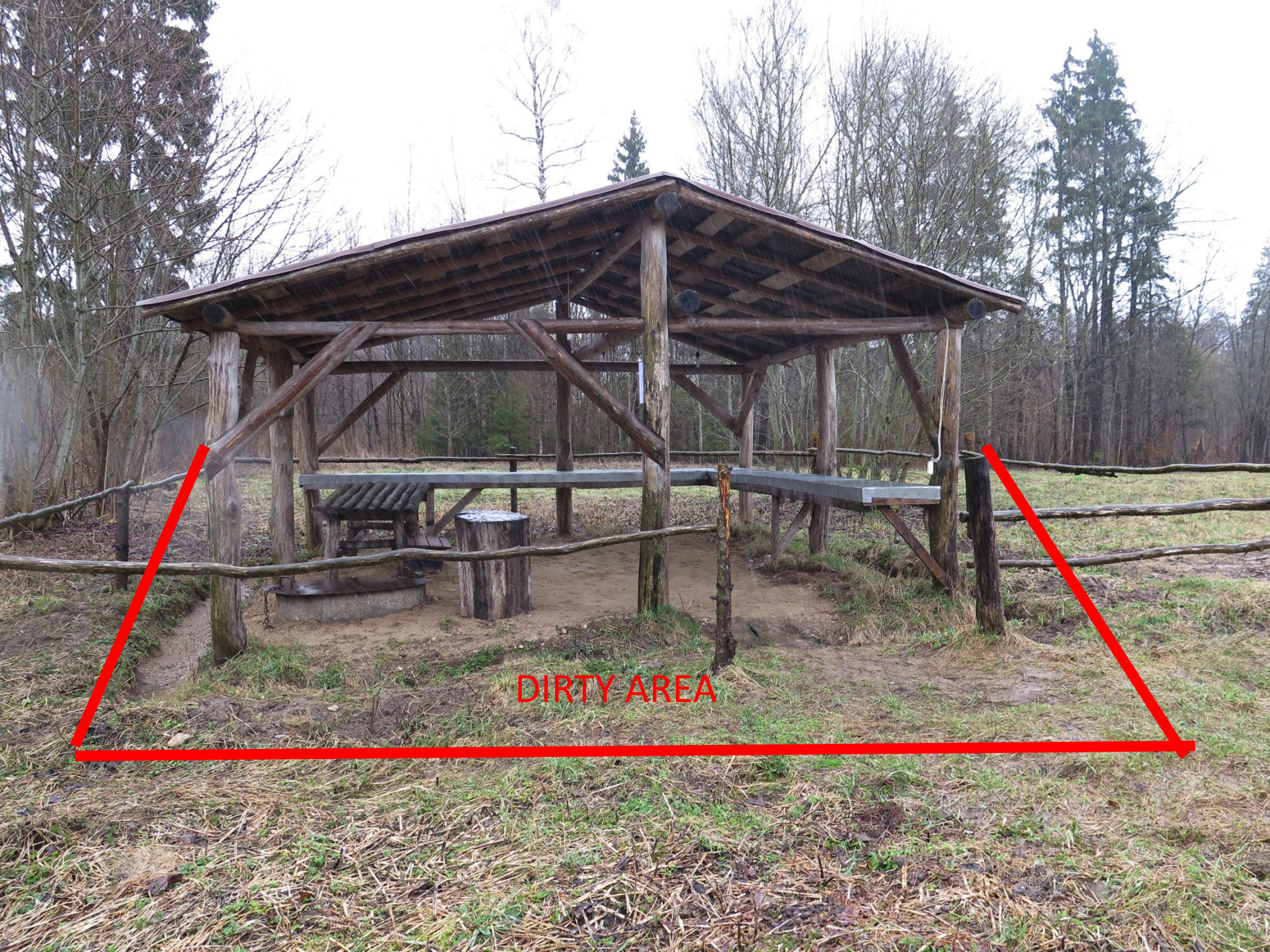
3 Dressing area

Dressing facilities must ensure the basic biosecurity;
They should be authorised by the Veterinary Service

•Dressing areas MUST be organized in order to minimize the risk of viral contamination;

•They can be located in open air, but they have to be used exclusively for dressing animals (no party!!!)

•The dressing area must be perceived as the main at risk area for virus contamination, hunters will recognized it, will avoid it, will enter cautiously


DIRTY AREA

4 Dressing tools

- Animal dressing shall be performed using appropriate aprons which must remain in the facility. Working tools cannot be transported to other places.
- Hunting suits, including boots/shoes should be kept in specific bags. Boots and apron shall be cleaned and disinfected after each use.
- Dressing rooms are to be equipped with effective disinfectants.

•Disinfectants could be supplied by the Veterinary Service or bought directly by hunters. Use only effective disinfectants.

•The requested procedures need short time to be implemented and they are not really expensive.

5 OFFAL

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- Offal shall be never abandoned in the forest;
- Offals shall be stored in proper containers inside the dressing areas;
- Containers shall be cleaned and sprayed with effective disinfectants on a regular basis (at least at the beggining and at the end of the main hunting season) and every time an infected wild boar have beed strored;

6 Ground pit storage system

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•Ground pits can be easily dig and managed; offal can be eliminated once a year by authorized enterprises or supervised veterinary procedures;

•Ground pits for offal disposal should be at least 1,5 meter deep, fenced and closed with a locked closure. Pits should be located in close proximity to the dressing room.

7 Identification of carcasses

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- Hunted wild boar shall be checked and tested for ASF (both antigen and antibodies detection) and the carcasses released only when resulted negative to ASF.

•Identification of carcasses is easy and frequently requested by the usual hunting procedures;

•Disinfection of the dressing and storage area should become a simple routine even to increase the quality and safety of the meat.

8 Waiting for test results

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- Wild boar carcasses shall be individually identified before storing. In case of ASF positive outcome all stored carcasses have to be disposed under veterinary supervision and the whole dressing room cleaned and disinfected.

In general

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No part of hunted wild boar shall leave the hunting area unless tested for ASF and the carcasses released only when resulted negative to ASF.

All the possible infected material HAS to be confined inside the infected hunting ground

Hunting shall minimize the spread of the virus outside the infected forest

Mushroom and forest fruits

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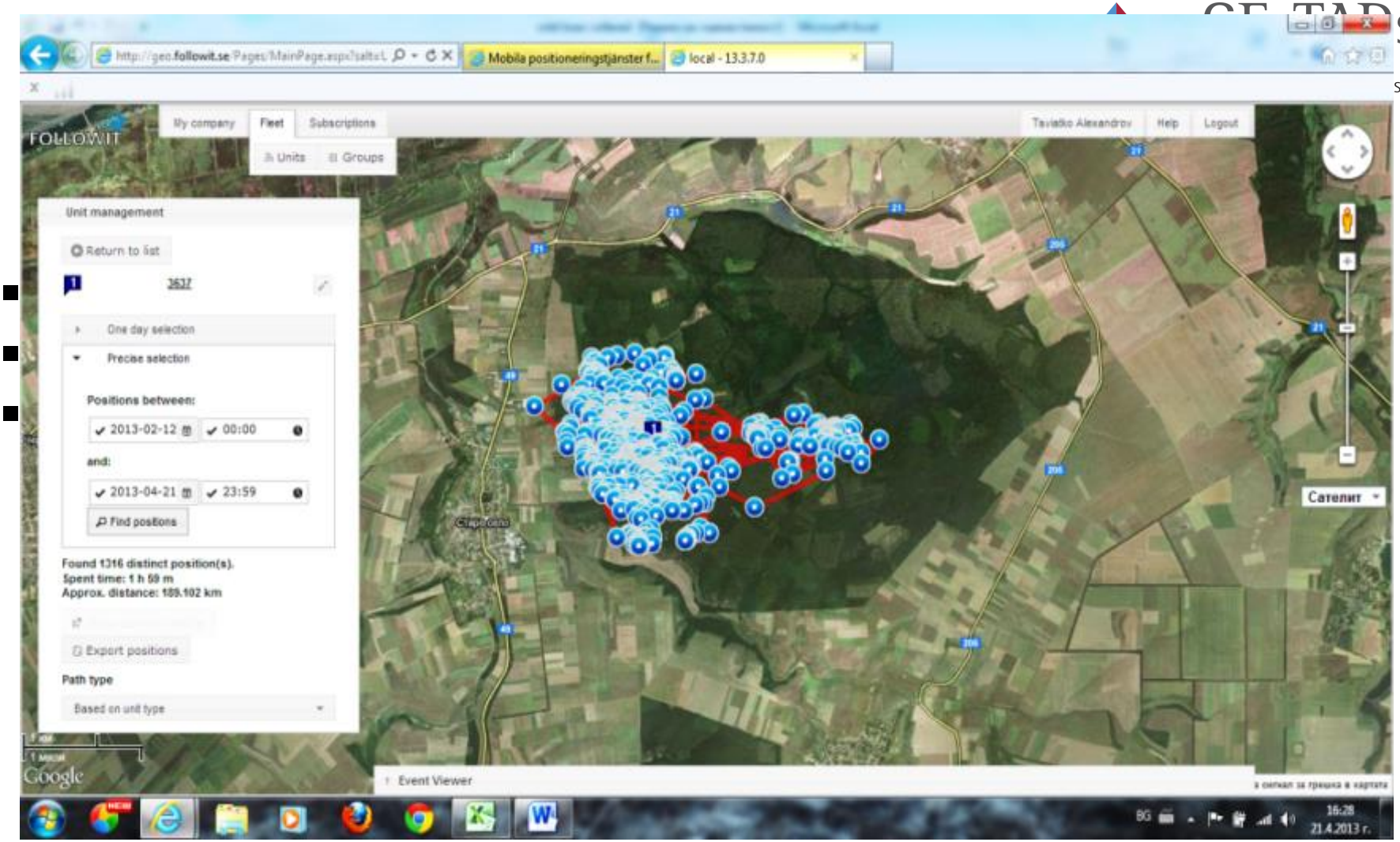
Simulated situation:
10.000 ha
100 wild boar
2% weekly incidence

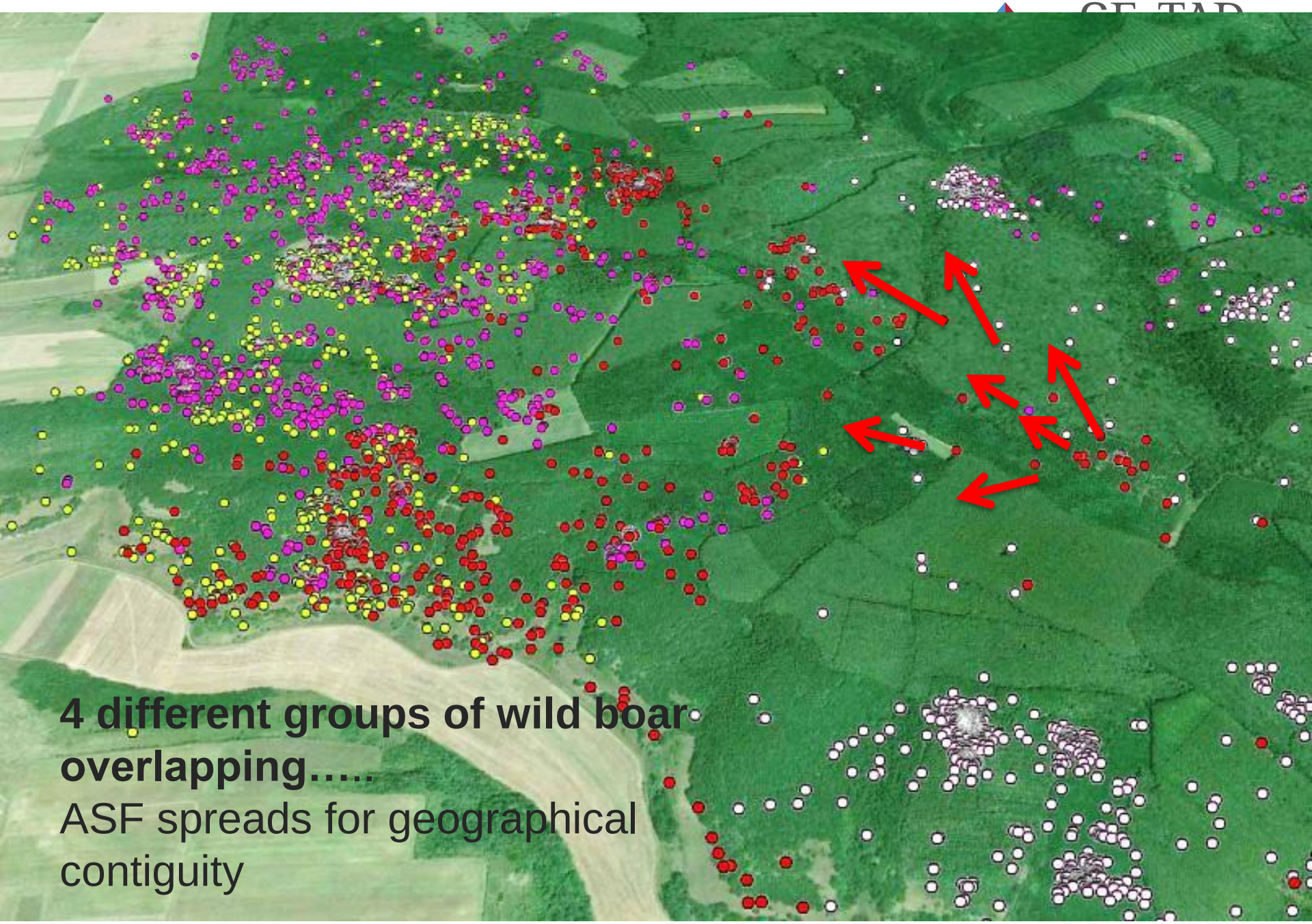
Walking **10.000 steps** (1 hour; 6 km) there is **1/18.000** probability to step on an infected scat;
3 persons walking 8 hours: 1/750 probability to step on infected material

There is a weak probability, but it should be better assessed knowing n. of persons that go in the forest, how long, how often and how many of them have pigs at home;

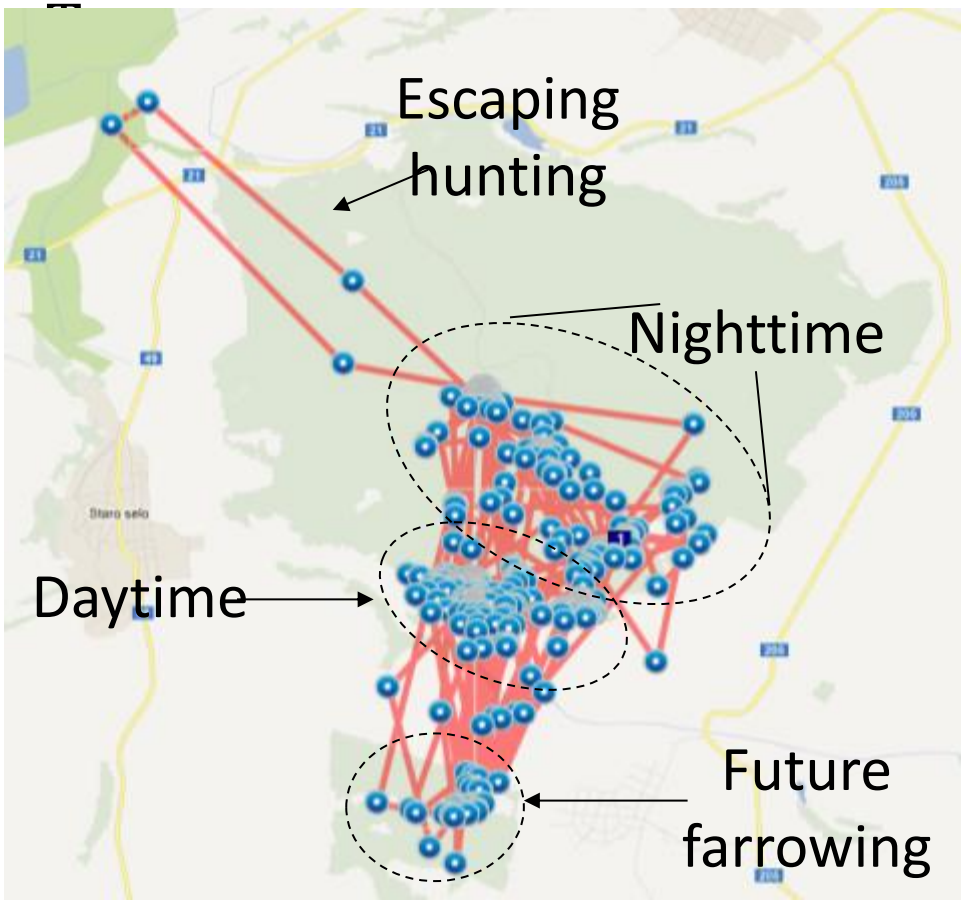
Hunting management



Wild boar movements: Home range: 7 km^2


4 different groups of wild boar overlapping…..
ASF spreads for geographical contiguity

Wild boar long distance movements



FAO data on FMD in wild boars

Wild boar management

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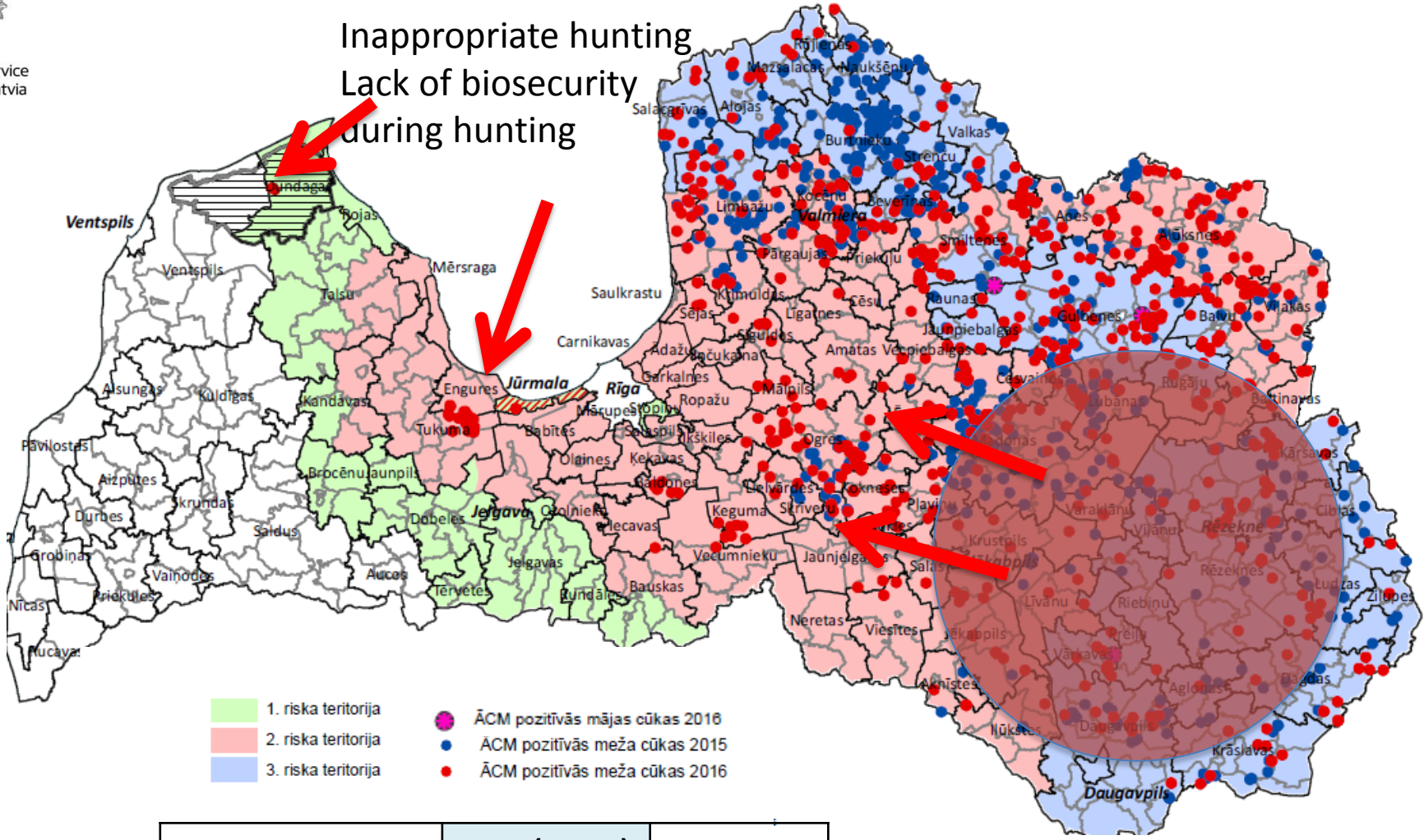
- Improper hunting system
- Lack of biosecurity during hunting
- Are probably the most relevant factors enabling the long distance spread (jumps) of ASF virus in wild boars.

Food and Veterinary Service Republic of Latvia

ASF in wild boar (26.10.2016.)

Inappropriate hunting
Lack of biosecurity
during hunting



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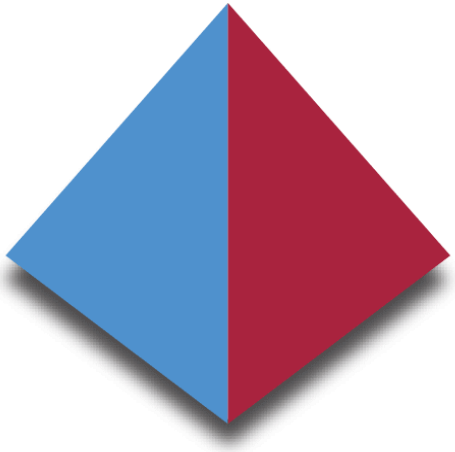
Carcasses removal and wild boar density



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Thank you

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N. Leboucq
GF-TADs Secretariat