

ASF in Caucasus: lesson learned

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ASF



- belongs to Transboundary Animal Diseases (CSF, FMD etc) internationally recognised
- Notifiable at international level (OIE)
- In practice: an infected Country is not allowed to trade internationally

ASF



- The infection causes a very important disease with high mortality and the control/eradication campaigns are based mainly on stamping out;
- Due to disease mortality and stamping out policy the whole pig sector of infected Countries is largely affected by the infection

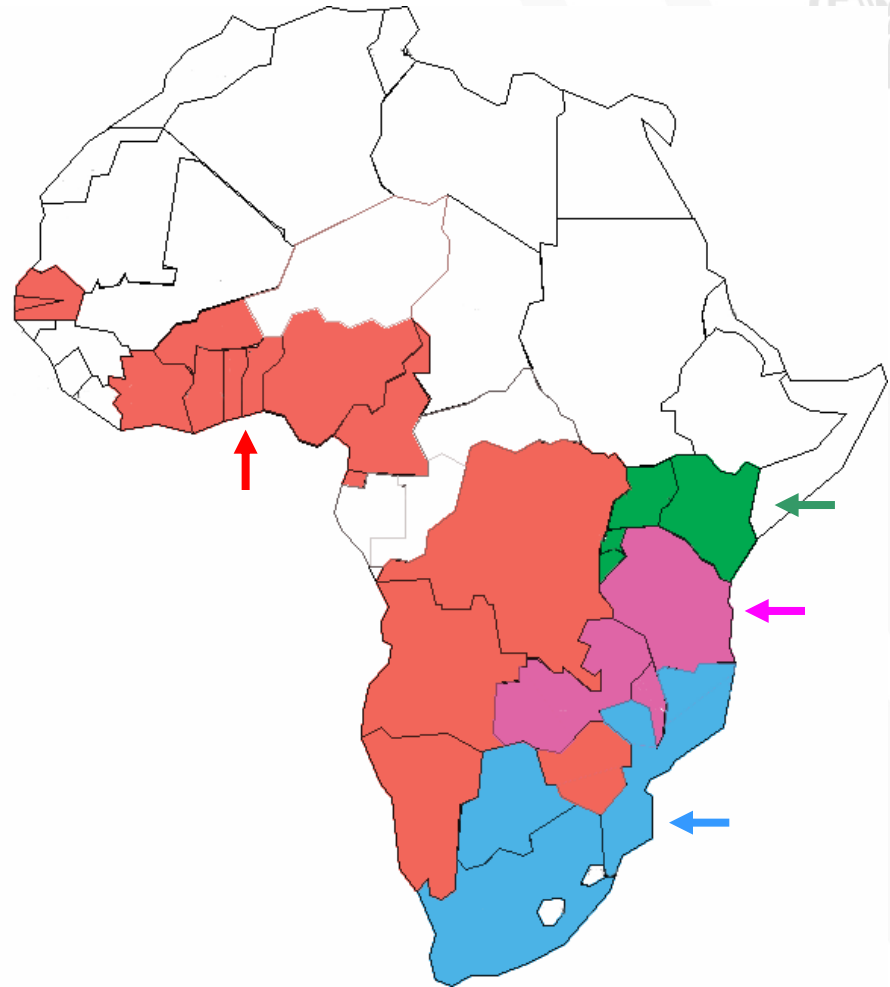
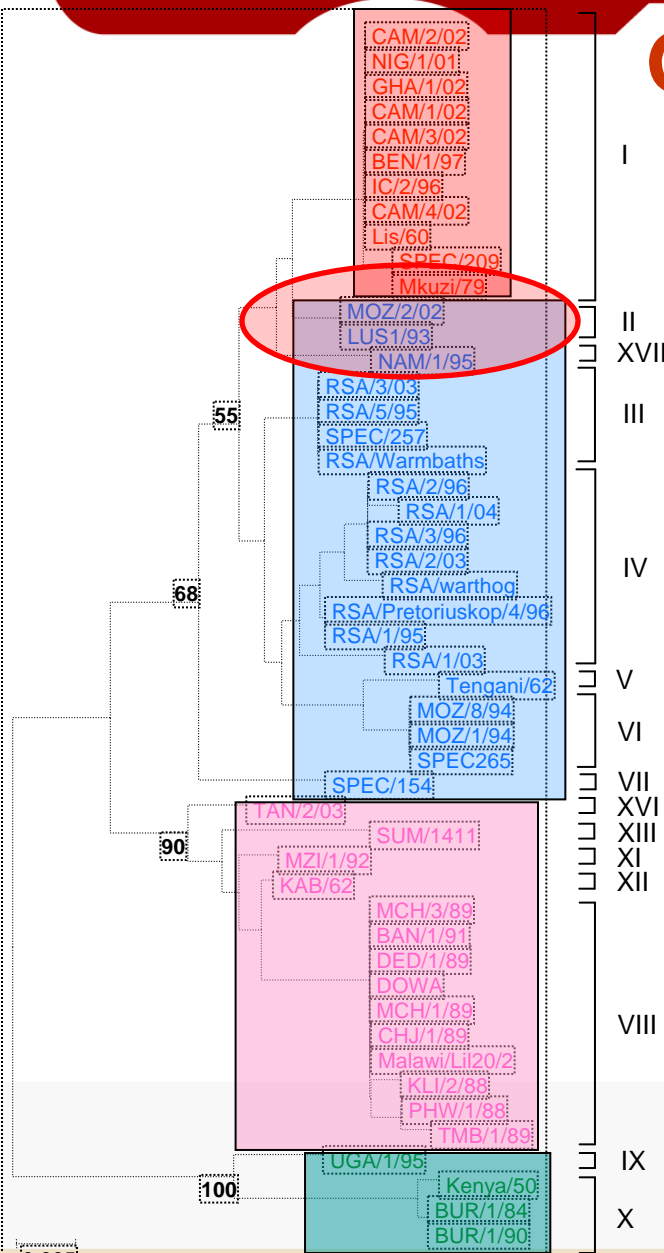


African swine fever is an African disease

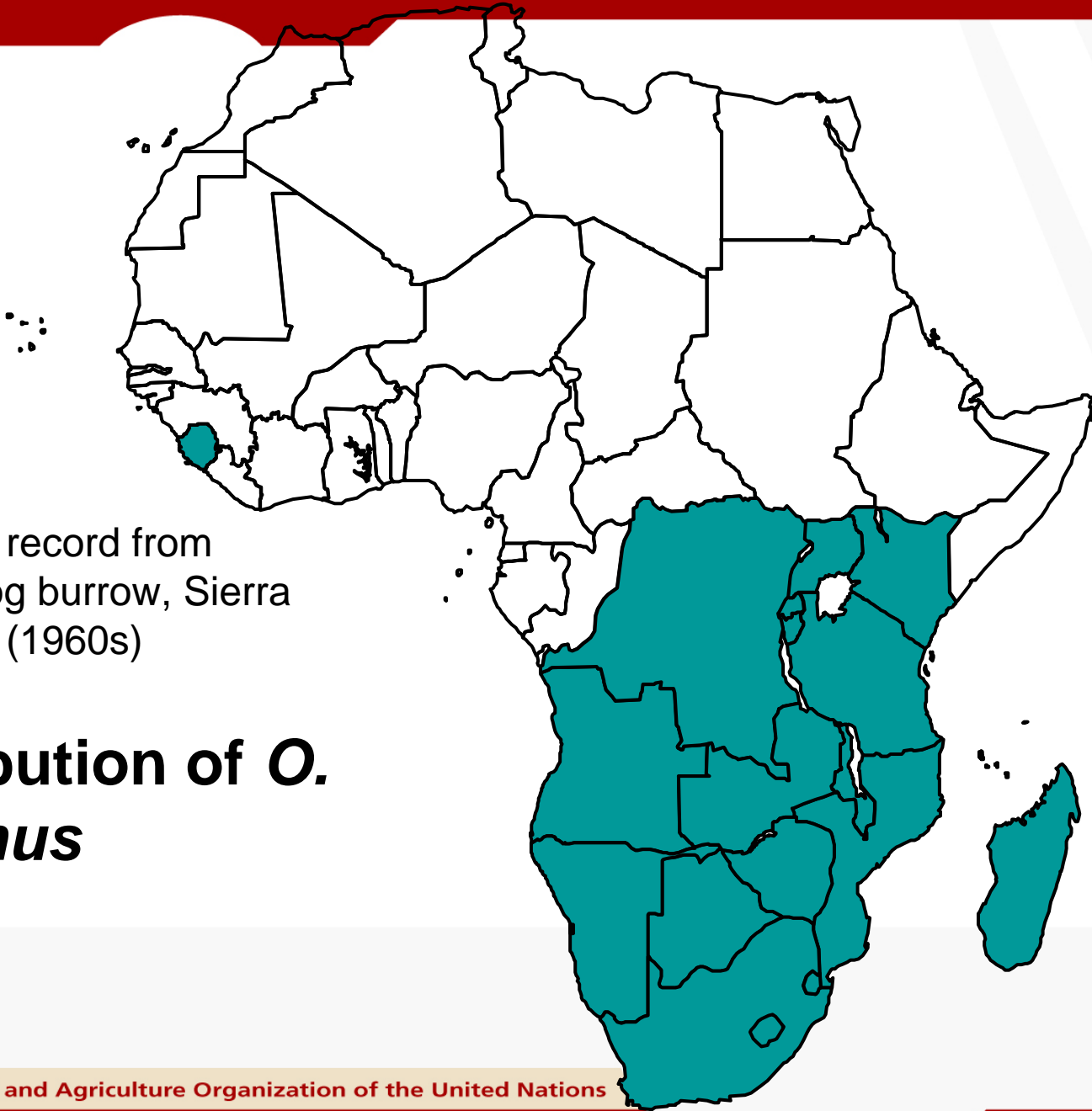
- Its natural hosts are the African wild pigs;
- In *Ornithodoros* ticks, which can remain infected for life, can live for several years, and produce infected eggs that develop into infected ticks;



Genetic Diversity



Neighbor-Joining tree depicting the p72 gene relationships and geographical distribution of the major ASFV genotypes



Single record from
warthog burrow, Sierra
Leone (1960s)

Distribution of *O. porcinus*

The hosts



- Members of the pig family (Suidae) are susceptible to infection.
- Clinical disease is seen only in domestic pigs and in the European wild boar (both *Sus scropha*).
- The virus does not naturally infect any other animal species, including humans.

Geographic Distribution



- Endemic in sub-Saharan Africa
 - Highest area of incidence: Equator to northern South Africa
- Found in pigs and wild boars
 - Sardinia, Portugal, Spain
- Eradicated from Cuba, Haiti, the Dominican Republic



HOW ASF can be maintained for long time

- 1) In its natural hosts: the African wild pigs;
- 2) In *Ornithodoros* ticks, they remain infected for life, live for several years, produce infected eggs that develop into infected ticks;

ASF maintenance



- 3) In **chilled or frozen pork meat; dried, salted or smoked pig meat products, untreated pig slurry;**
- 4) In **large populations of susceptible pigs** (domestic pigs or wild boar)



Direct transmission:

- Direct contact with infected pigs (including incubating pigs 24 – 48 hours before clinical signs appear)
- Direct contact with carcasses of pigs recently died because of ASF;



Direct transmission

- Direct contact with pigs that recovered from clinical signs shortly after recovery.
- Direct contact with pigs suffering from chronic ASF (caused by infection with viruses of lower virulence).



Indirect transmission:

- Eating the meat of infected pigs if it has not been cooked sufficiently to destroy the virus.
- Bites of infected *Ornithodoros* ticks.



ASF in natural hosts

The infection **CANNOT BE ERADICATED** where wild pigs and ticks are fully involved in the life cycle of the virus

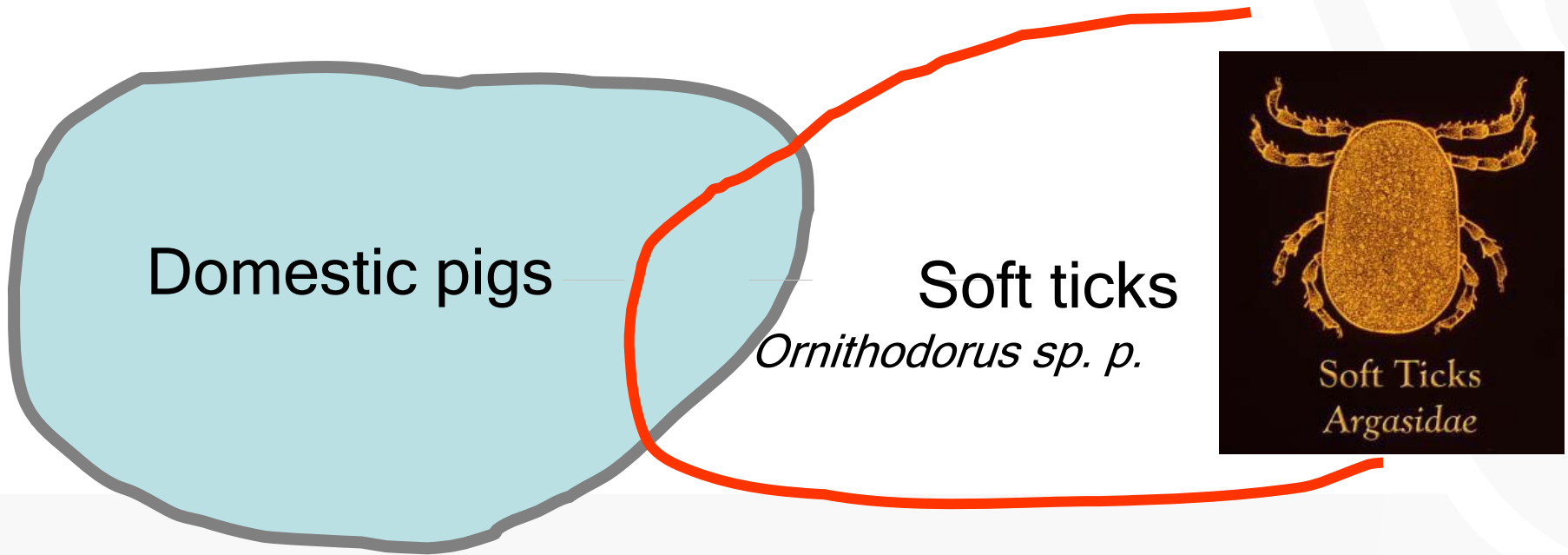


FIRST COMPONENT: A SUSCEPTIBLE DOMESTIC PIG POPULATION

Domestic pigs

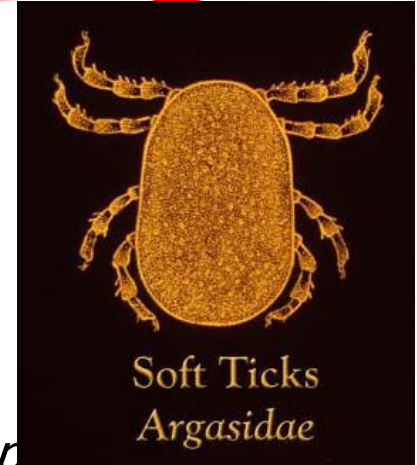
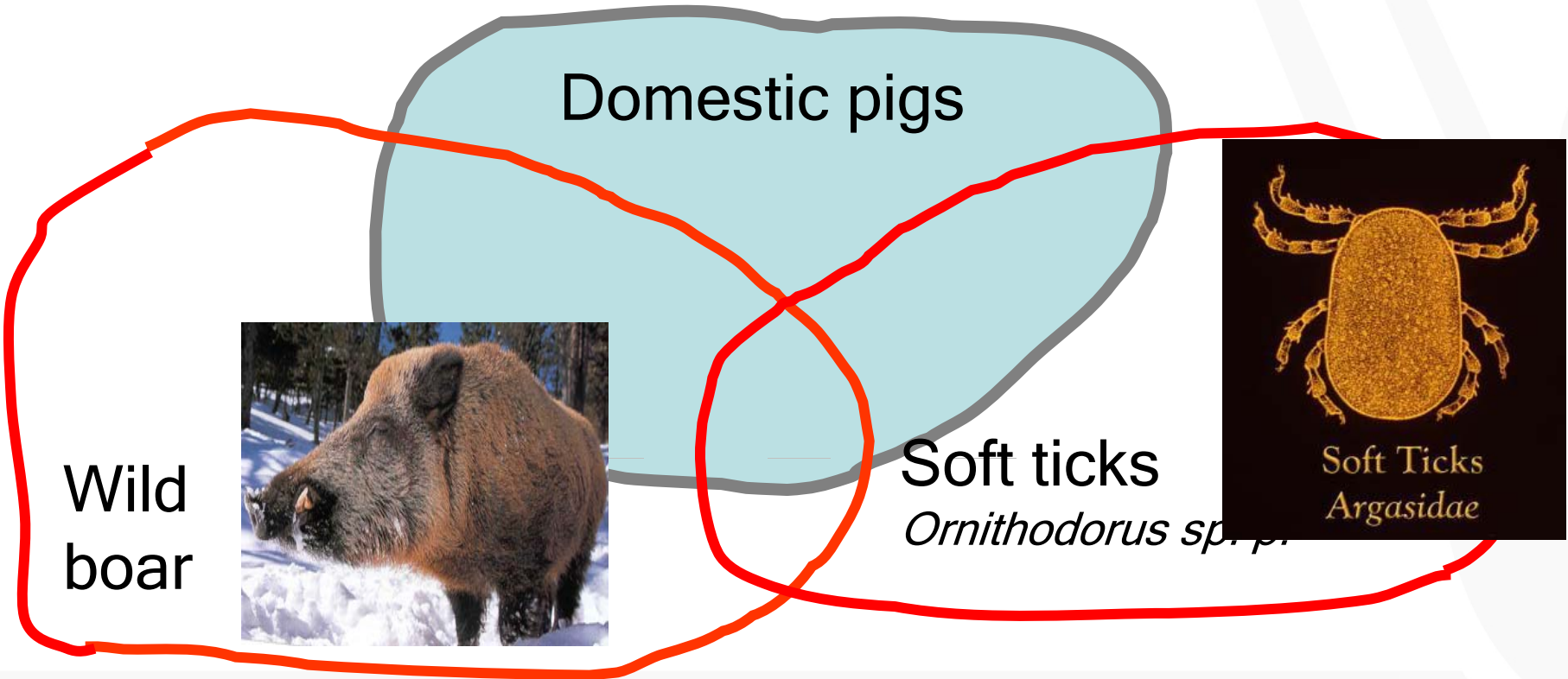


SECOND POSSIBLE COMPONENT: SOFT TICK POPULATION

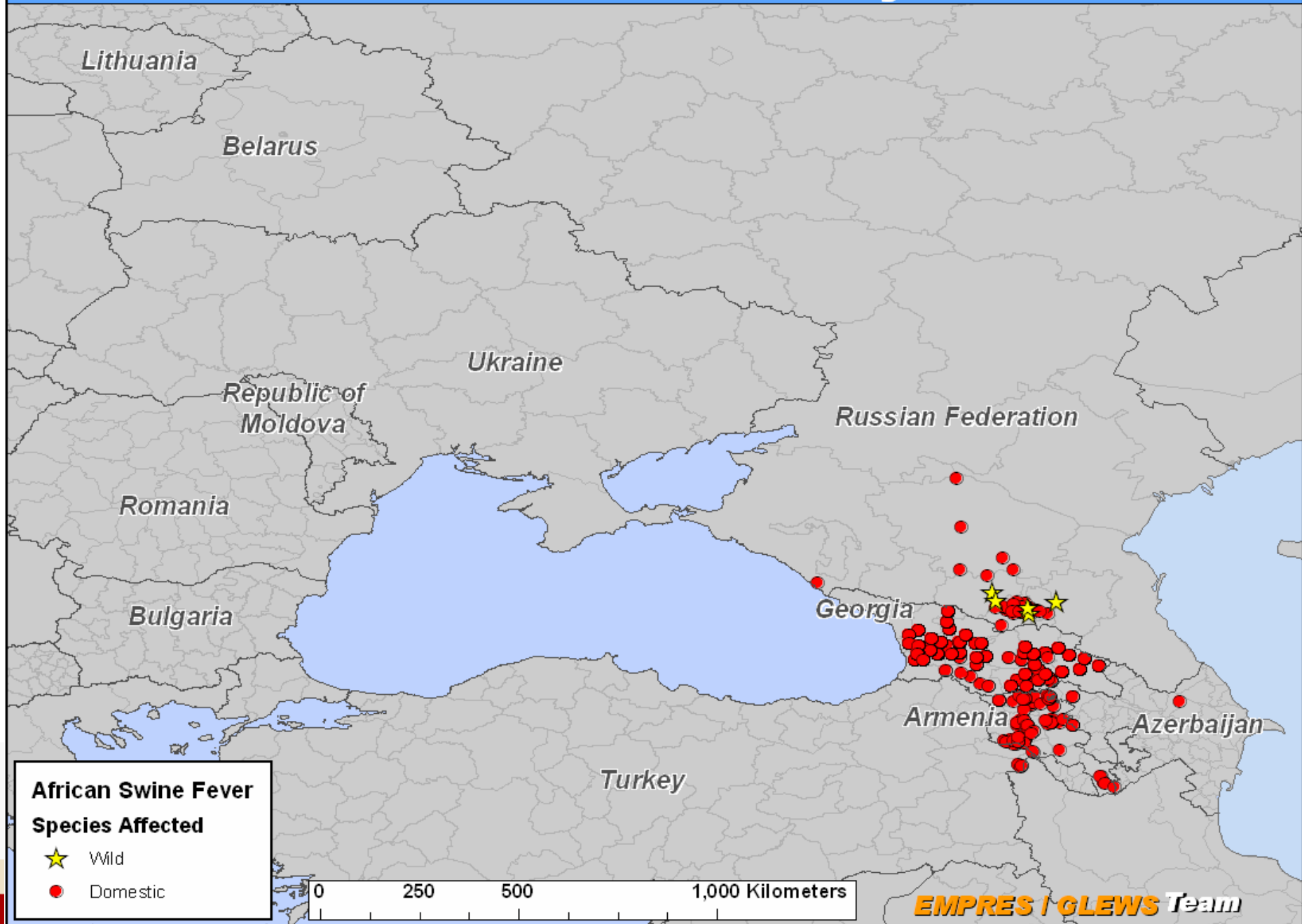




THIRD POSSIBLE COMPONENT: WILD BOARS



ASF update: Outbreaks reported in domestic pigs and cases in wild boars: Situation from 2007 through 2009





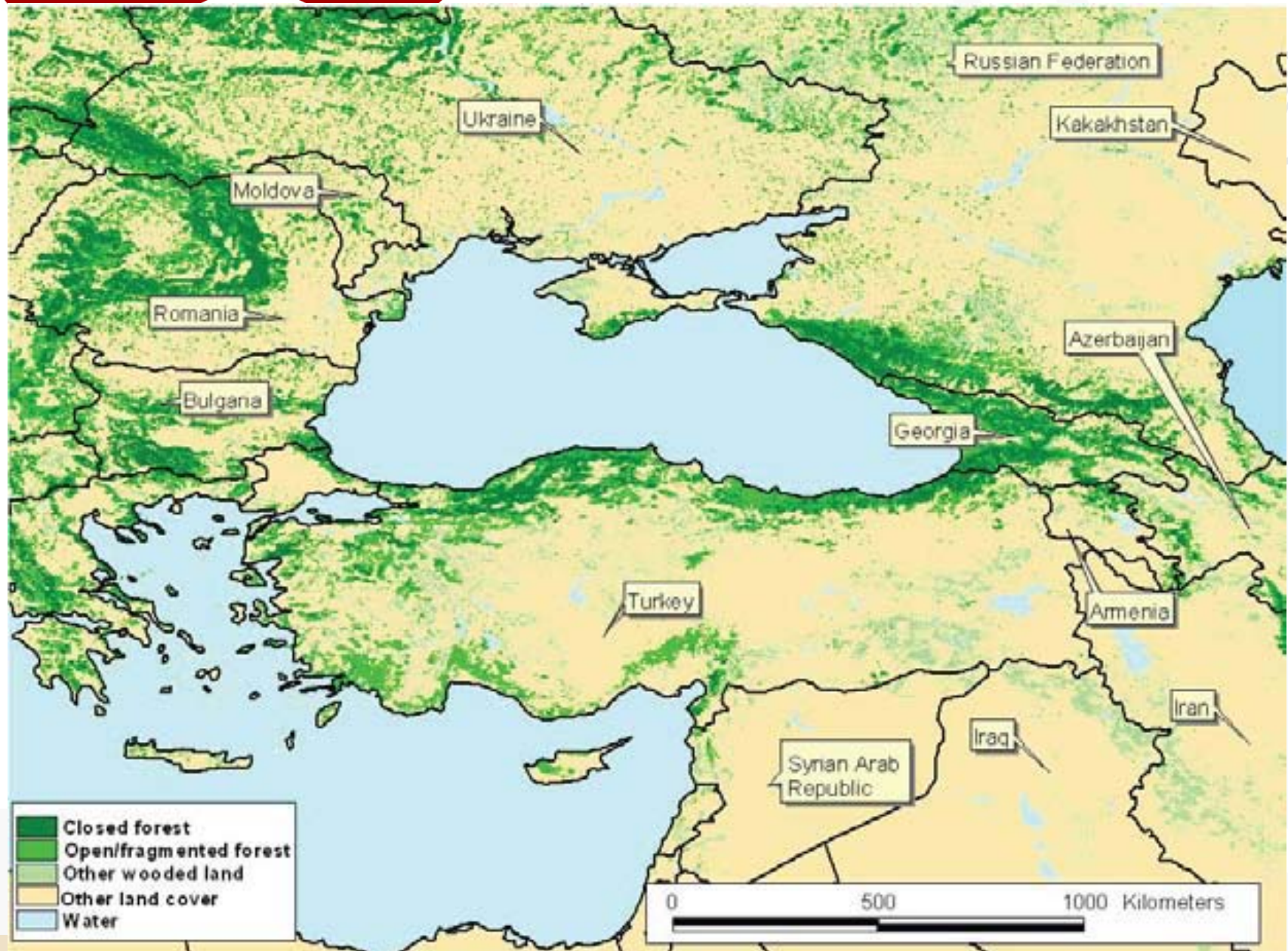
To prevent the introduction in free Country/Area

- Border controls
- Ban of swill feeding
- Biosecurity in rural areas (wild boar/free ranging pigs)

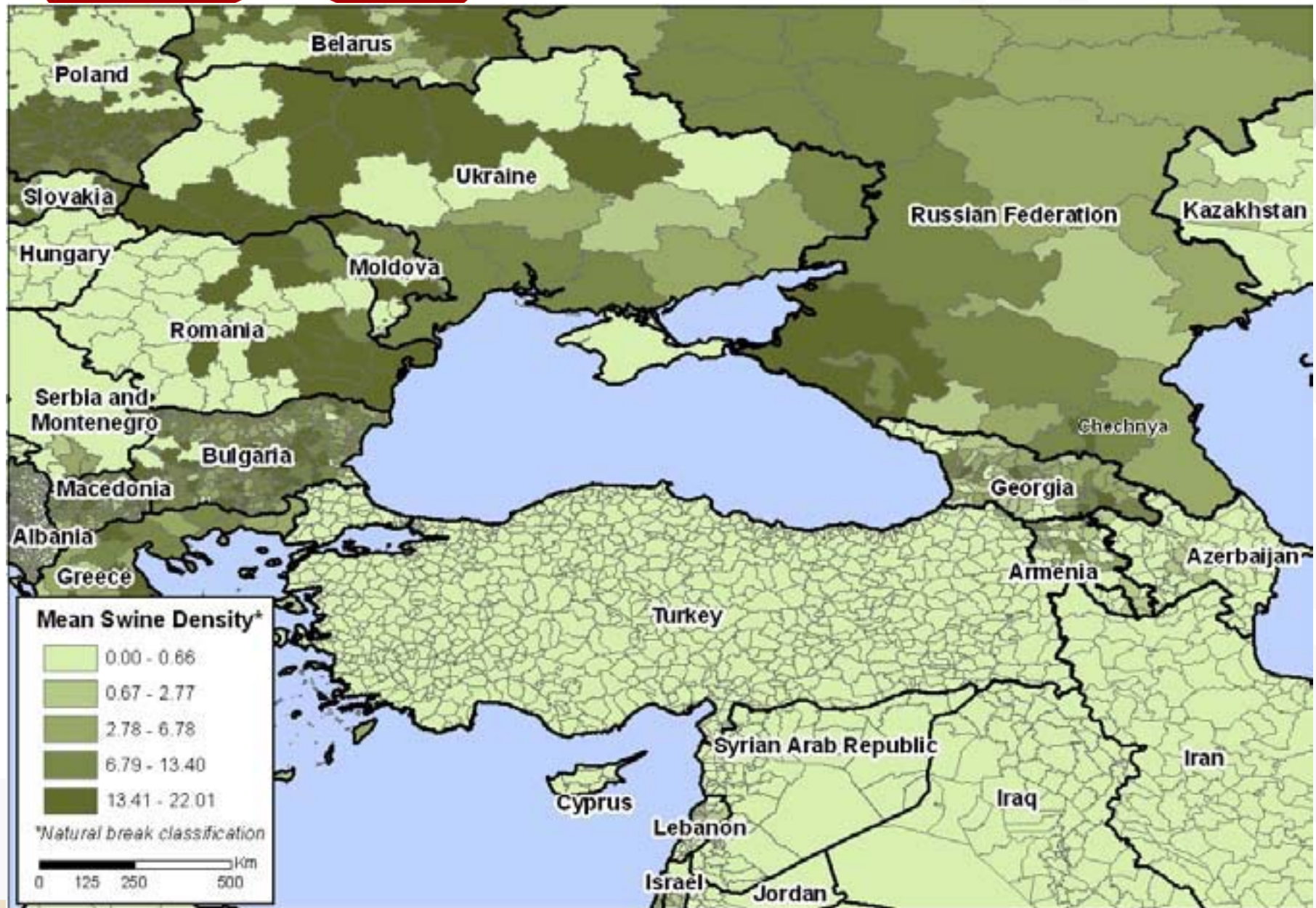


To control ASF: necessary knowledge

- Pigs distribution and local breeding systems
- Wild boar geographical distribution and abundance
- Epidemiological role played by wild boars
- Ticks geographical distribution
- Epidemiological role played by ticks



Food and Agriculture Organization of the United Nations



Food and Agriculture Organization of the United Nations

PEACE TIME

ASF is not present in any neighboring or commercial partner countries

- Build up a specific legislation
- Maintain a basic level of knowledge in selected personnel
- assure a basic level of diagnostic capability to detect ASF virus and antibodies (ELISA or IF)
- permanent check of the ASF international situation
- Refreshment courses (all Vet. Serv.) at least every 5 years

INTERNATIONAL ALERT

ASF is detected in neighboring or commercial partner countries

- Update, remind, disseminate **suspect case definition** to stakeholders
- Enhance biosecurity in at risk populations, compartments, areas
- Laboratory capability upgraded to diagnosis the virus, contact with international reference laboratories established
- Field Veterinarians (public and private) alerted and trained to sample and correctly deliver samples to the lab
- Material for field sampling available at local level



- Any individual or cluster of swine that show:
- **1. CLINICAL SIGNS:** high fever (>41.5° C)
nervous disorders
high lethality rate (> 30% affecting all age classes)
sudden death without any prior clinical signs; and
- **2. PATHOLOGY** Hemorrhagic lymph nodes
Enlarged and congested spleen; and
- **3. Farm History:** a history of recent pig introduction to the holding or the practice of swill feeding or allowing scavenging to rubbish dumps.
- ***Confirmed case - Laboratory***

SUSPECTED CASE

Clinical symptoms pathological lesions
meet the
OFFICIAL DEFINITION

- Immediate alert of CVO and laboratories
- Sample collection in the field and deliver to laboratory
- Suspected herds considered AS POSITIVE, movements in and out forbidden etc
- **Lab first action:** to EXCLUDE ASF presence
- **Lab second action:** to exclude other TADs compatible with ASF signs (CSF...)
- **Lab third action:** to diagnosis cause of mortality/disease

CASE CONFIRMED

laboratory diagnosis of ASF confirmed

- Identify the infected and surveillance areas
- “Stamping out”
- Disinfection
- International notification
- Epidemiological investigation
- Build up a surveillance scheme

Hamletic questions



- Passive or active surveillance?
- Stamping out or not stamping out?



When PRIMARY (PASSIVE) surveillance works better than active?

In any situation where:

- Evident Clinical Symptoms
- High lethality rate
- High animal owners awareness
- High Veterinary Service awareness



When ACTIVE surveillance works better than primary (passive) surveillance?

In any situation where:

- No evident clinical symptoms are present
- Low/null lethality rate
- Low animal owners awareness



Stamping out

- a compensation strategy must be in place
- Stamping out must be achieved in a short time in order to prevent the spread of the virus
- Number of secondary outbreaks strongly reduced

Delayed stamping out



- The virus has already spread outside the outbreak
- Only survived – immune animals – will be stamp out
- Number of secondary outbreaks un-affected by the activities

A new approach?



- In Countries where stamping out is not sustainable a new ASF control approach should be applied.
- Bio containment combined with other bio security measures should be tested including a coherent technical definition of:
 - Epidemiological unit
 - Sampling unit
 - Bio-secured unit



Thanks for the attention