



SIAVS
SALÃO INTERNACIONAL
DE PROTEÍNA ANIMAL

SIAVS 2024

African Swine Fever – an
update

Prof. CHRISTIAN GORTÁZAR – Universidad de Castilla La Mancha



Giant forest hog (*Hylochoerus meinertzhageni*), Uganda.

Presentation Structure

- ASF: Why should we care?
- Current ASF situation & control
 - Subsaharian Africa
 - ASF endemic countries in Eurasia
 - Countries where ASF is emerging
 - ASF-free countries like Brazil
- New ASF control tools
 - ASF detection & monitoring
 - Pig farm biosafety
 - Prospects on vaccination

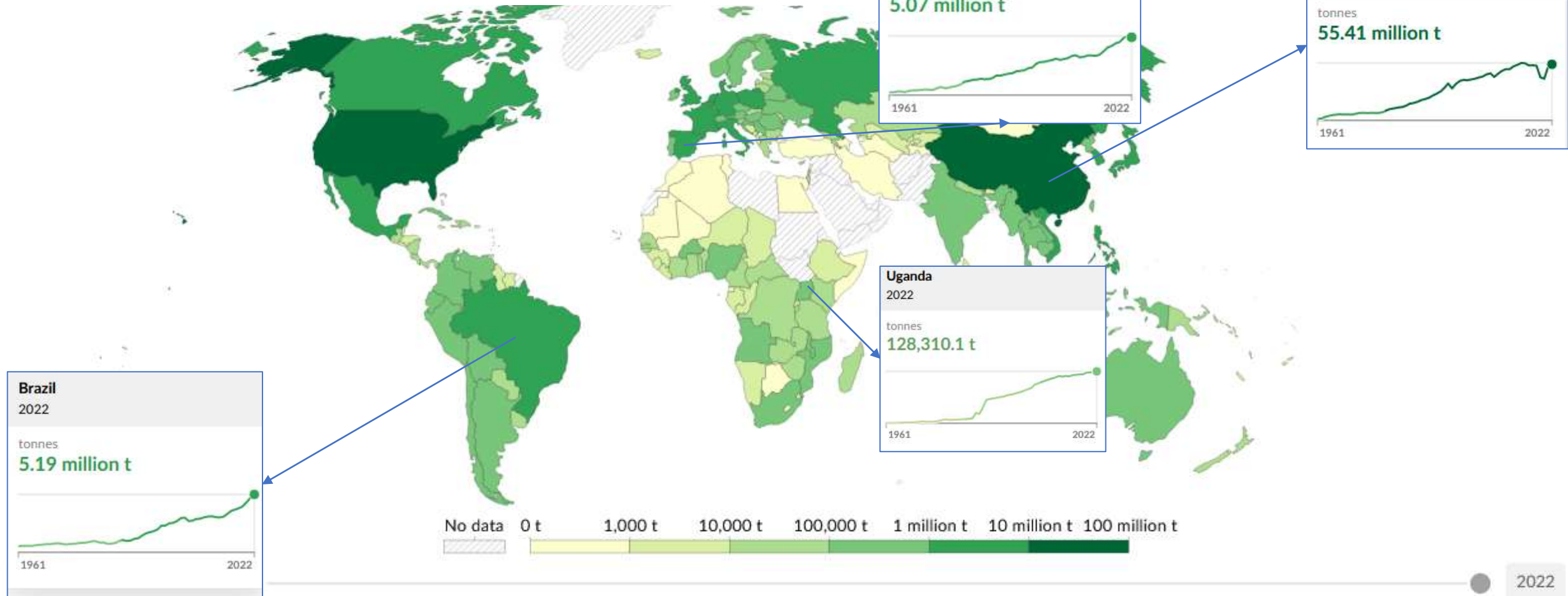


ASF: why should we care?



ASF – Why should we care?

- ASF pandemic and global pork production



Data source: Food and Agriculture Organization of the United Nations (2023) – [Learn more about this data](#)

SIAVS 2024 ASF – Why should we care?

- ASF pandemic and global pork production

Pigmeat production

Expressed in tonnes.

Table Map

50 million t
40 million t
30 million t
20 million t
10 million t
0 t



1961 1970 1980 1990 2000 2010 2022

Our World
in Data

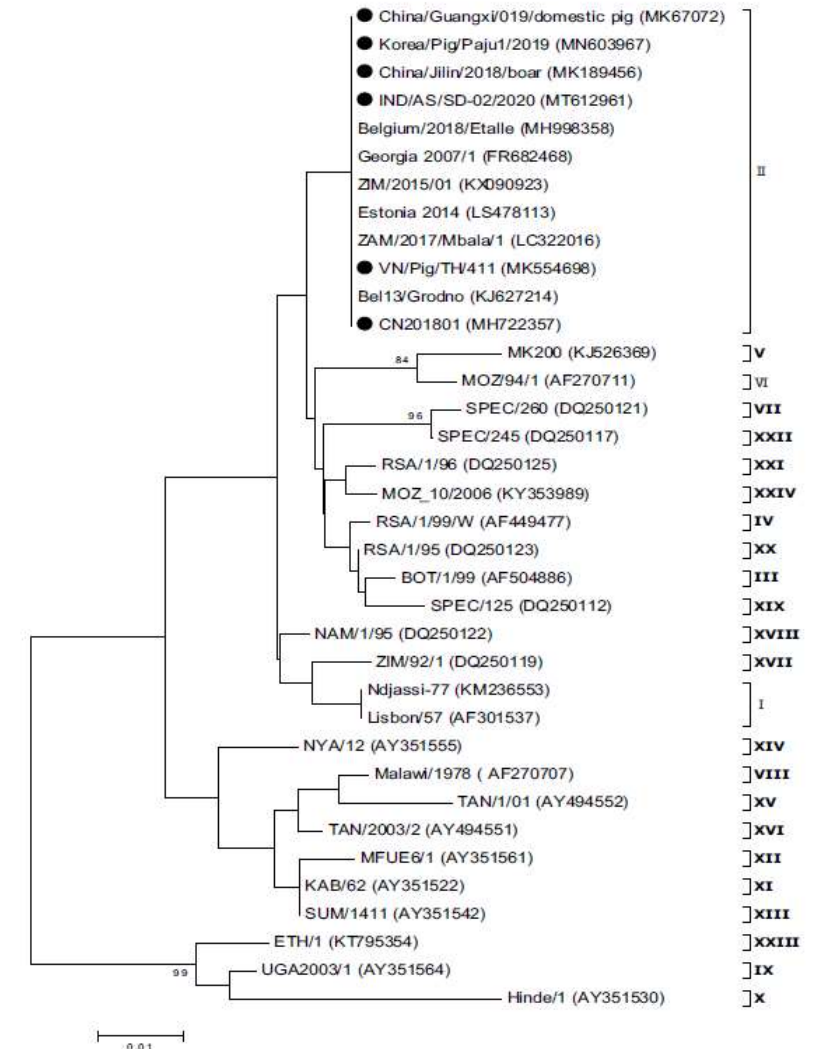
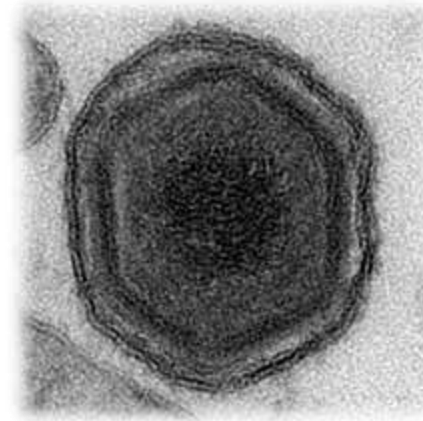
China



ASF – Why should we care?

Virus Genes (2022) 58:77–87

- A resistant virus: can survive in frozen meat for years, in feces, in blood... vectors?
- Virulent strains cause acute infection - mortality rates \approx 100%
- Africa: 24 genotypes based on the sequence of major capsid protein p72 (G-II causes the current pandemic)



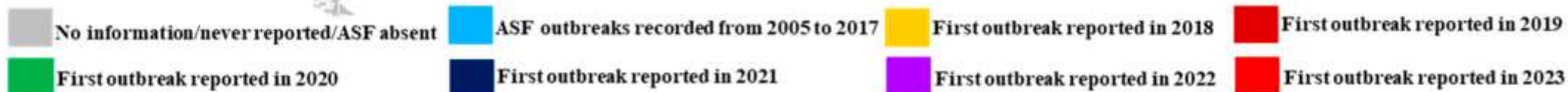


2023 International African Swine Fever Workshop: Critical Issues That Need to Be Addressed for ASF Control

Lihua Wang ¹, Lillianne Ganges ^{2,3}, Linda K. Dixon ⁴, Zhigao Bu ⁵, Dongming Zhao ⁶, Quang Lam Truong ⁶, Juergen A. Richt ⁷, Meilin Jin ⁸, Christopher L. Netherton ⁹, Charaf Benarafa ^{9,10,11}, Artur Summerfield ^{9,10,11}, Changliang Weng ¹², Guiqing Peng ⁸, Ana L. Reis ⁴, Jun Han ¹³, Mary-Louise Penrith ¹⁴, Yupeng Mo ¹⁵, Zhipeng Su ¹⁶, Dang Vu Hoang ¹⁷, Roman M. Pogranichniy ¹⁸, David-Adrian Balaban-Oglan ^{19,20}, Yuzhen Li ¹, Kewen Wang ²¹, Xuepeng Cai ^{22,*} and Jishu Shi ^{1,*}

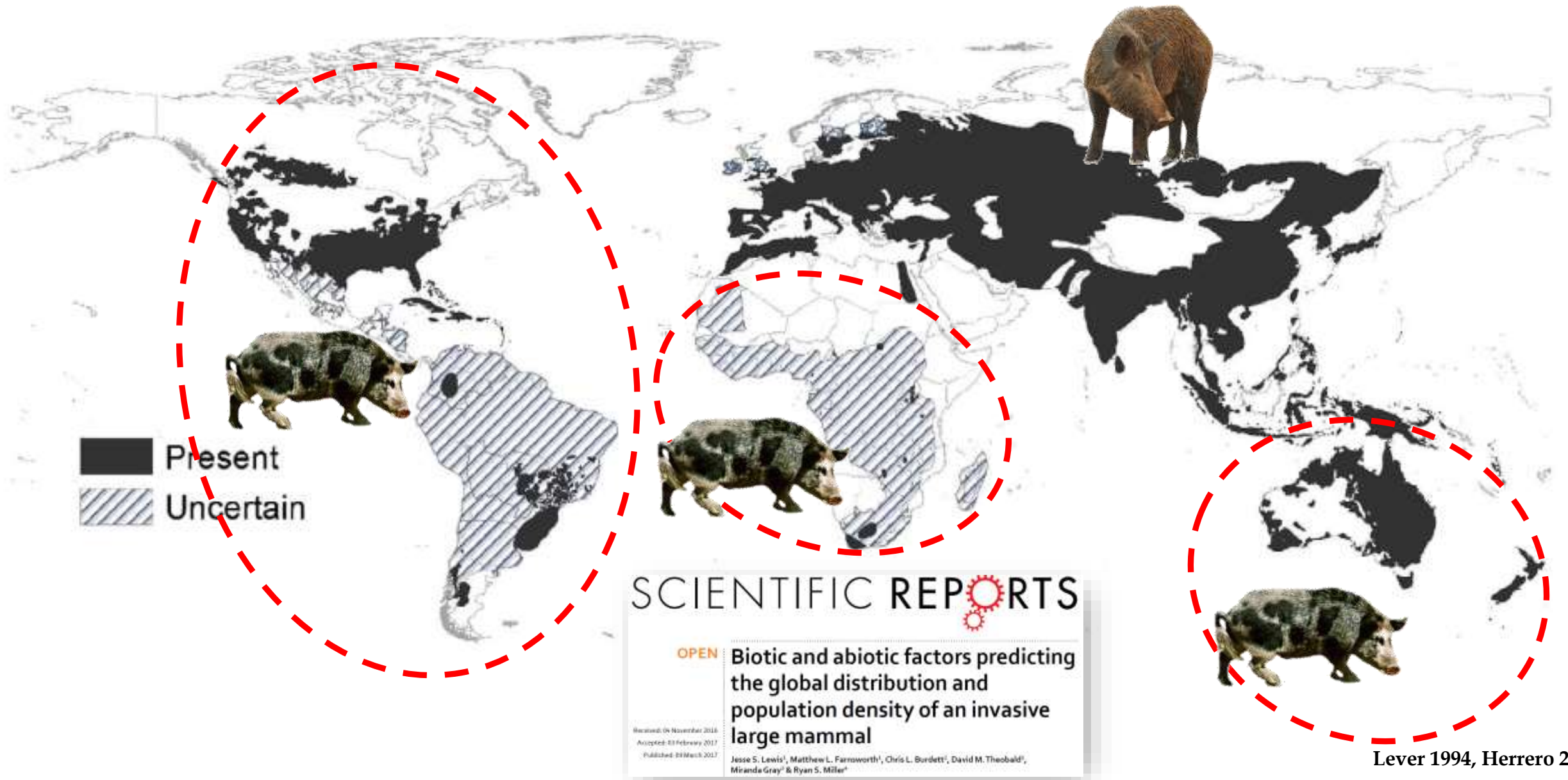
1. North Macedonia
2. Kosovo
3. Serbia
4. Hungary
5. Slovakia
6. Czech Republic
7. Armenia
8. Azerbaijan
9. Estonia
10. Latvia
11. Lithuania
12. Poland
13. Romania
14. Moldova
15. Benin
16. Burkina Faso
17. Togo
18. Ghana
19. Republic of the Congo
20. Uganda

21. South Korea
22. North Korea
23. Cambodia
24. Laos
25. Myanmar
26. Malaysia
27. Singapore
28. Vietnam
29. Thailand
30. Timor-Leste
31. Nepal
32. Bhutan
33. Zimbabwe
34. Malawi
35. Mozambique
36. Burundi
37. Bosnia
38. Croatia





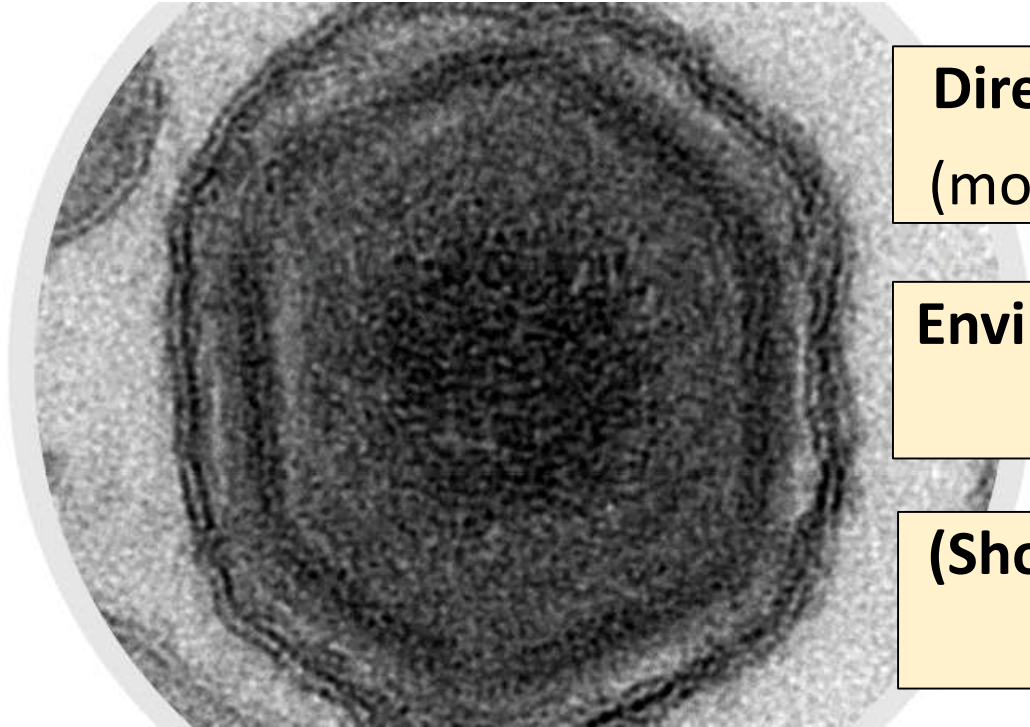
Wild boar & feral pigs, a global concern



Insights from modelling

Modelling the transmission and persistence of African swine fever in wild boar in contrasting European scenarios

Xander O'Neill¹, Andy White^{1*}, Francisco Ruiz-Fons² & Christian Gortázar²



Direct transmission
(mostly intra-group)

Environmental transmission
(carcass-mediated)

(Short-term) Survivors
(maintenance)

- **All 3 mechanisms are essential** to capture the initial population crash and long-term persistence of ASF at low density.
- The **long-term persistence** of ASF makes the virus difficult to eradicate and increases the opportunity of infectious spread to neighboring populations.

Current ASF situation & control



Current ASF control

- Subsaharian Africa



ASF in Uganda

- Endemic, high prevalence
- Study in Kampala abattoirs in 2021-22 found only 0.15% antibodies (=low survival) but high 59% PCR+

Okwesimire et al. Porcine Health Management
<https://doi.org/10.1186/s40813-023-00345-7>

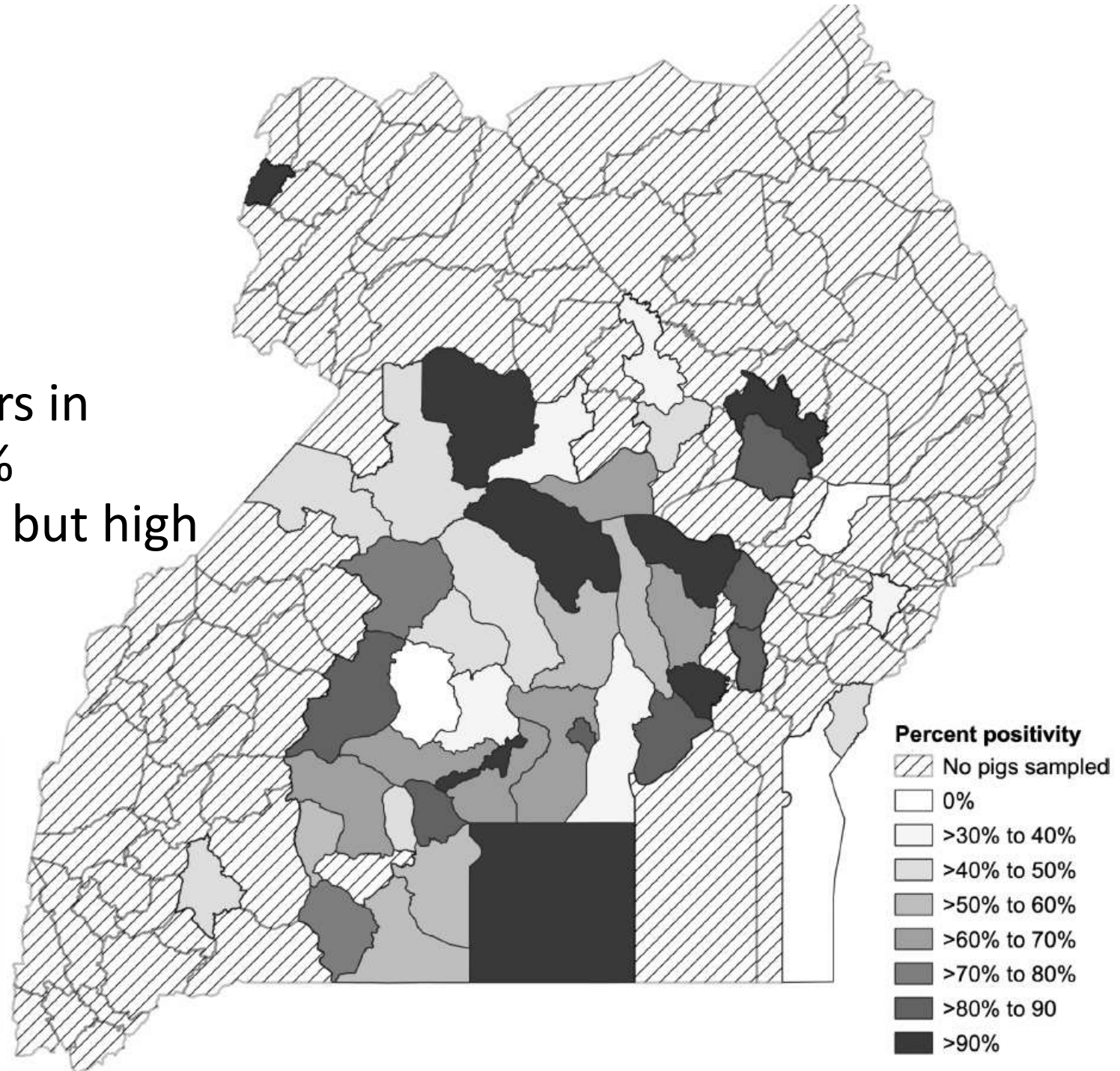
(2023) 9:51

Porcine Health Management

RESEARCH

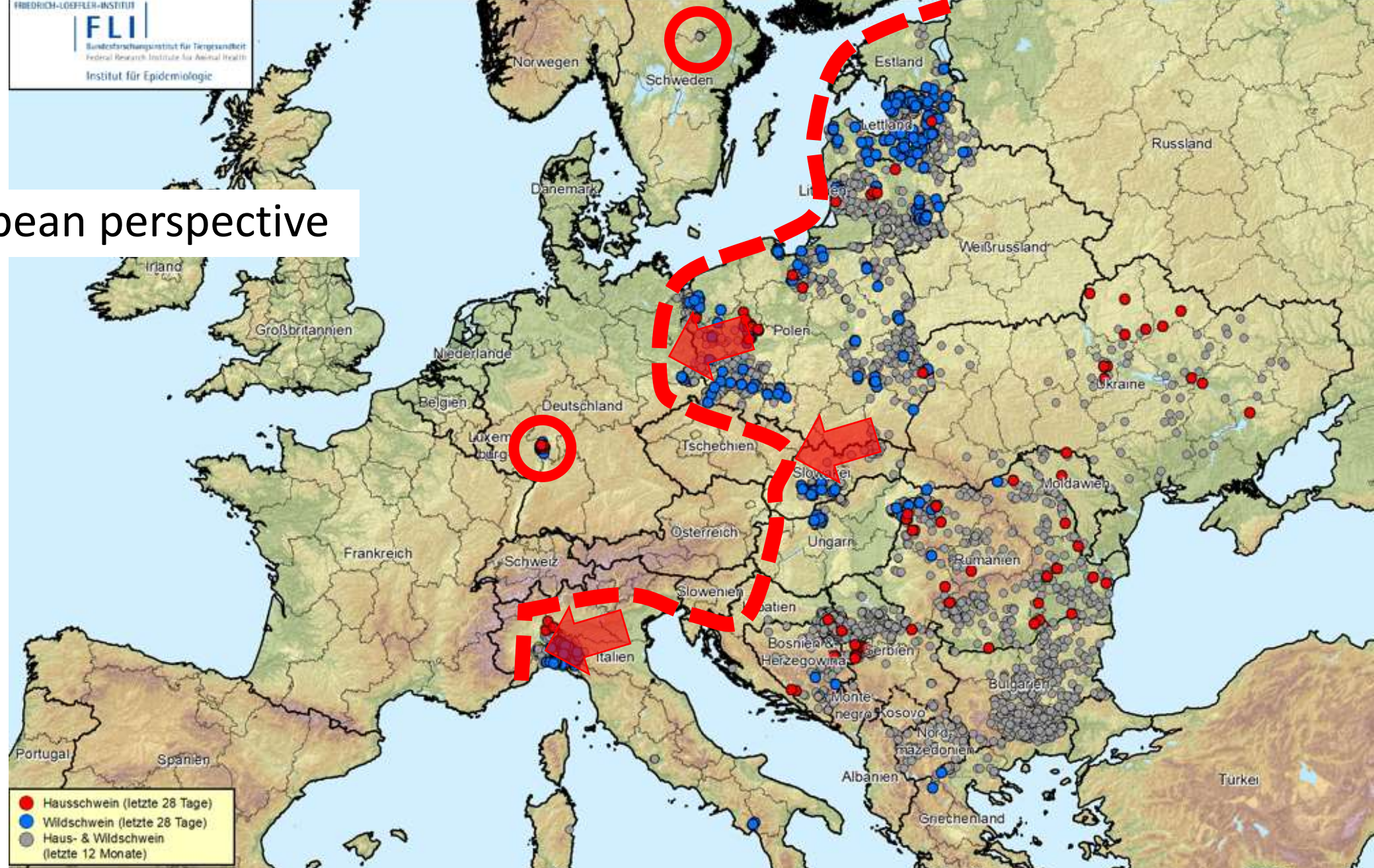
Open Access

Spatiotemporal description of African swine fever virus nucleic acid and antibodies detected in pigs sampled at abattoirs in the greater Kampala metropolitan area, Uganda from May 2021 through June 2022



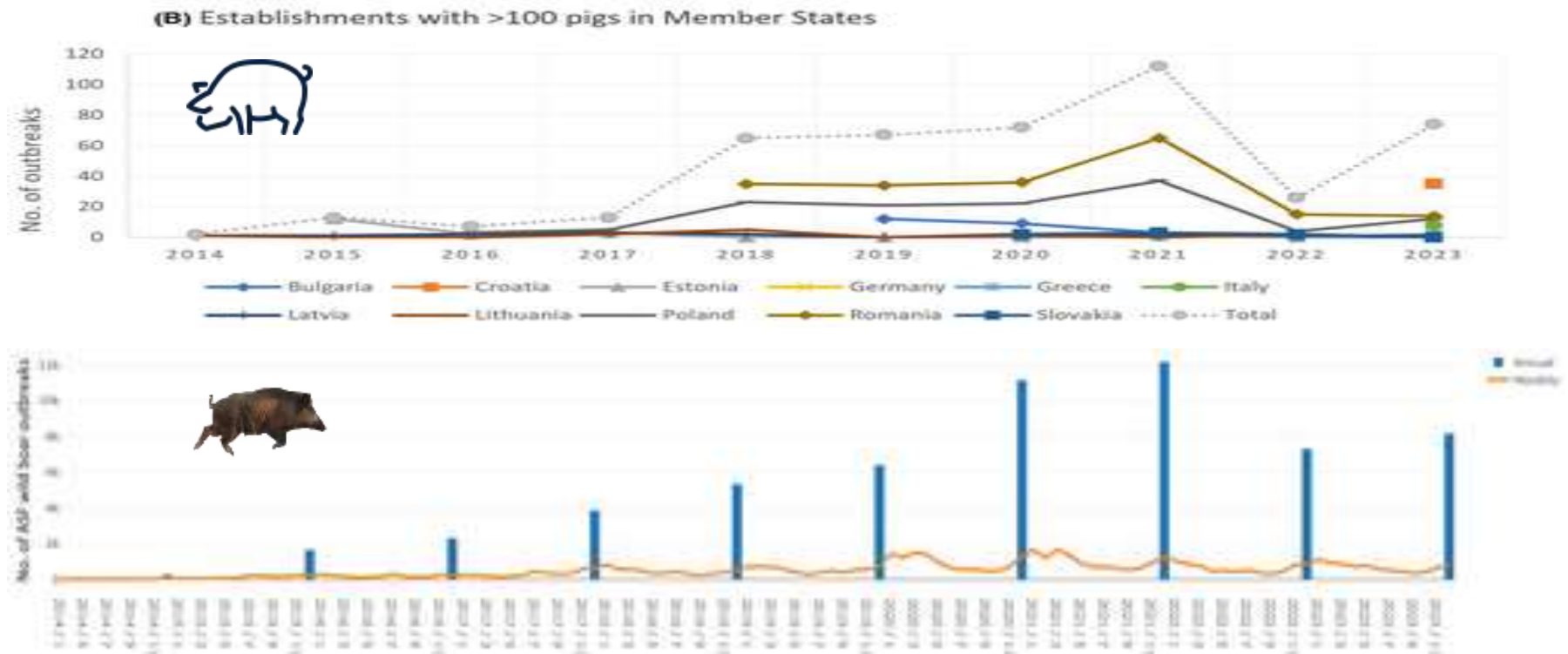
- The European perspective

30-07-2024



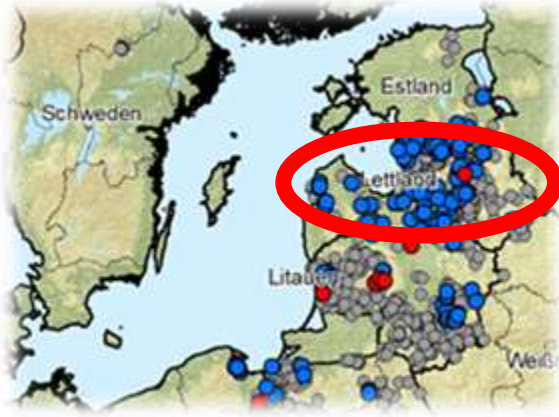
Current ASF control

- ASF endemic countries in Eurasia



Current ASF control

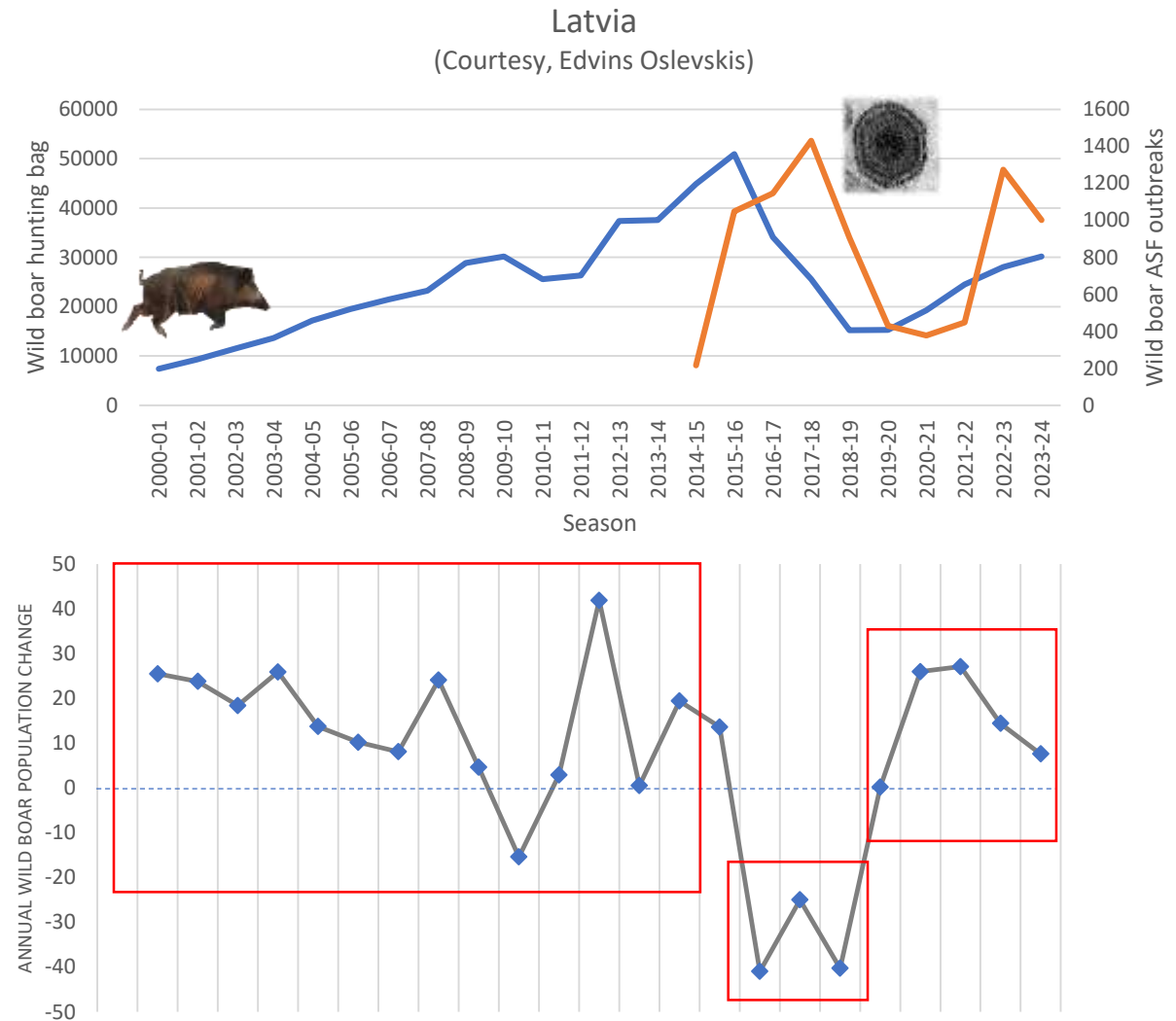
- ASF endemic countries in Eurasia:
Latvia



Mean annual wild boar population growth 2001-2014 = 14%

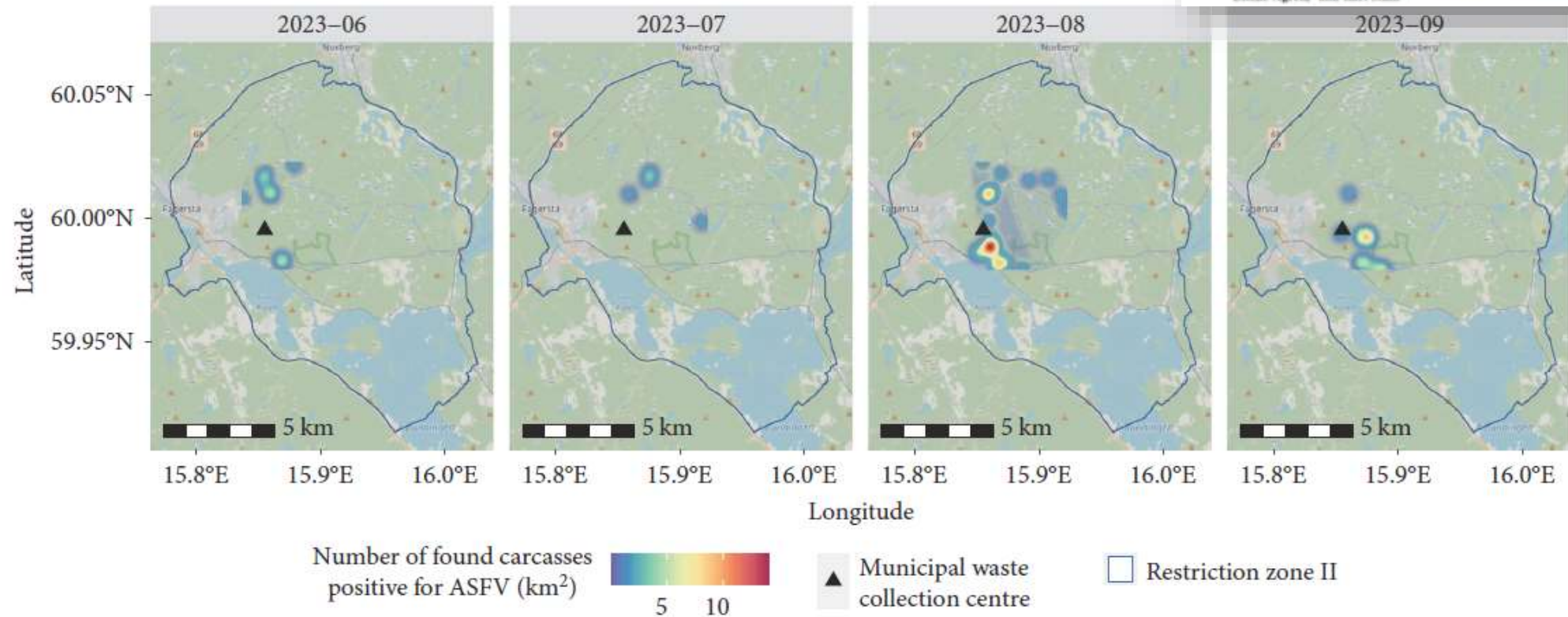
ASF: 3 years of population decline 2016-2018, mean = -35%

ASF endemicity: mean annual growth 2019-2024 = 15%



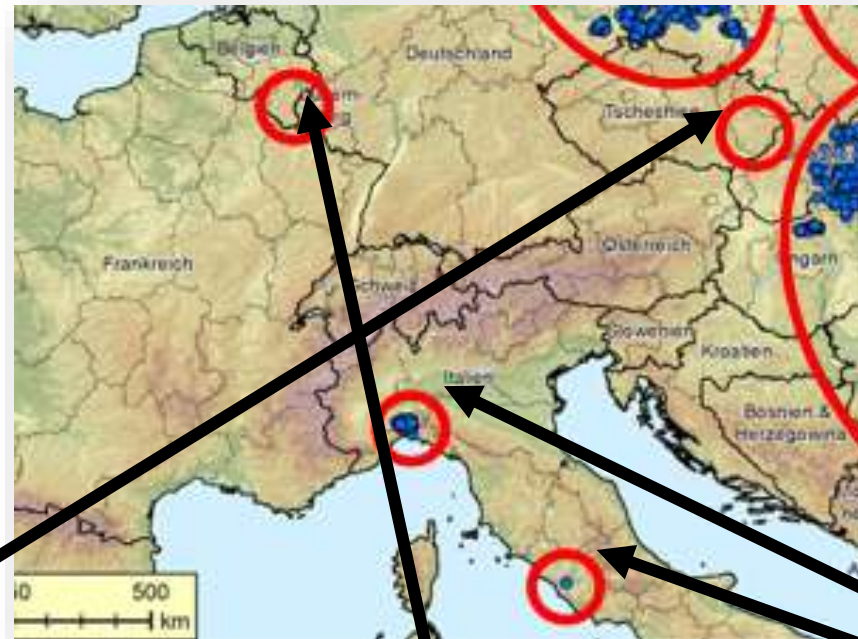
Current ASF control

- Countries where ASF is emerging: **Sweden**



Current ASF control

- Countries where ASF is emerging: **Italy**



CZECH REPUBLIC

Infected zone 57 km²
190 ASFV+ wild boar (3/km²)
Time till clearance 1 year

BELGIUM

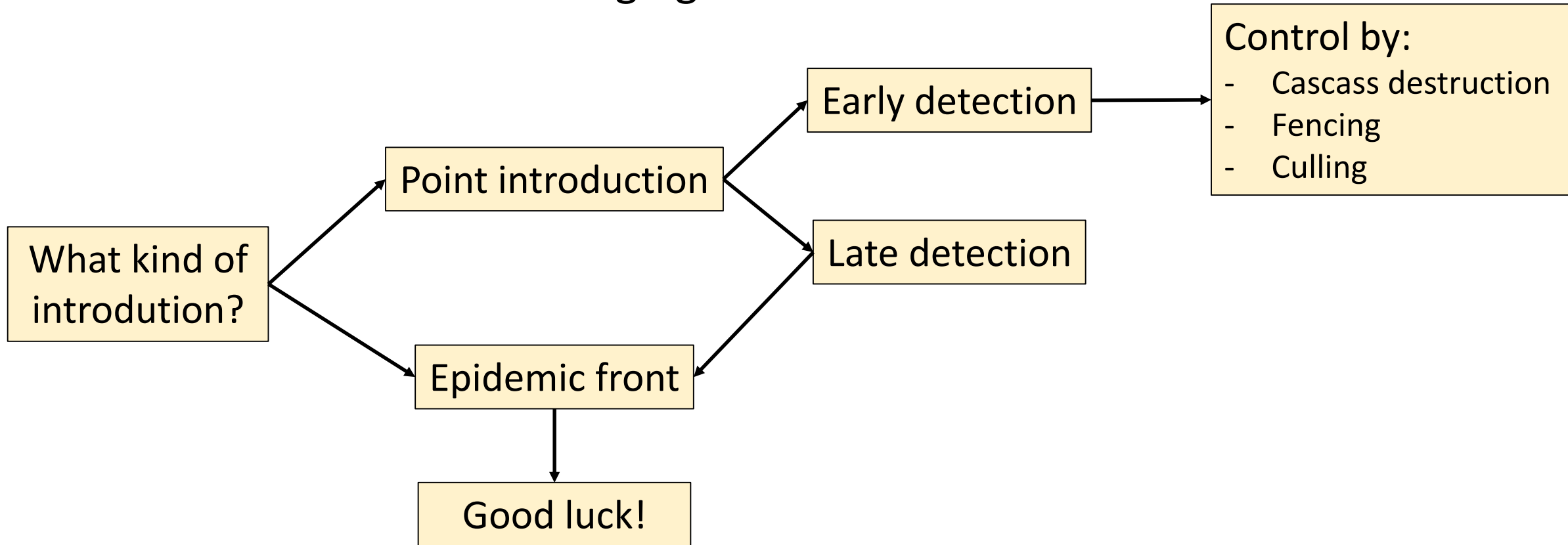
Infected zone 600 km²
833 ASFV+ wild boar (1.4/km²)
Time till clearance 2 years

MAINLAND ITALY

Infected zone >>1,600 km²
114 ASFV+ wb (0.07/km²)
Time till clearance ?

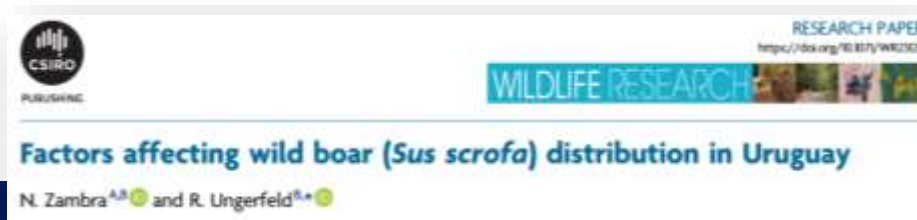
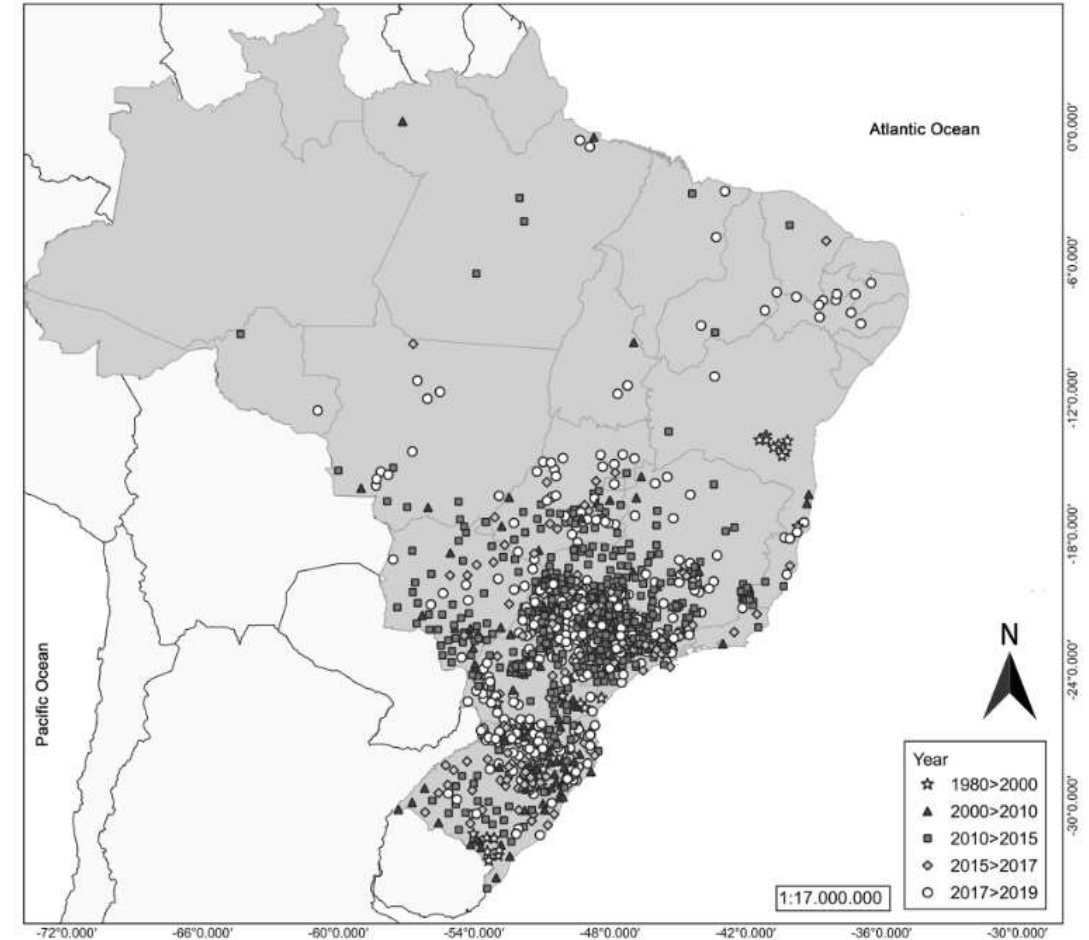
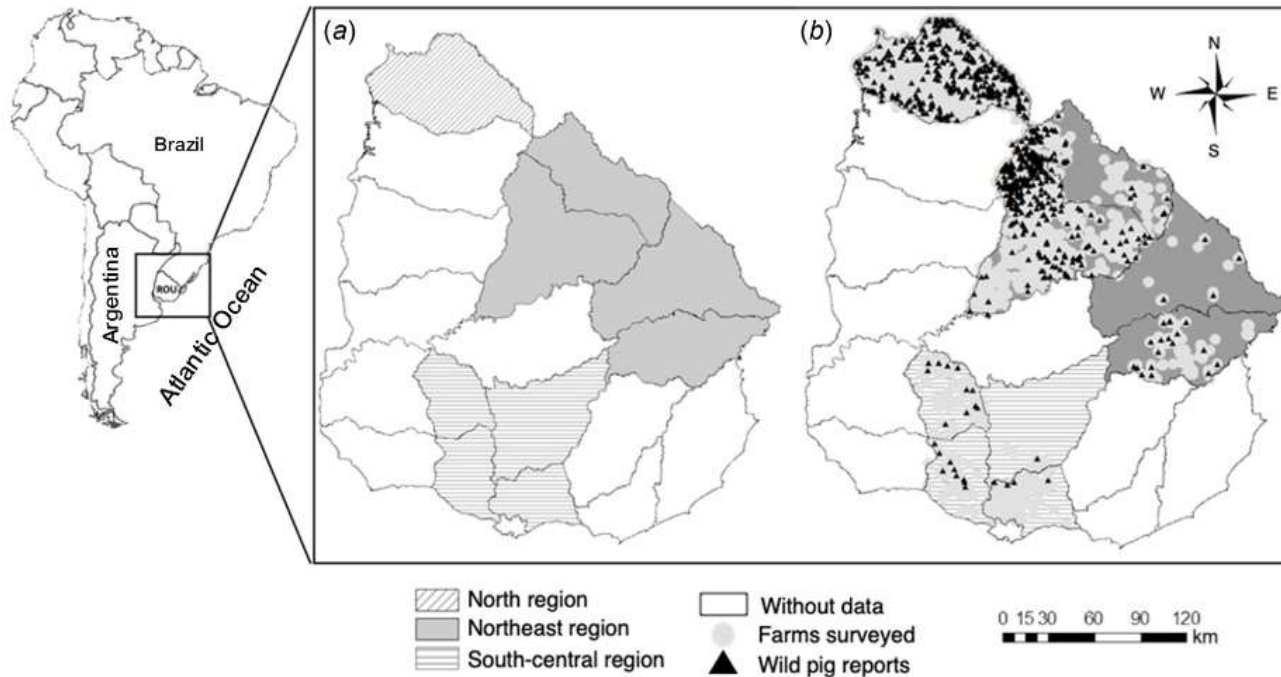
Current ASF control

- Countries where ASF is emerging



Current ASF control

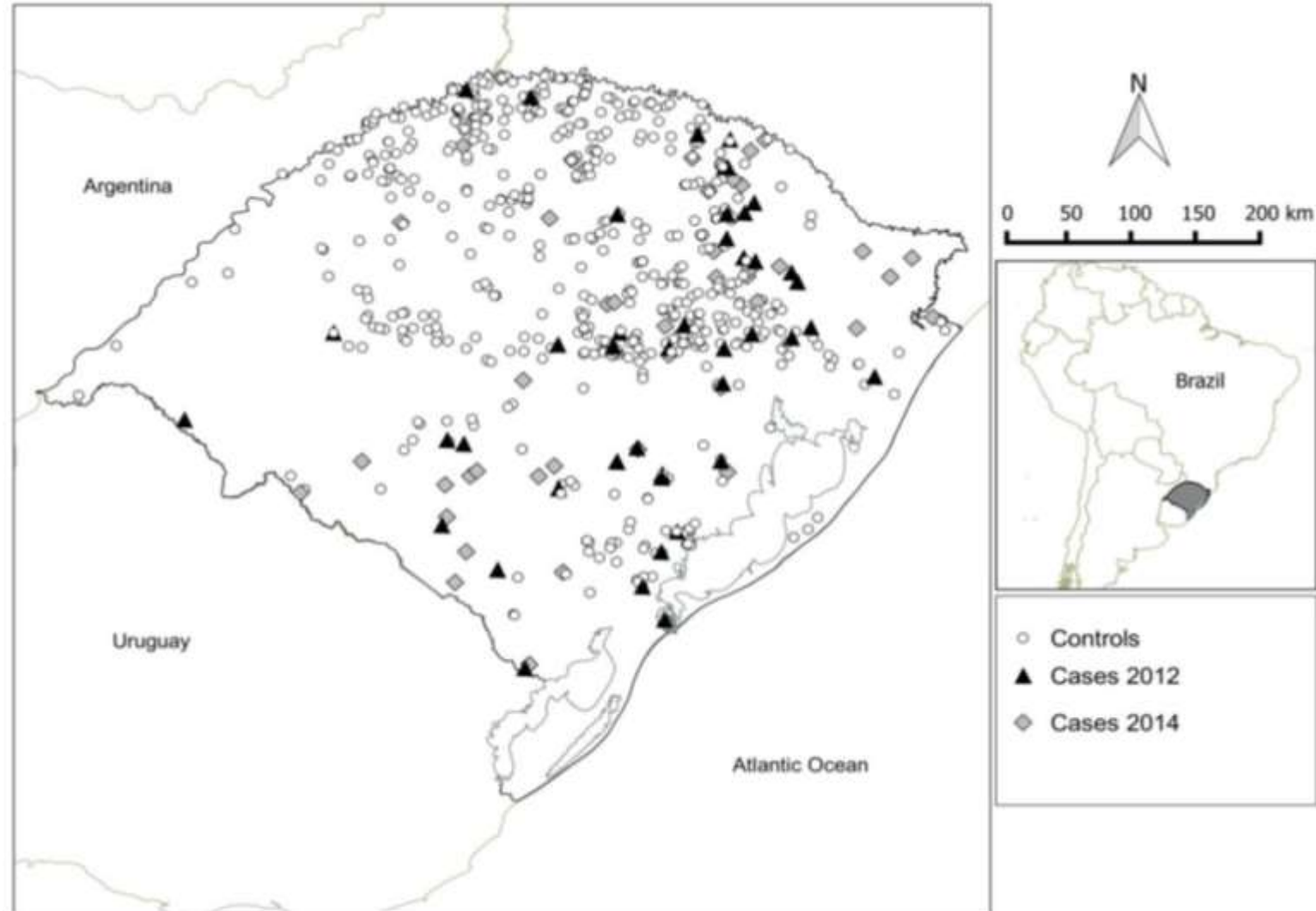
- ASF-free countries like Brazil

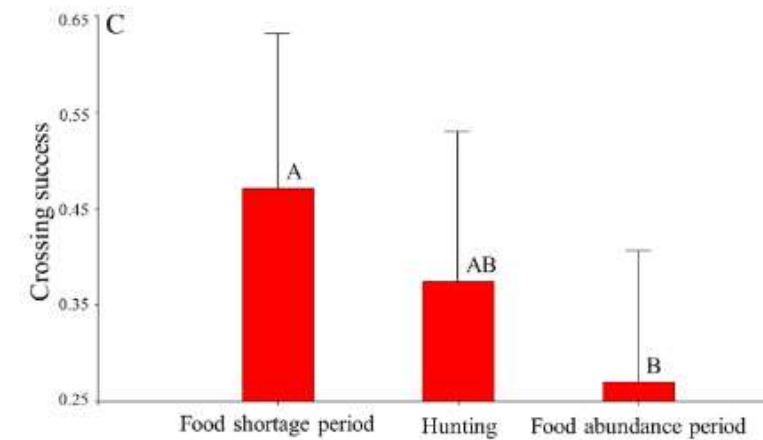
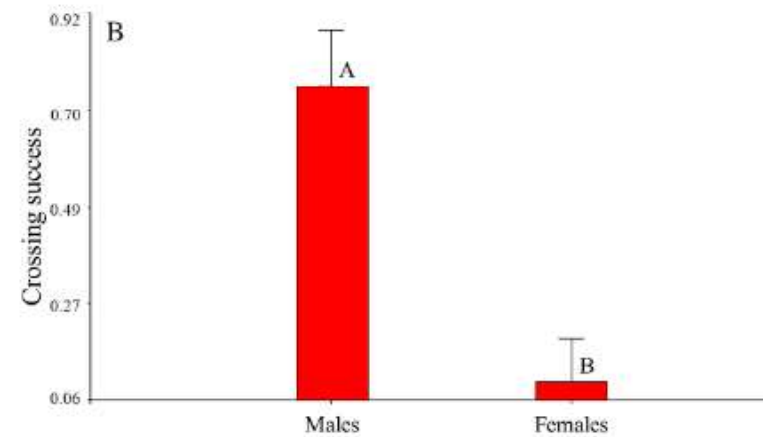
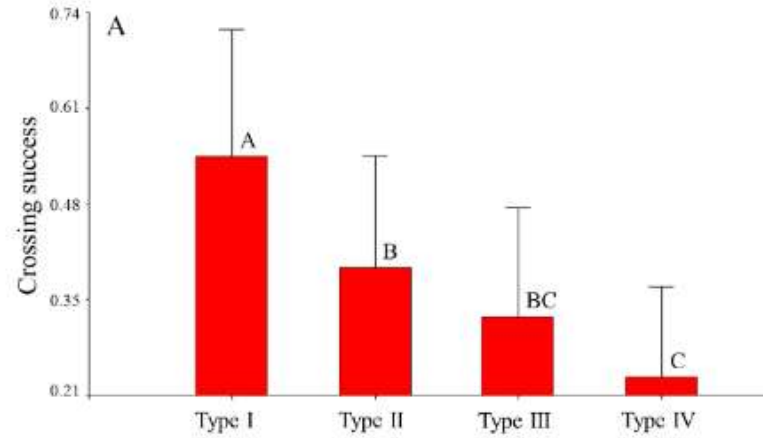


Current ASF control

- ASF-free countries like Brazil

10% of (mostly smallholder) pig farms in Rio Grande do Sul have wild boar/feral pig contact





Research Article

Received: 5 October 2021

Revised: 22 February 2022

Accepted article published: 1 March 2022

Published online in Wiley Online Library:

(wileyonlinelibrary.com) DOI: 10.1002/ps.6853

Permeability of artificial barriers (fences) for wild boar (*Sus scrofa*) in Mediterranean mixed landscapes

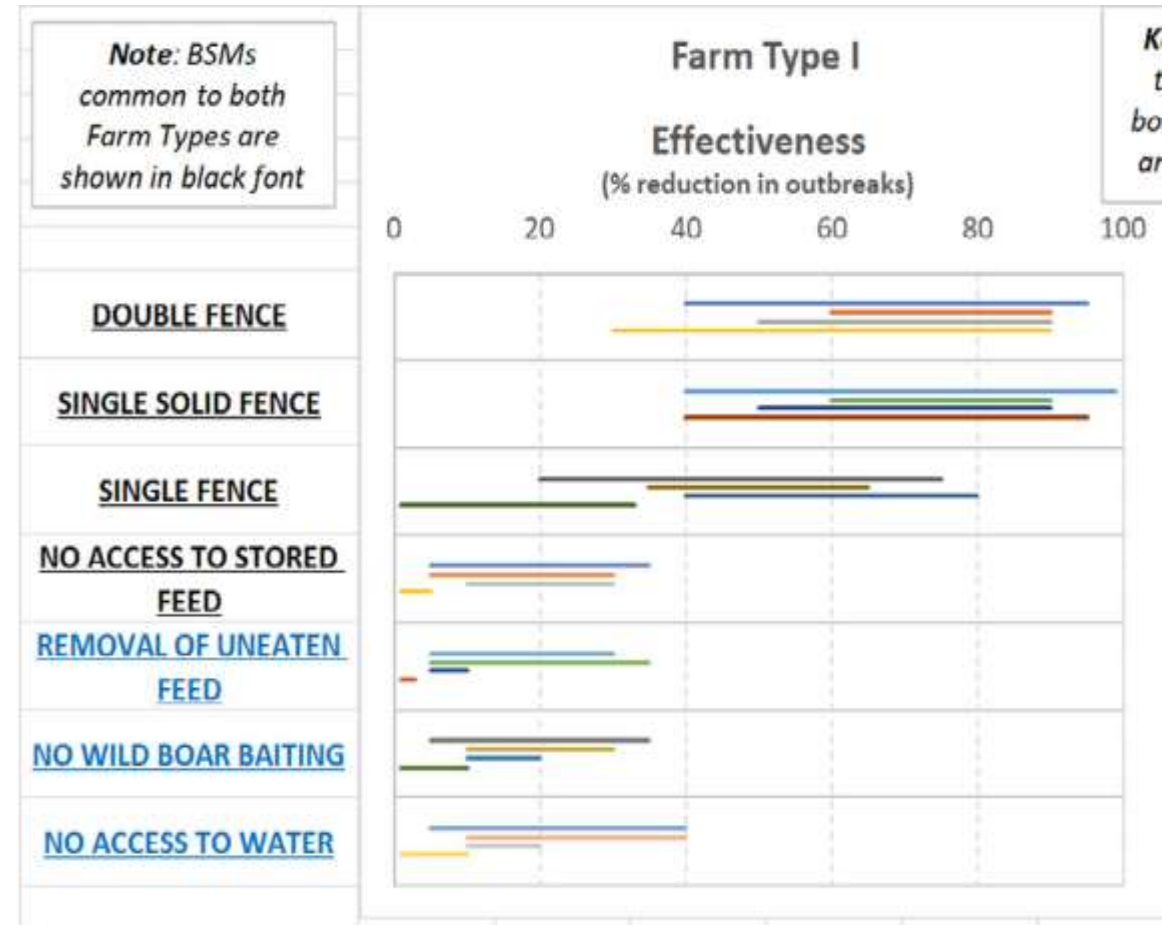
Eduardo Laguna,^a José A Barasona,^b Antonio J. Carpio,^{a,c,*} Joaquín Vicente^a and Pelayo Acevedo^{a*}

Current ASF control

- ASF-free countries like Brazil

Assess, improve & monitor pig farm biosafety.

Especially open-air farms – though all farm types are at risk!



Current ASF control

- ASF-free countries like Brazil

Get ready:

1. Set up & run an integrated surveillance scheme, considering domestic pigs and feral pigs.
2. Make risk maps & assessments based on (possible) entry sites, pig farm locations and feral pig distribution.
3. Train veterinary services, farmers and others (hunters, police): facilitate early detection, simulate outbreaks, be ready for delineating infected-buffer-surveillance areas.
4. Work with farmers and vets on farm biosecurity, especially fencing and avoiding pig contact with feral pigs/wild boar

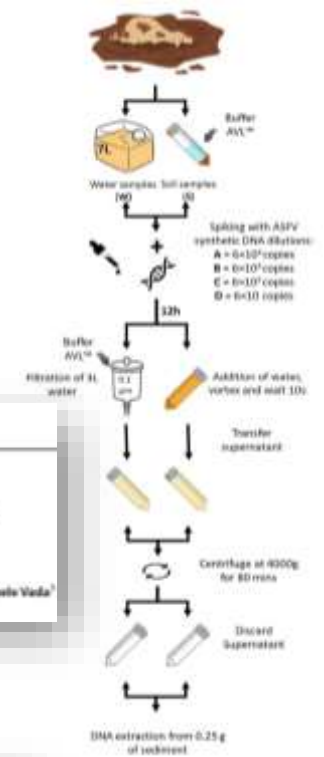
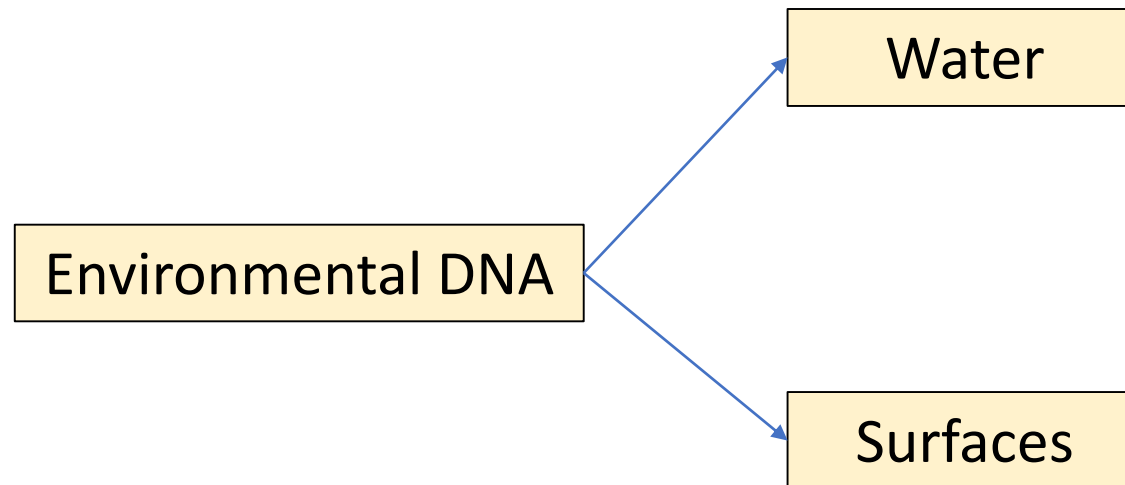


New ASF control tools



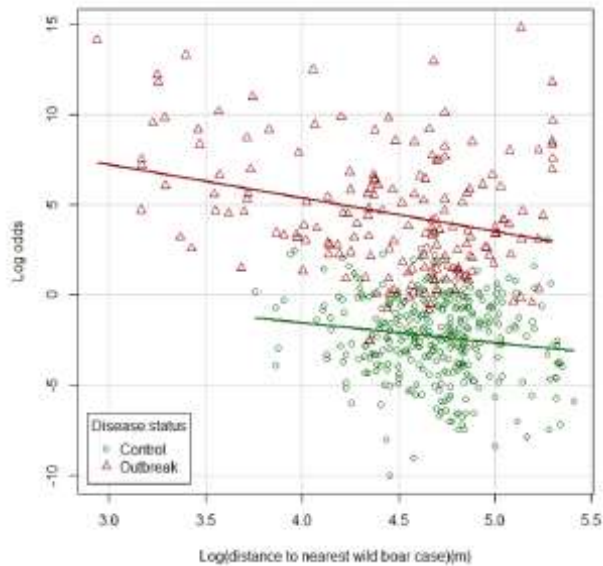
New ASF control tools

- ASF detection & monitoring



New ASF control tools

- Pig farm biosafety



**SCIENTIFIC
REPORTS**
nature research

Check for updates

Risk factors for African swine fever incursion in Romanian domestic farms during 2019

A. Boklund¹, S. Dhollander², T. Chesnoiu Vasile³, J. C. Abrahantes², A. Bøtner^{4,5}, A. Gogin⁶, L. C. Gonzalez Villeta², C. Gortázar⁷, S. J. More⁸, A. Papanikolaou², H. Roberts⁹, A. Stegeman¹⁰, K. Ståhl¹¹, H. H. Thulke¹², A. Viltrop¹³, Y. Van der Stede² & S. Mortensen¹⁴

- Fenced industrial pig farm
- Navarra (courtesy M Guibert)



New ASF control tools

- Prospects on vaccination
 - Life-attenuated
 - Efficacy
 - Safety & side effects
 - EU: target wild boar > pigs
 - Timeframe: years



ASFaVIP

African Swine Fever
attenuated live
Vaccines In Pigs



Take-home messages

Get ready: the question is not **IF** ASF will enter, it is **WHEN**

All pigs play a role: farmed + backyard + feral/wild



Set up integrated and adaptive ASF control schemes



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