Challenges Epizootic Diseases in Europe

Wim H. M. van der Poel, EU-China meeting, Brussels 27 Oct 2016

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EPIZONE

Global warming

- Changing
  - Rainfall
  - Sea level
  - Vegetation
  - Animal species

- Changing abundance of virus vectors

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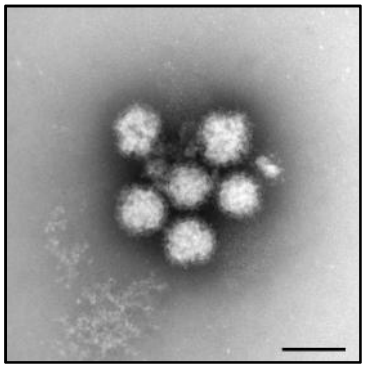
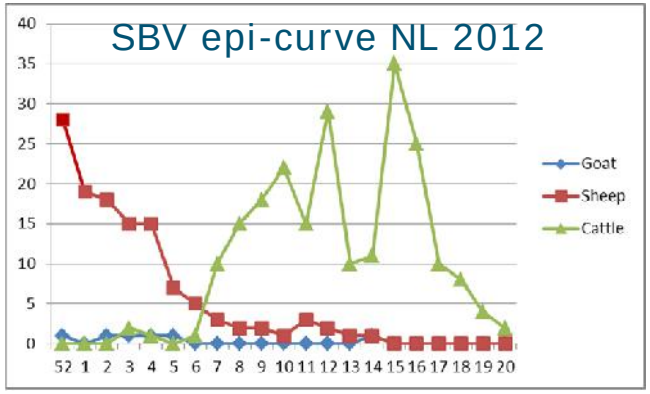
Schmallenberg virus experience Europe

- 2011: Schmallenberg virus first identified new Simbu serogroup virus, family Bunyaviridae.
- 2012: Spread throughout Europe
  - Rapid research on epidemiology, virulence, pathogenesis, dynamics, vaccine development
  - Rapid instigation of control measures.
- 2012- 2014: Scattered infection foci
- 2016: cases in a number of countries incl. Germany, Belgium, Netherlands





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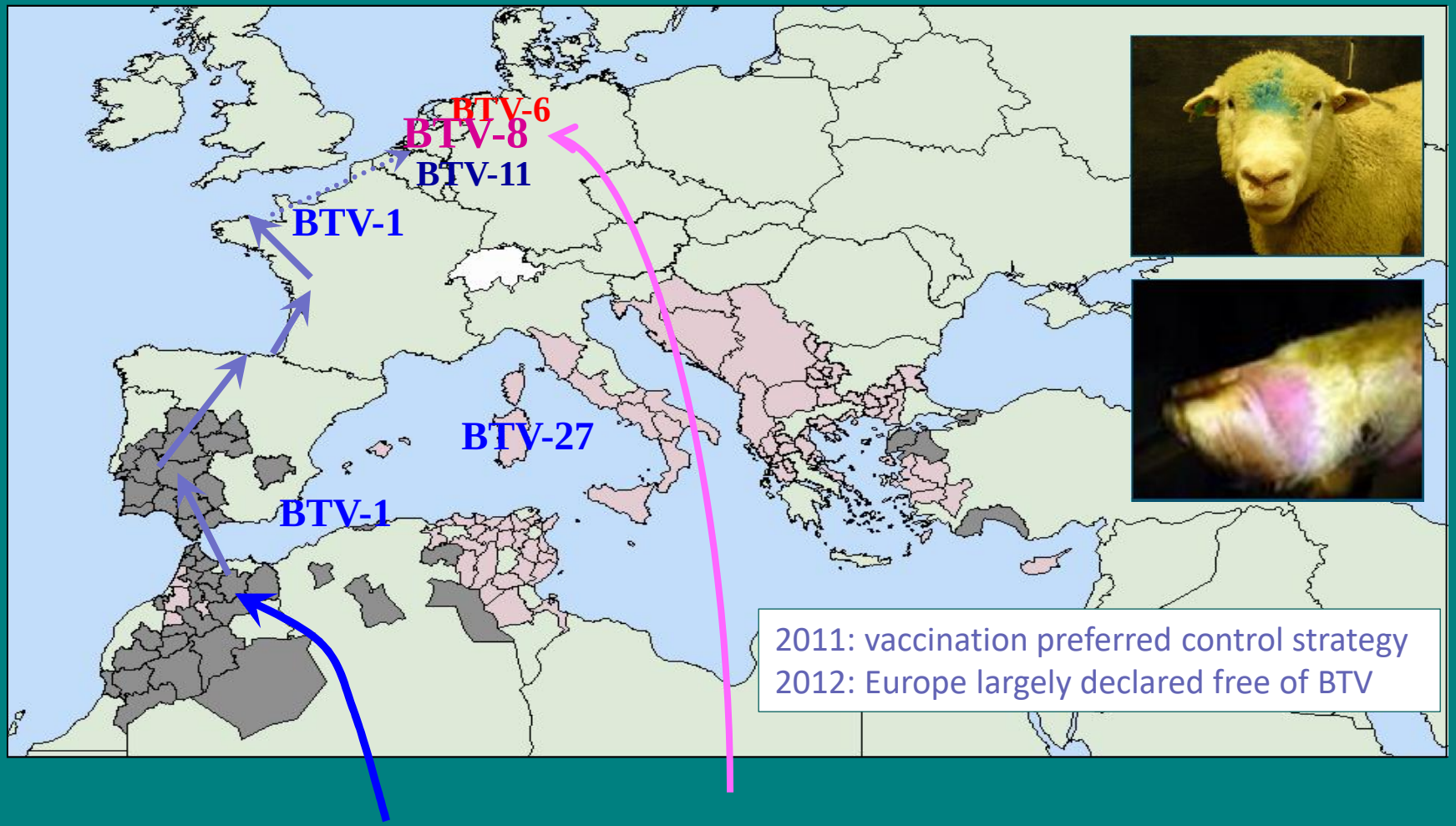
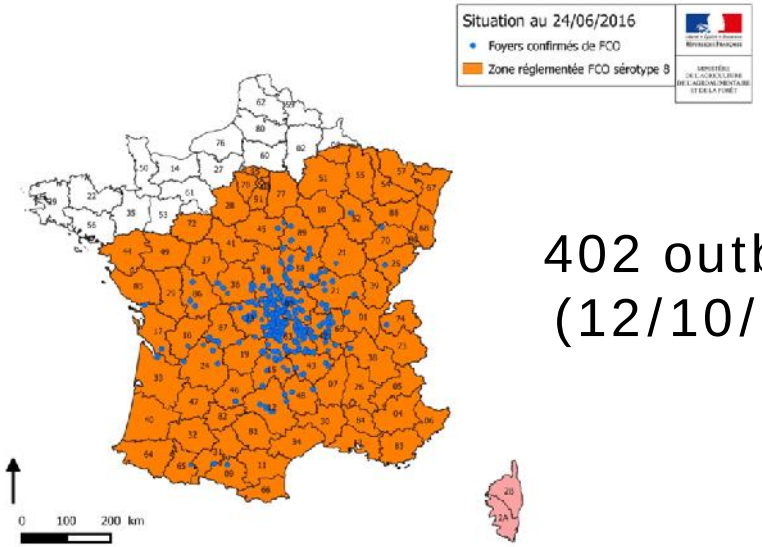
Emergence of blue tongue viruses in Europe 2006 - 2015

BTV-8/1/6/11/27



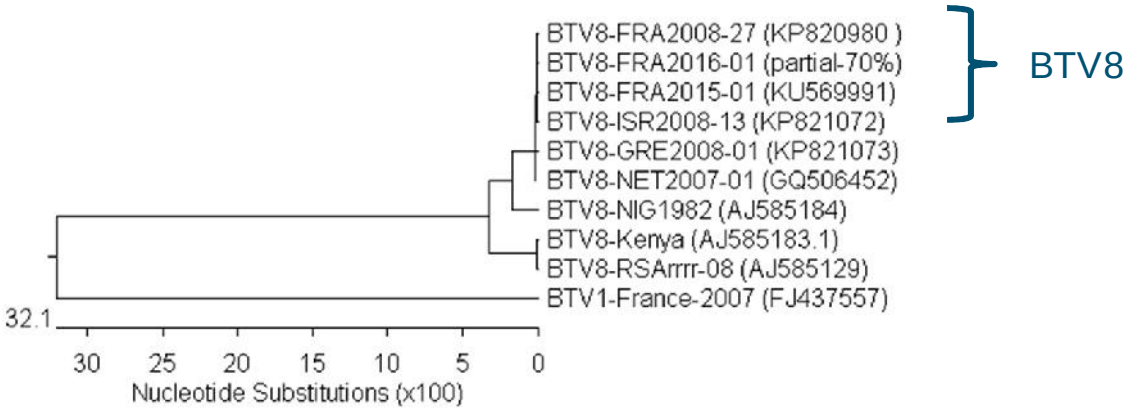
Blue tongue re-emergence France 2015

Allier department Sept 2015



402 outbreaks (12/10/2016)

October 2016



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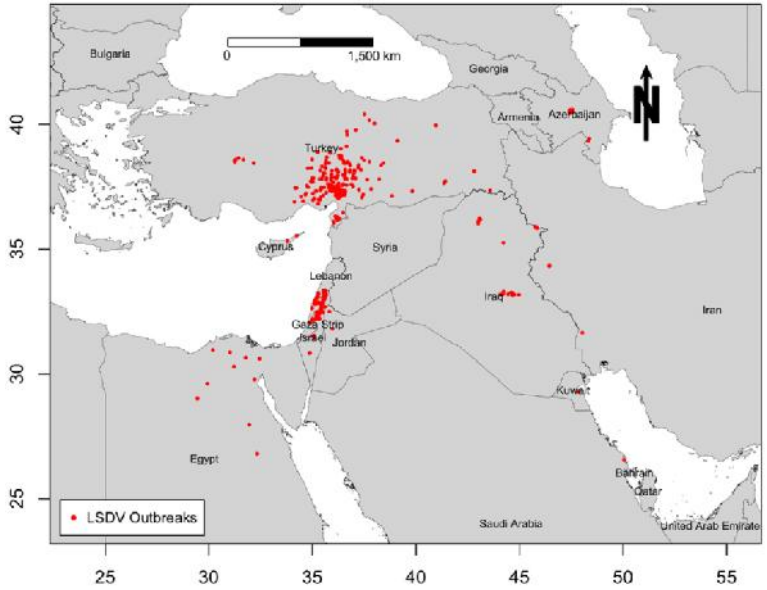
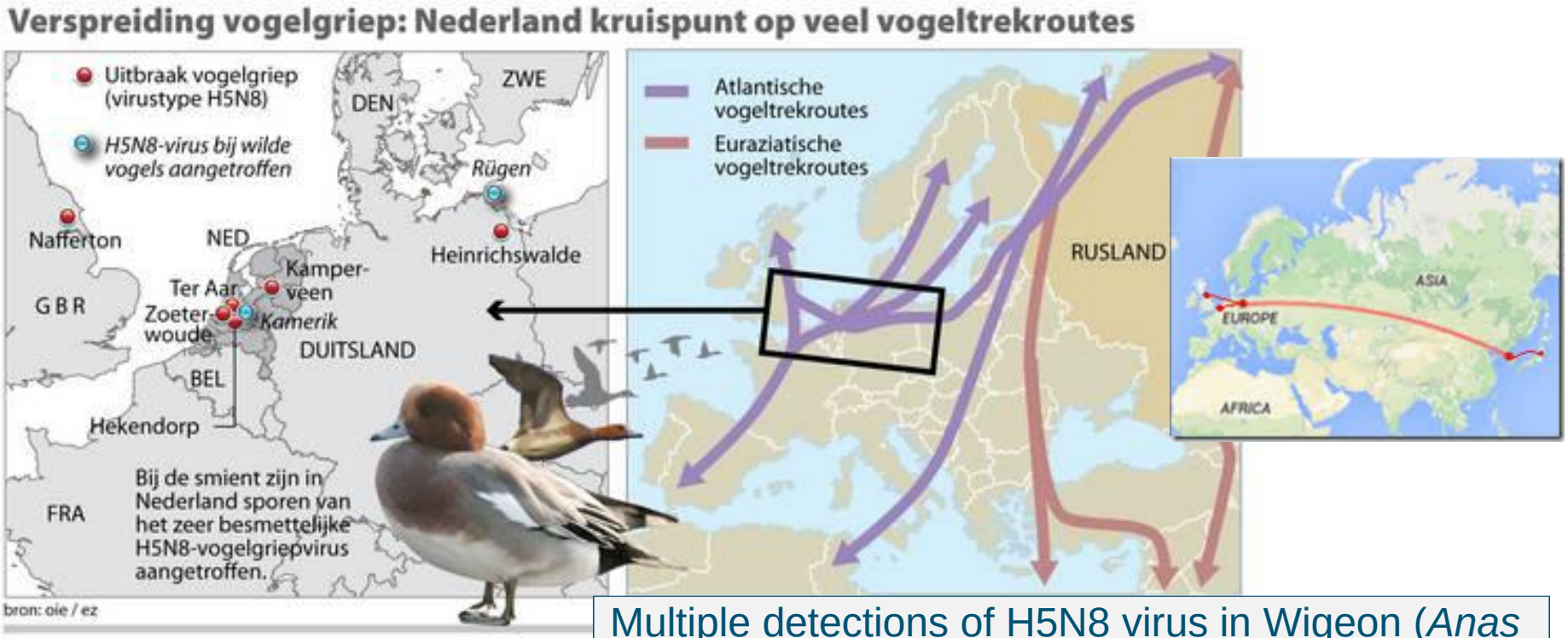
Courtesy Stephan Zientara

Lumpy Skin Disease virus

- Poxvirus
- Multiple nodules, lameness, sec. infections
- Vector transmitted (mosquitos, biting flies), and directly transmitted
- Endemic in Africa, outbreaks in Eastern Europe.
- Vaccination recommended by EFSA 2016
- Vaccine safety and efficacy issues



Influenza virus H5N8 introductions, The Netherlands 2014



Multiple detections of H5N8 virus in Wigeon (*Anas penelope*), Common teal (*Anas crecca*) and Mallard duck (*Anas platyrhynchos*), Germany/Netherlands

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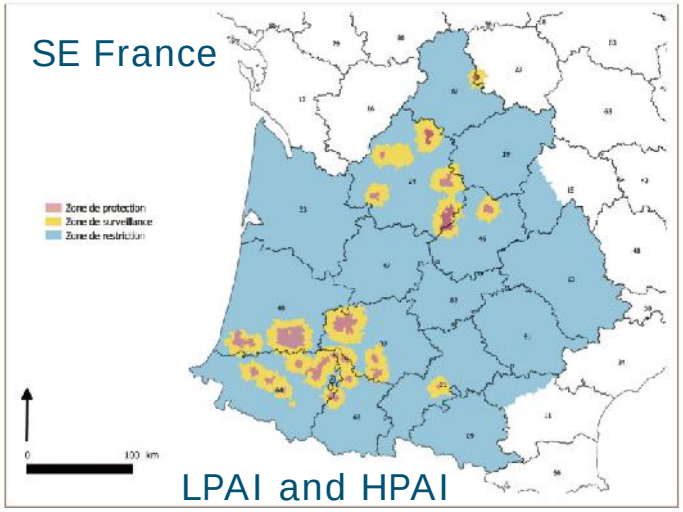
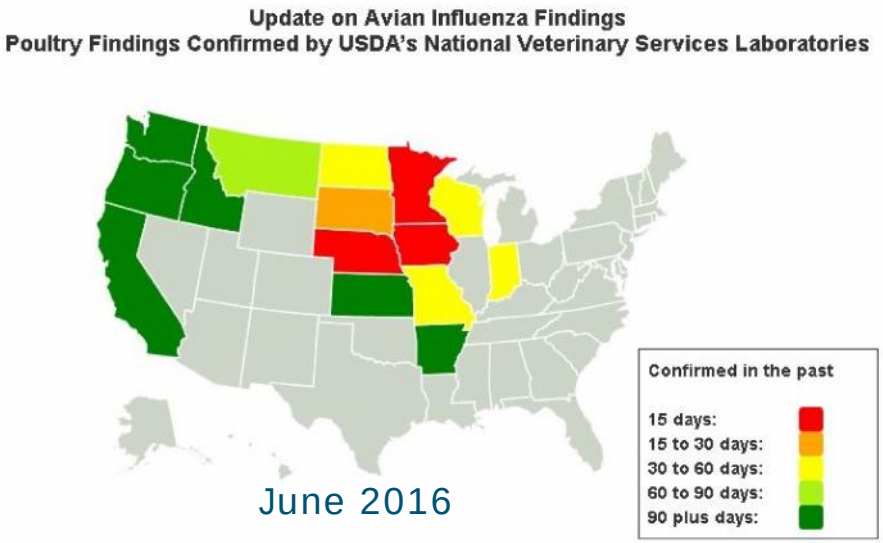
H5N8 virus in poultry and wild birds 2014-2016

Verhagen et al., 2015





June 2016

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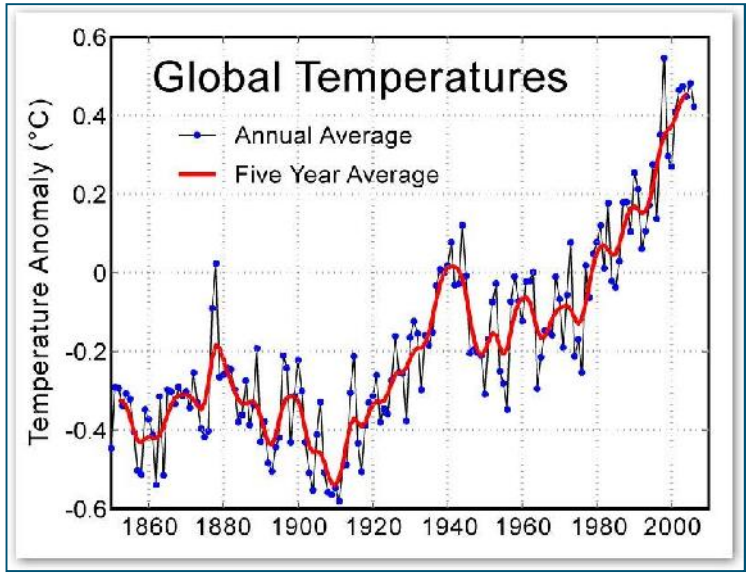
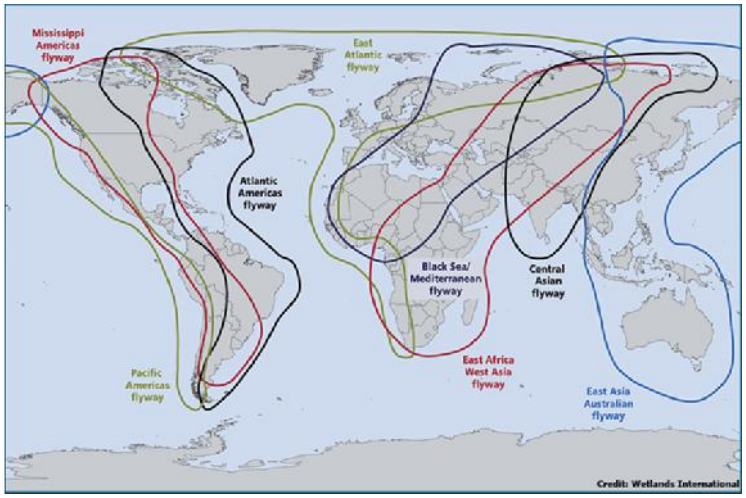
Migratory birds flyways

- IPCC: Temperatures predicted to increase 0.9 – 3.8 degrees Celsius by 2100
- Climate change can potentially alter waterfowl habitats and behaviour.
- Global warming assumed to have a positive effect on survival and productivity in colder regions
- Climate change affects patterns of waterfowl migration (Madsen et al., 2014)
- Abmigration and permeability of flyways





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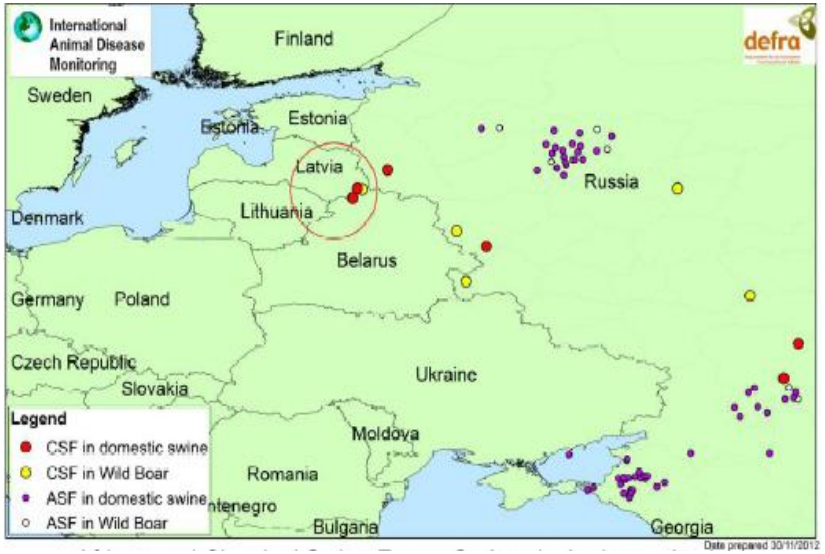
African Swine Fever Virus

- Large DNA virus, asfarviridae
- Soft tick vector (Ornithodoros)
- Also direct transmission (more in pigs compared to warthogs)
- Severe disease
- Introduced in E. Europe via Georgia in 2007
- Increasing threat for Europe
- No vaccine available



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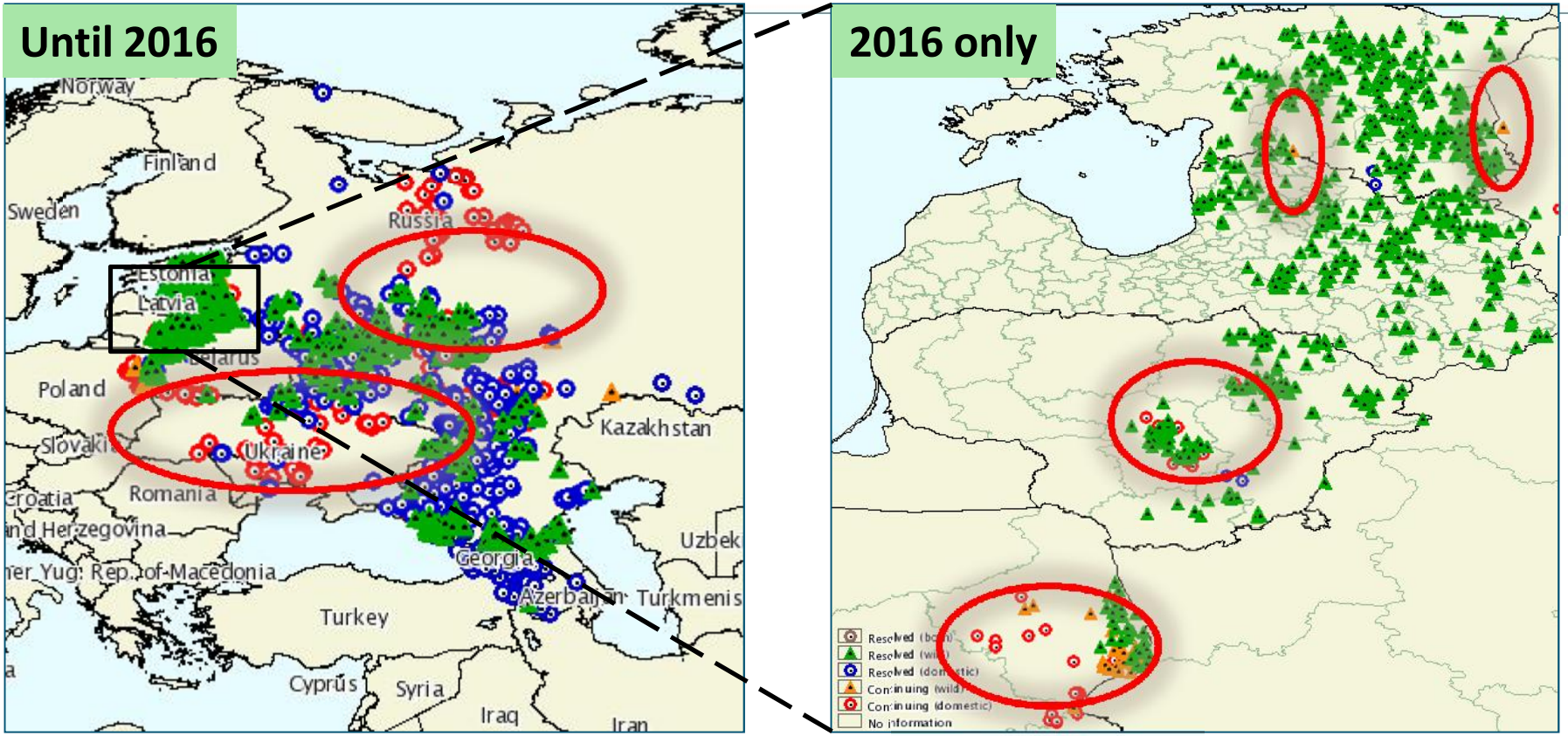
African Swine Fever outbreaks

Russia and Eastern Europe 2016



Courtesy Willie Loeffen

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Major Challenges Epizootic diseases Summary

1. Better control of vector borne epizootic diseases like BTV and SBV
2. Prevent introduction into EU of epizootic diseases from bordering countries, like Lumpy Skin and African Swine Fever (also FMDV, PPRV, RVFV).
3. Prevent and control new and emerging diseases from wildlife reservoirs like Avian Influenza viruses and other pathogens like Tuberculosis etc.

- Solution sets:
  - Ad 1: Vaccines, Monitoring strategies
  - Ad 2: Frontline diagnostics, Early detection
  - Ad 3: Surveillance strategies, Analyses of drivers

Thank you

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