



**WORLD ORGANISATION FOR ANIMAL HEALTH**  
*Protecting animals, preserving our future*

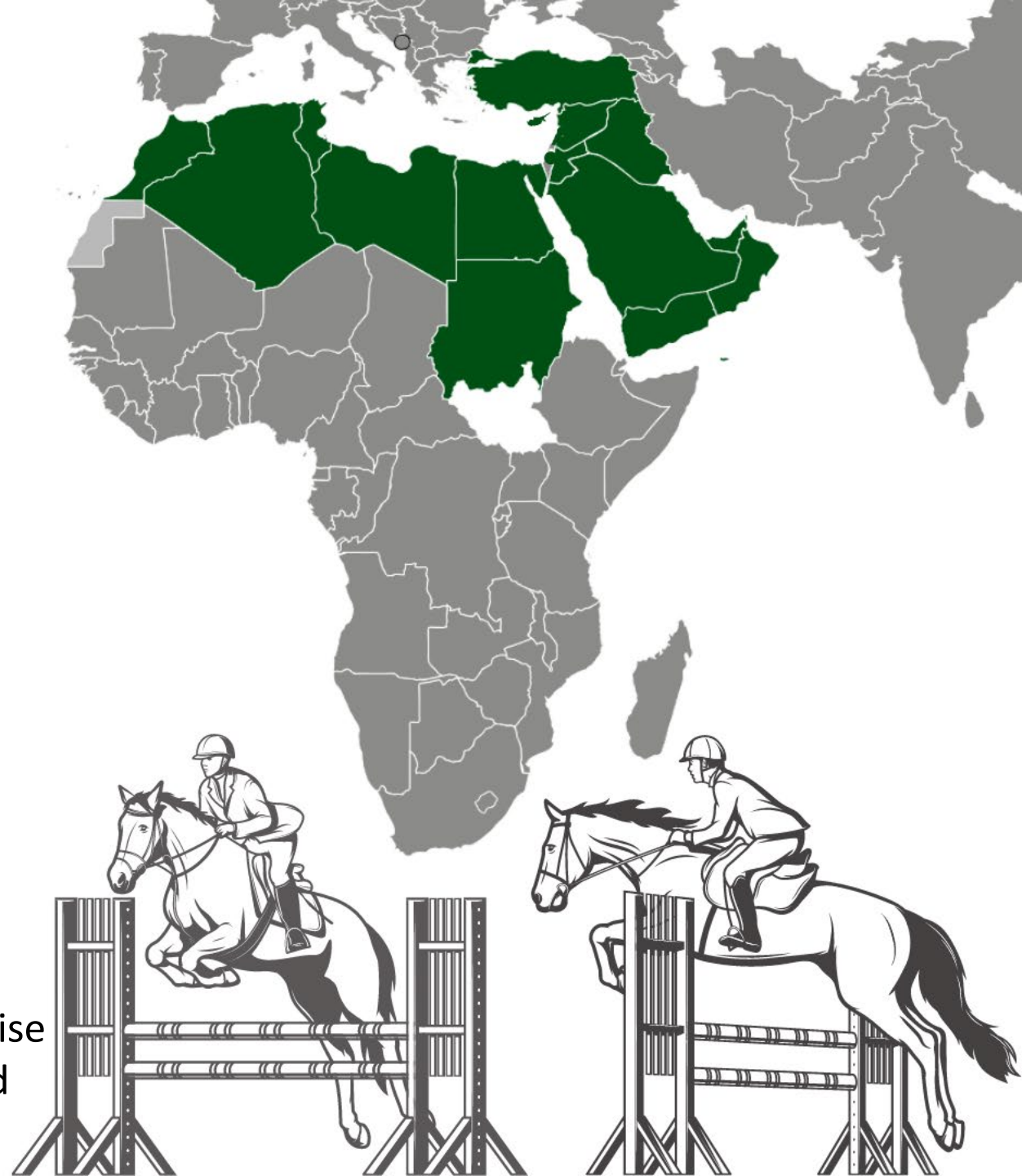
**OIE 3<sup>rd</sup> Regional Webinar on:  
OIE international standards and tools to facilitate  
international movement of (competition) horses,  
procedures supporting the publication of self-  
declarations of animal health status and the official  
recognition of African horse sickness (AHS) free status**

10-11 May 2022 (08:00 AM – 11:30 AM GMT)

**Risk Analysis on potential re-  
emergence of major equine diseases**

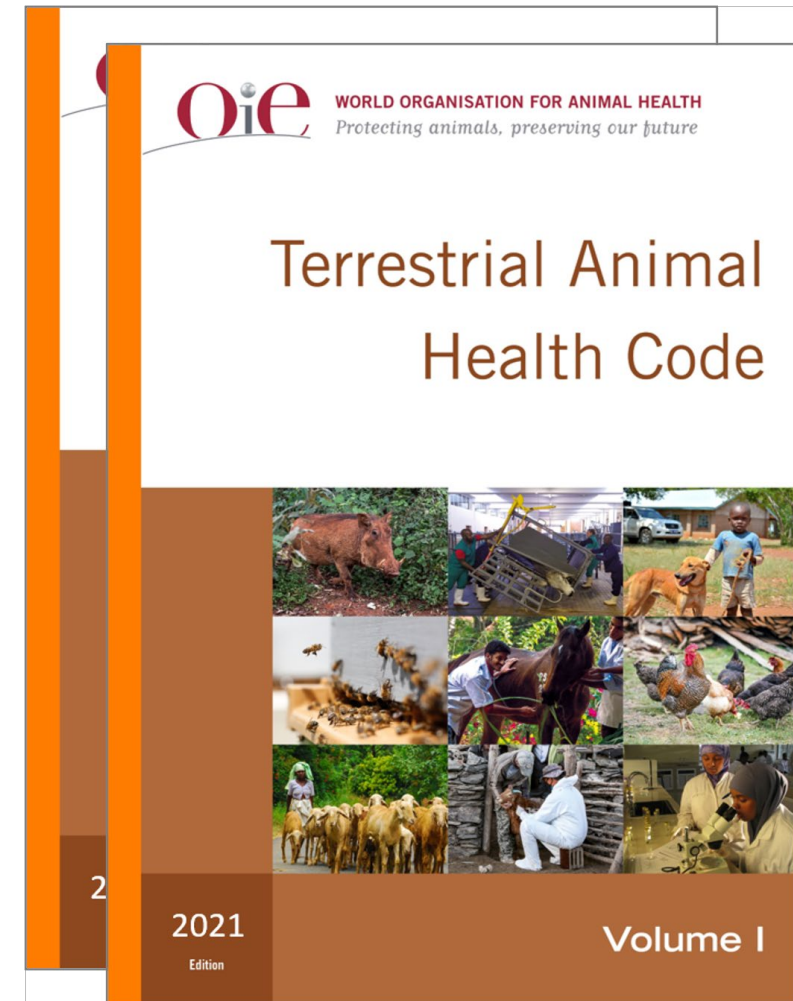
Paolo Calistri

Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise  
OIE Collaborating Centre for Epidemiology, Modelling and  
Surveillance





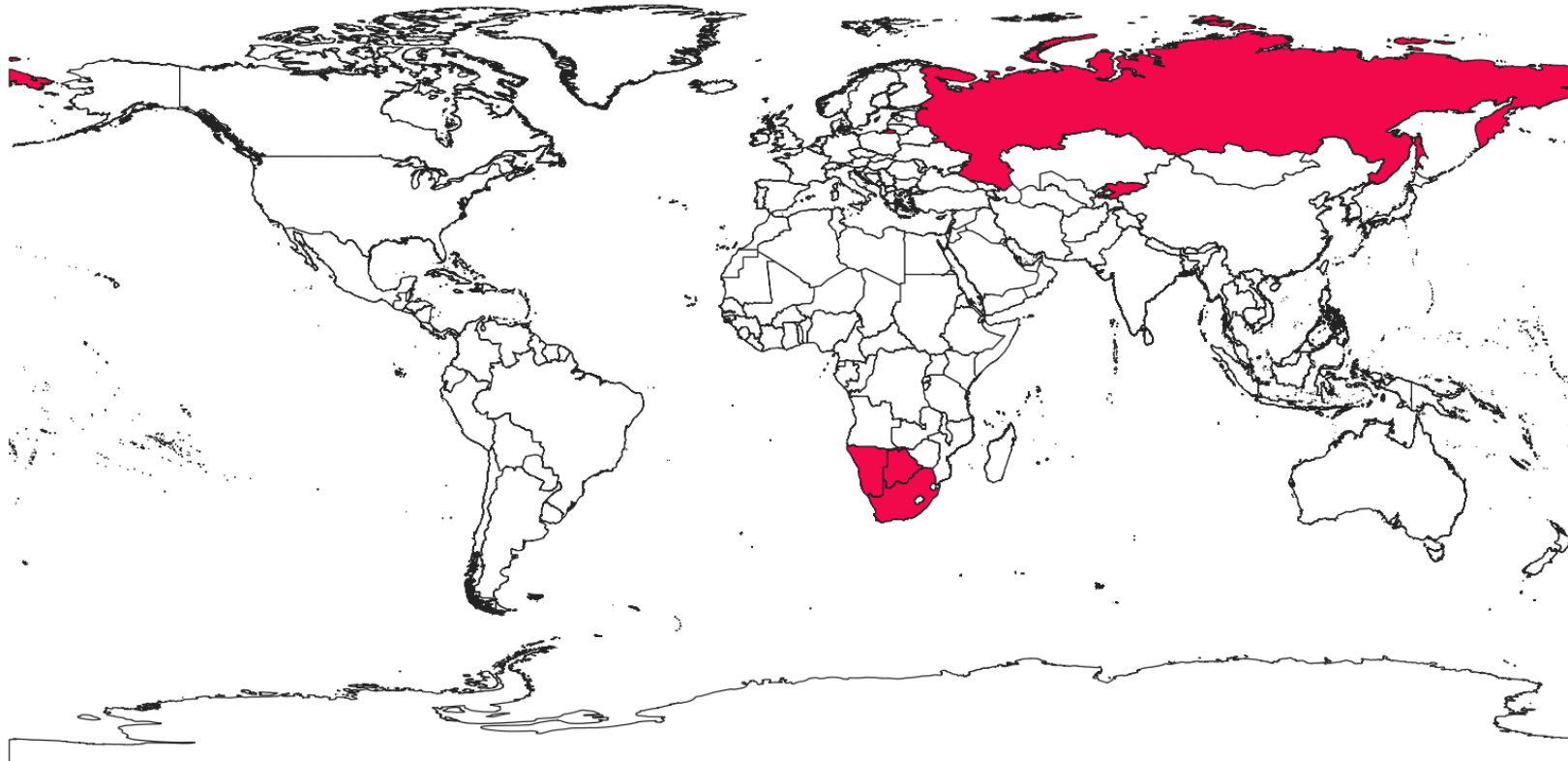
<b>SECTION 12.</b>	<b>EQUIDAE</b>
Chapter 12.1.	Infection with African horse sickness virus
Chapter 12.2.	Contagious equine metritis
Chapter 12.3.	Dourine
Chapter 12.4.	Equine encephalomyelitis (Eastern and Western)
Chapter 12.5.	Equine infectious anaemia
Chapter 12.6.	Infection with equine influenza virus
Chapter 12.7.	Equine piroplasmiasis
Chapter 12.8.	Infection with equid herpesvirus-1 (Equine rhinopneumonitis)
Chapter 12.9.	Infection with equine arteritis virus
Chapter 12.10.	Infection with <i>Burkholderia mallei</i> (Glanders)
Chapter 12.11.	Venezuelan equine encephalomyelitis





# Dourine

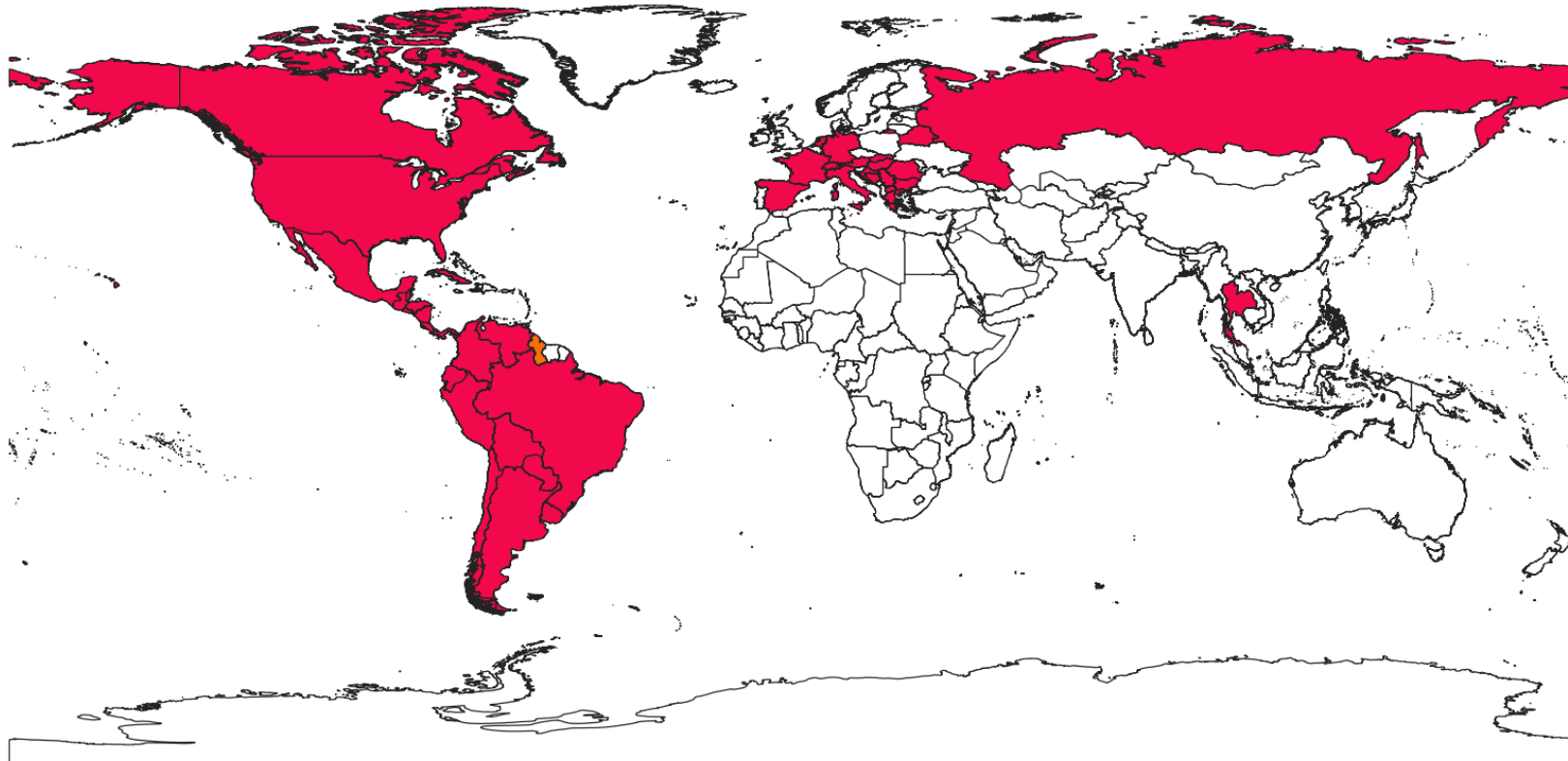
**WAHIS 2017-2021**





# Equine infectious anaemia

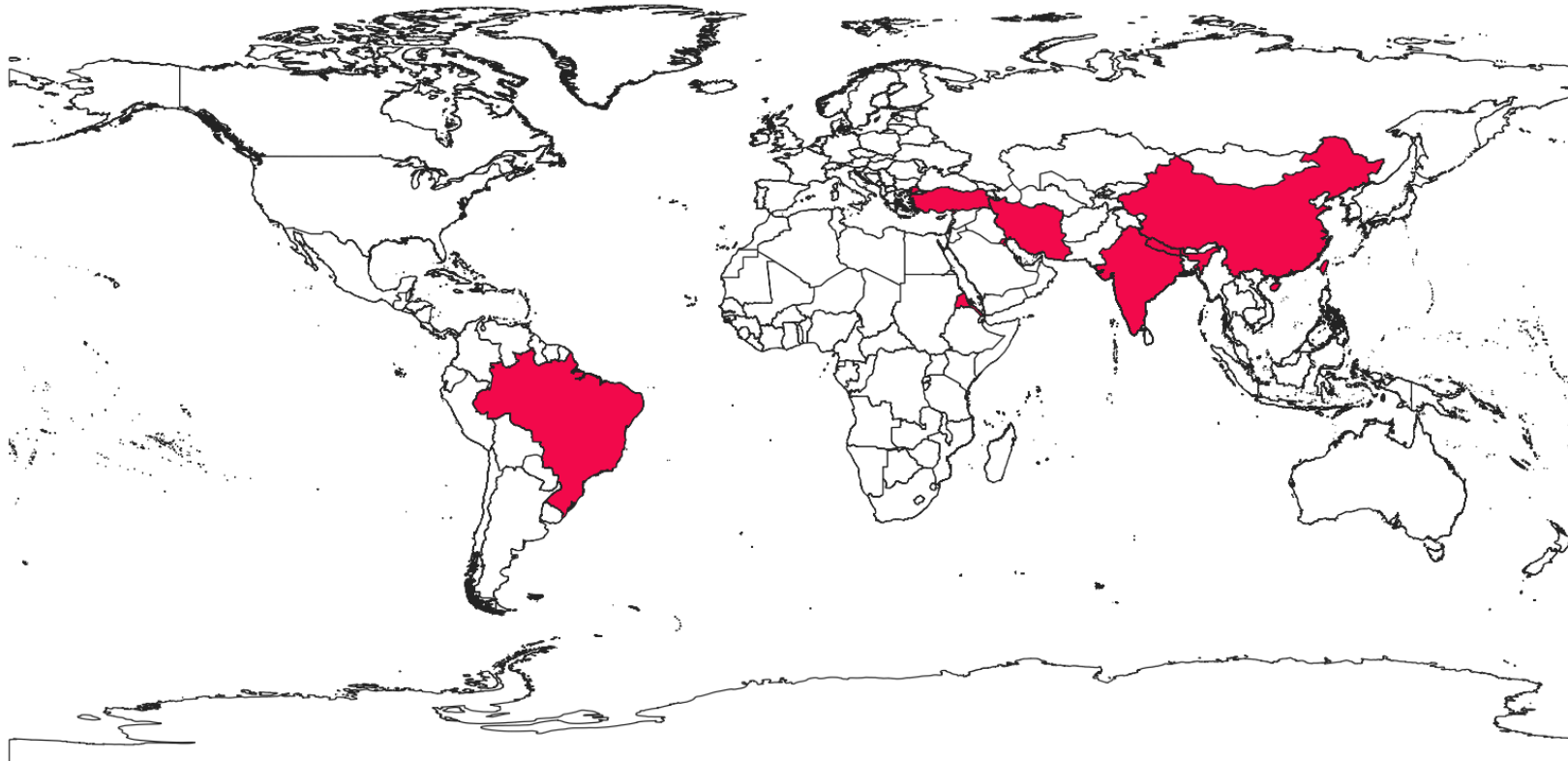
**WAHIS 2017-2021**





# Glanders

**WAHIS 2017-2021**

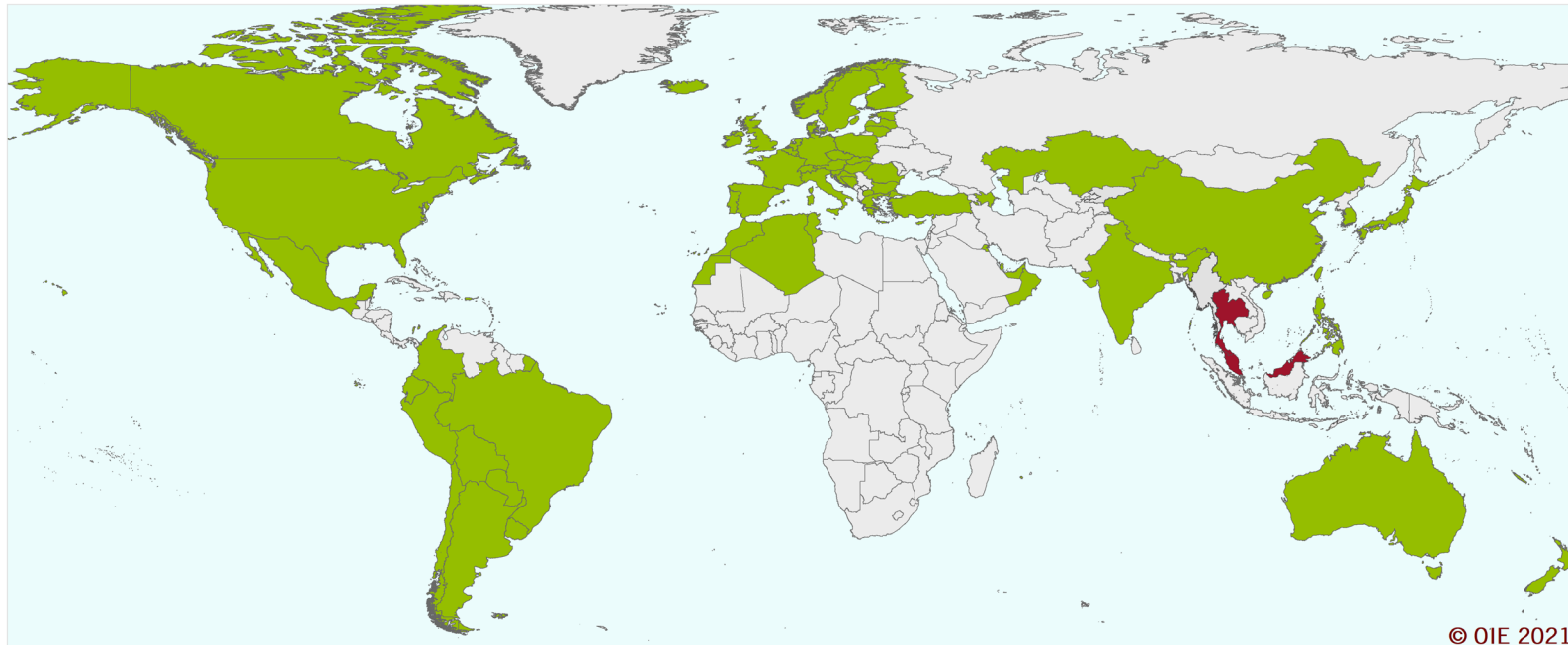







# African Horse Sickness

## OIE Members' official African horse sickness status map

Last update November 2021



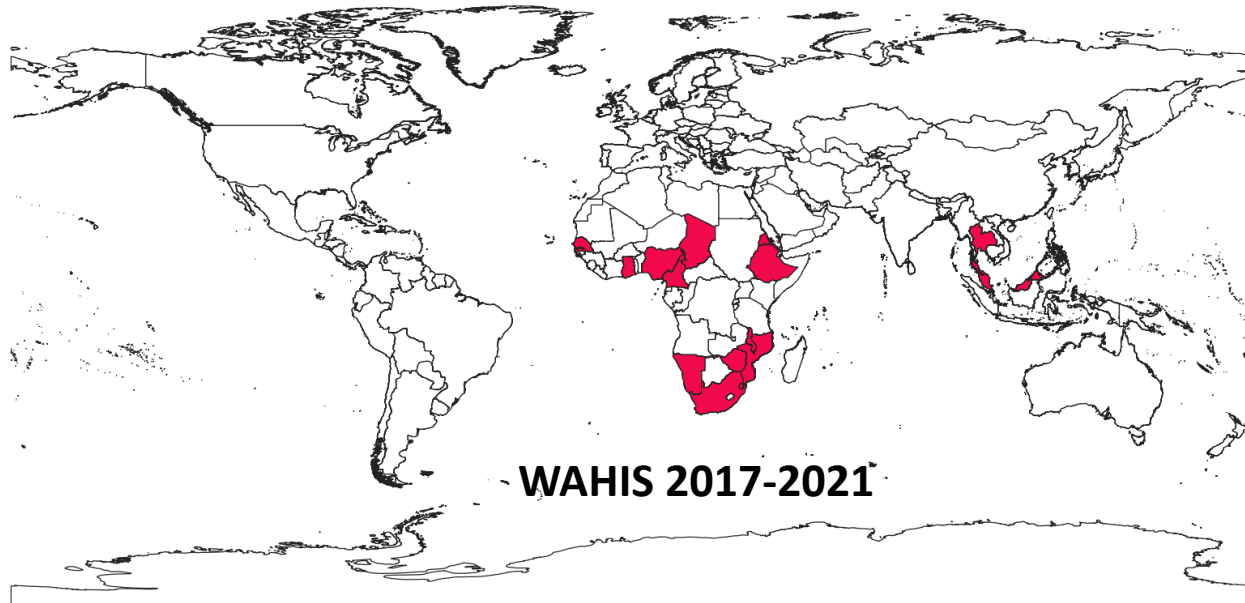
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-  Members recognised as free from AHS
-  Suspension of AHS free status
-  Countries without an OIE official status for AHS



# African Horse sickness

## Infected Countries



African Continent  
2020 -> Thailand, Malaysia

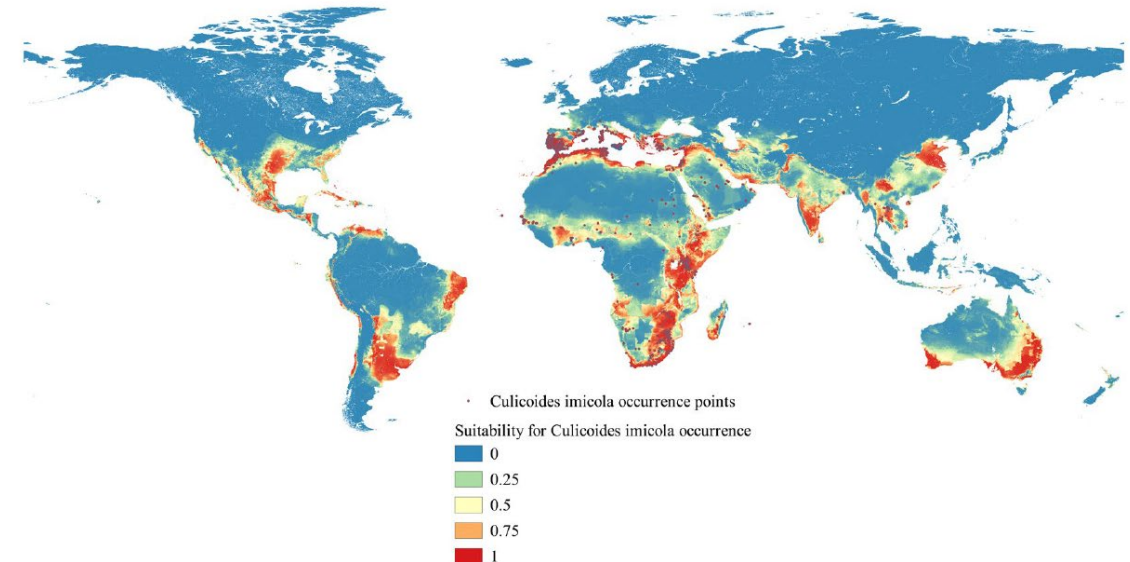


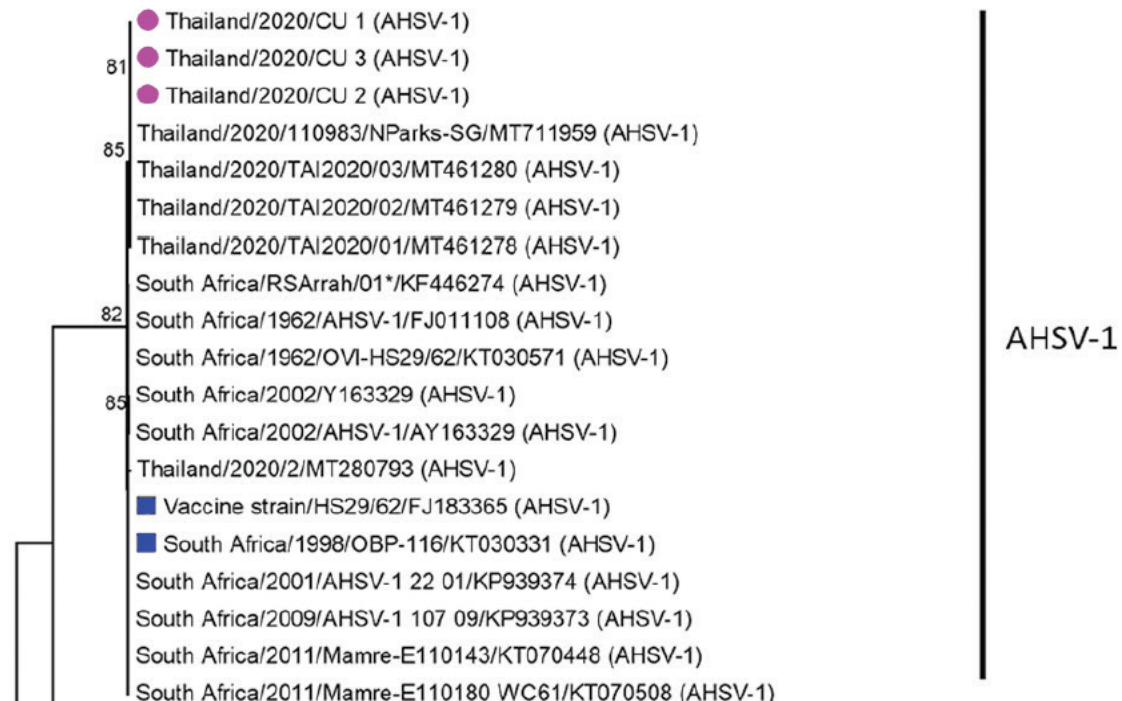
Figure 3. Predicted potential distribution of *C. imicola*. The scale indicates less suitable environment (cooler colors) and most suitable environment (warmer colors).

Leta S, Fetene E, Mulatu T, et al. Modeling the global distribution of *Culicoides imicola*: an Ensemble approach. *Sci Rep.* 2019;9(1):14187. Published 2019 Oct 2. doi:10.1038/s41598-019-50765-1



# African Horse sickness

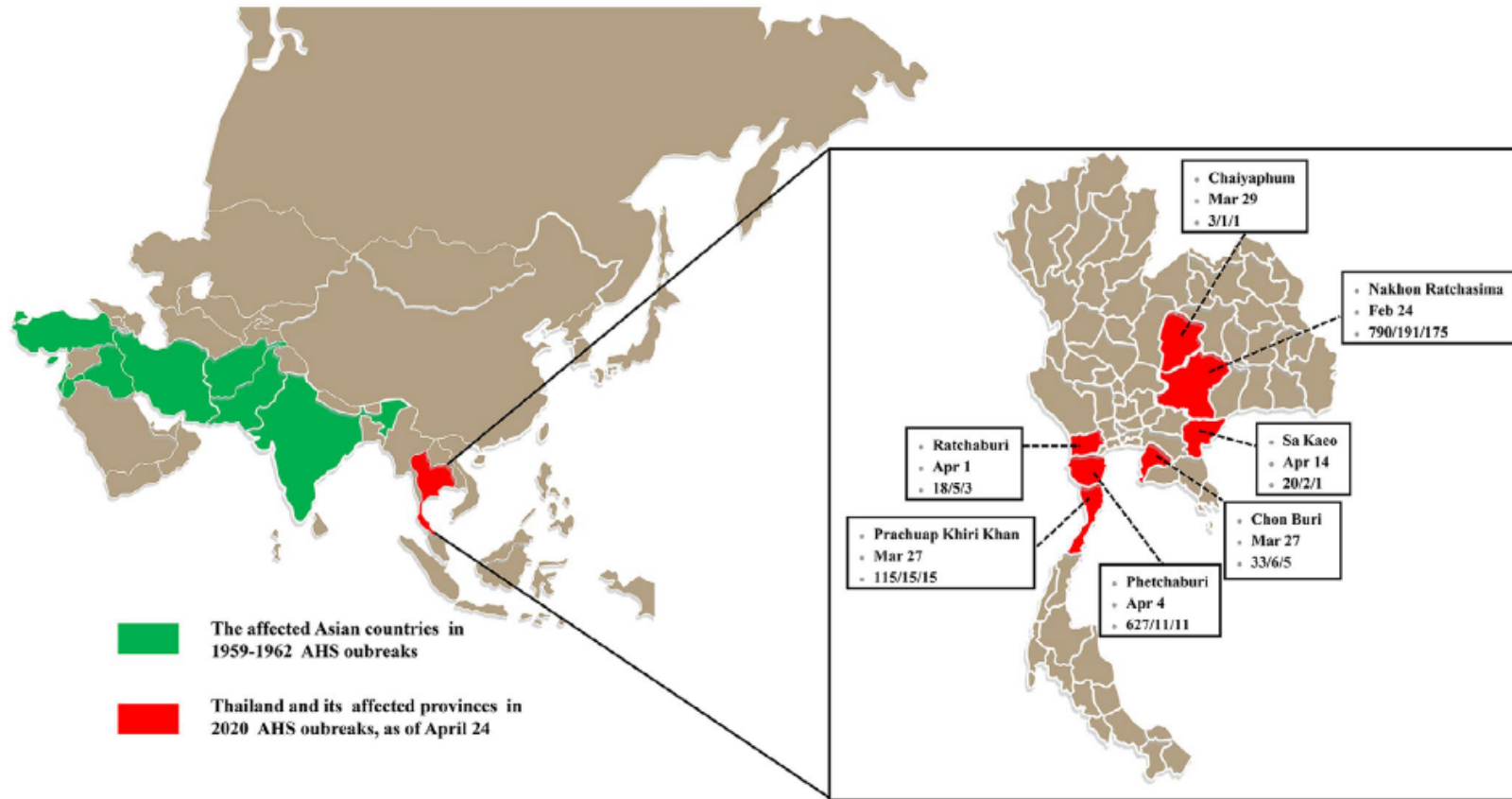
- March 2020: first introduction into Thailand







# African Horse sickness

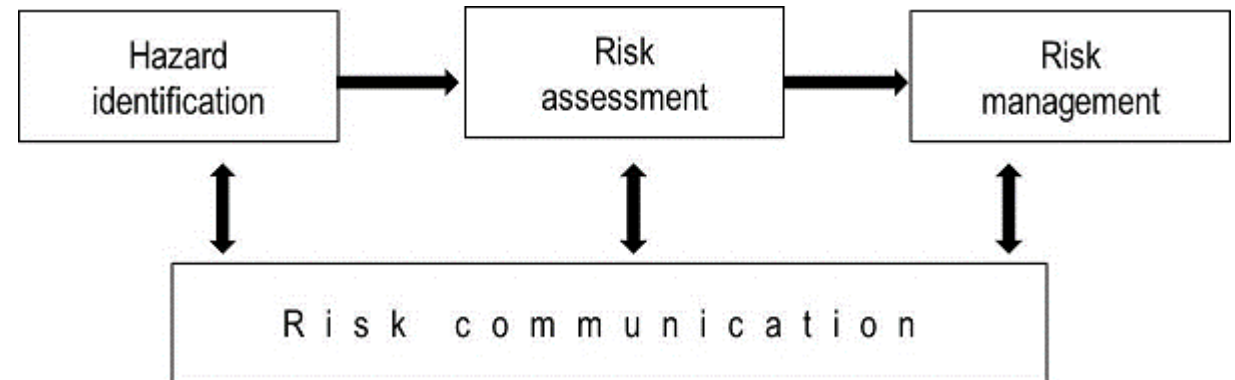


- 1959–1962 epizootic, AHSV affected ten Asian countries and resulted in the deaths of ~300, 000 equines



# Risk analysis (Chapter 2.1. TAHC)

- Hazard identification
- Risk assessment
  - Entry assessment
  - Exposure assessment
  - Consequence assessment
  - Risk estimation
- Risk management
- Risk communication



Both **qualitative** and **quantitative** risk assessment methods are valid approaches

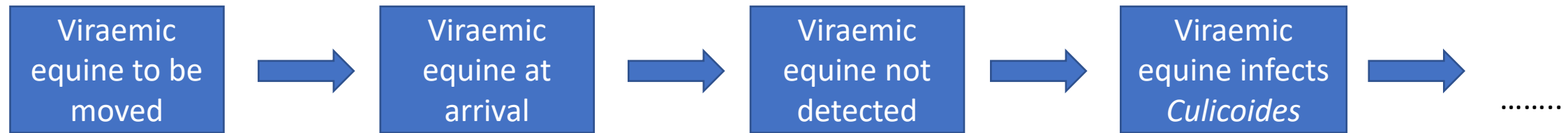


# Risk Assessment: risk questions

- Formulation of risk questions
  - What is the probability of AHSV being introduced (**Entry assessment**) into country X in the following vector season by the introduction of infected viraemic equines
  - What is the probability for the local vectors to bite and be infected by the introduced infected animals (**1<sup>st</sup> transmission step**)
  - What is the probability for the locally infected vectors to infect local horses (**2<sup>nd</sup> transmission step**)
  - What is the probability that of AHVS to persist after the vector season (**overwintering**)
  - .....



# Risk pathway



- Prob. of being infected (incidence)
- Prob. of being viraemic (duration of viraemia)
- Prob. that a viraemic animal is selected for export (unapparent form)

WAHIS  
Literature  
EKE

- Prob. that the animal is still viraemic at arrival (duration of travel / duration of viraemia)

Literature  
Trade data  
EKE

- Testing: probability of having a false negative result (1-Sensitivity test)

Literature

- Probability that a local *Culicoides* bites the infected animal (competent vector presence and abundance / vector seasonality)

Entomological data  
Literature  
EKE



# Why risk assessment

- Risk assessment helps indicating how, where, when the infection can be introduced and where, when the highest probability for spreading. It helps to better:
  - Design and implement early warning systems and risk based surveillance
  - Define border control strategies and strengthen the diagnostic system
  - Plan the use of resources to be mobilize in case of introduction, including vaccines stock



Thank you very much  
for your attention

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