



Dr Yu Qiu
OIE Project Officer

Regional FMD Situation

SEACFMD Laboratory Network Meeting
4-5 November 2019, Pakchong, Thailand

Agenda

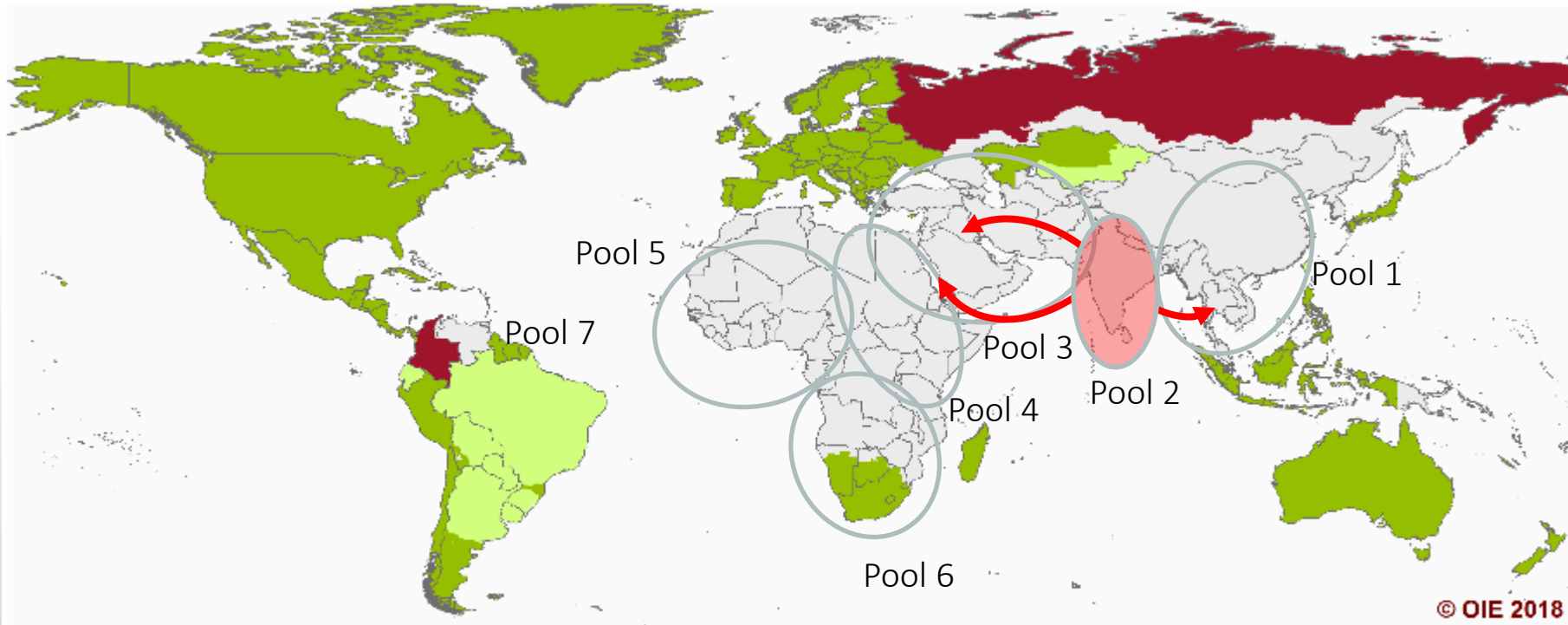
- Regional FMD Situation, 2017-2019
- Regional updates on O/ME-SA/Ind2001
- Risk of Asia-1 FMD
- Conclusions

Regional FMD situation 2017-present



- O/Mya-98
- O/PanAsia
- O/ME-SA/Ind-2001
- O/Cathay
- A/SEA-97
- Serotype Asia 1



OIE Members' official FMD status map

Last update October 2018



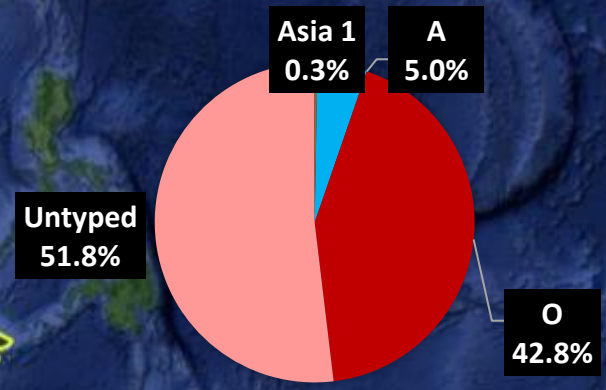
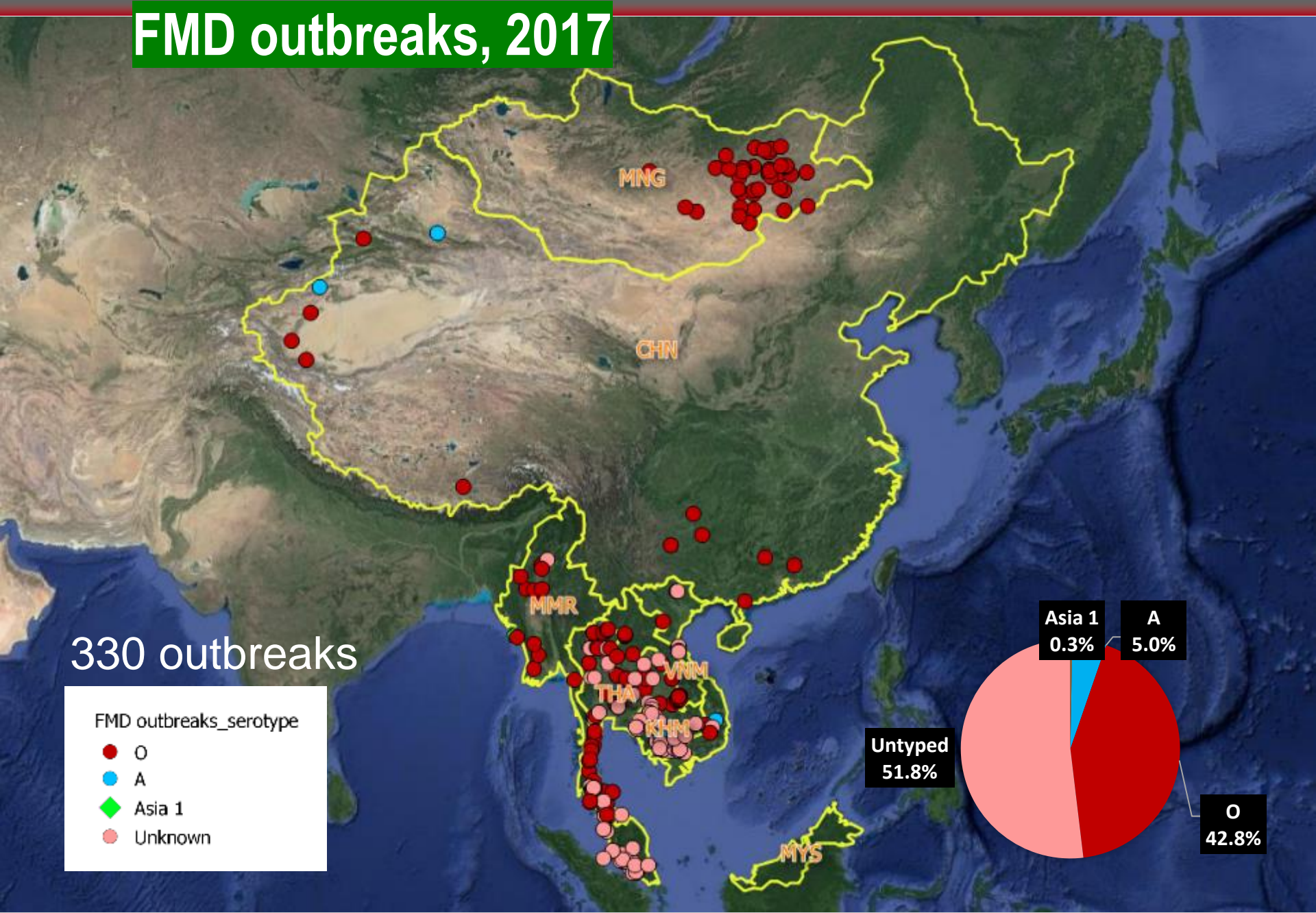
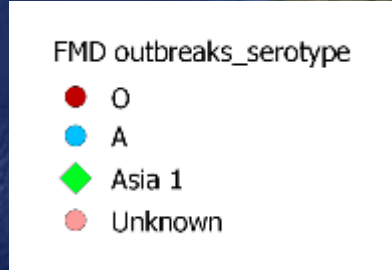
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-  Members and zones recognised as free from FMD without vaccination
-  Members and zones recognised as free from FMD with vaccination

-  Suspension of FMD free status
-  Countries and zones without an OIE official status for FMD

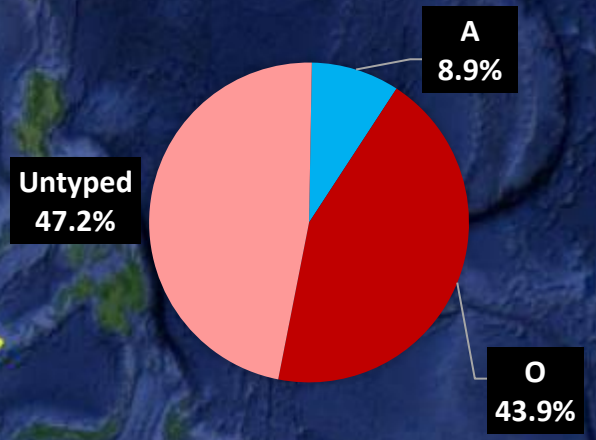
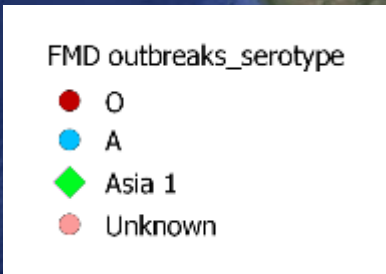
FMD outbreaks, 2017

330 outbreaks



FMD outbreaks, 2018

458 outbreaks



FMD outbreaks, 2019 (till Sept)

152 outbreaks

FMD outbreaks_serotype

- O
- A
- ◆ Asia 1
- Unknown

Untyped
81.6%

A
10.5%

O
7.9%

Genotyping of FMDVs

2017

Country	Serotype O	Topotype...				Serotype A	Topotype	Serotype Asia1
		SEA/ Mya-98	ME-SA/ PanAsia	ME-SA/ Ind-2001	Cathay			
Cambodia	+	+	+			+	+	
China	+	+		+		+	+	
Lao PDR	+	+	+					
Myanmar	+	+		+				+
Malaysia	+			+				
Mongolia	+	+	+	+		+	+	
Thailand	+	+	+	+		+	+	
Viet Nam	+	+	+	+	+	+	+	

Genotyping of FMDVs

2018

Country	Serotype O	Topotype...				Serotype A	Topotype	Serotype Asia1
		SEA/ Mya-98	ME-SA/ PanAsia	ME-SA/ Ind-2001	Cathay			
Cambodia	+		+					
China	+	+	+	+	+	+	+	
Lao PDR	+		+			+	+	
Myanmar	+					+		
Malaysia	+			+				
Mongolia	+	+	+	+				
Thailand	+	+	+	+		+	+	
Viet Nam	+	+	+		+			

Genotyping of FMDVs

2019 (till Sept)

Country	Serotype O	Topotype...				Serotype A	Topotype	Serotype Asia1
		SEA/ Mya-98	ME-SA/ PanAsia	ME-SA/ Ind-2001	Cathay			
Cambodia	+					+		
China	+		+	+				
Lao PDR								
Myanmar	+							
Malaysia	+							
Mongolia								
Thailand	+			+		+	+	
Viet Nam	+	+						



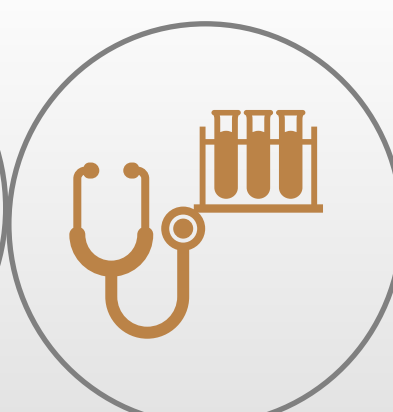
How to improve FMDV molecular epidemiological investigation



Surveillance



Reporting



Sampling



Lab diagnosis



How to improve FMDV molecular epidemiological investigation



Surveillance



Reporting



Sampling



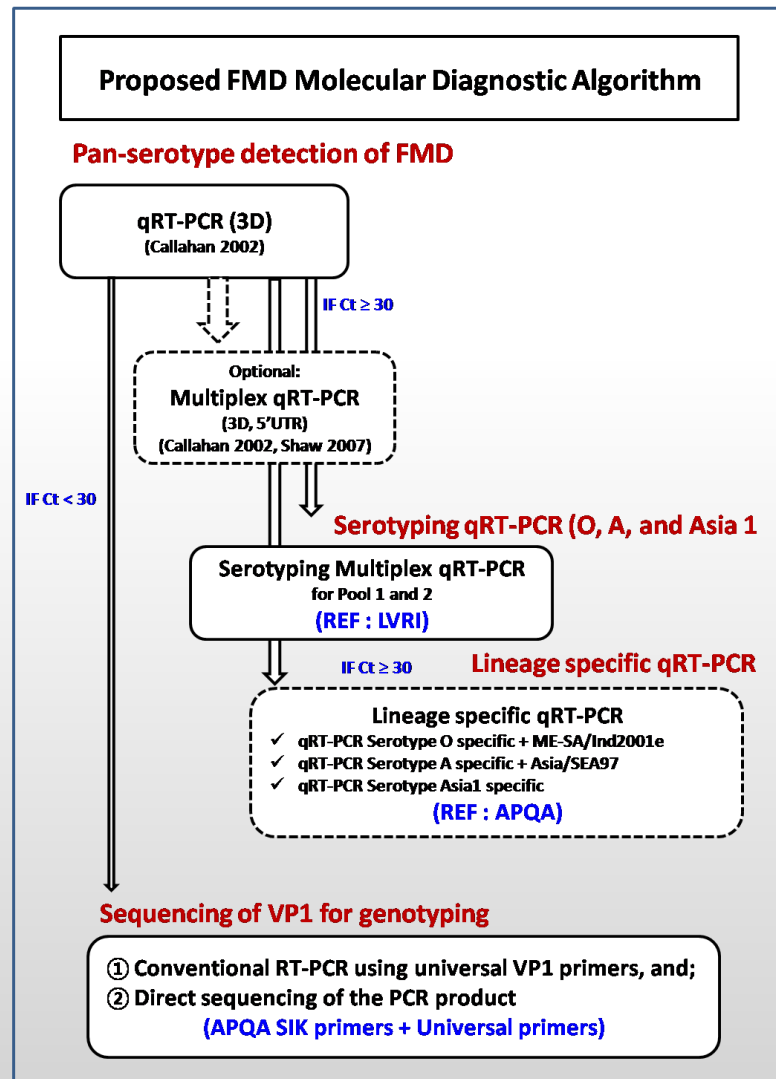
Lab diagnosis

Establishment of FMD Laboratory Regional Expert Group

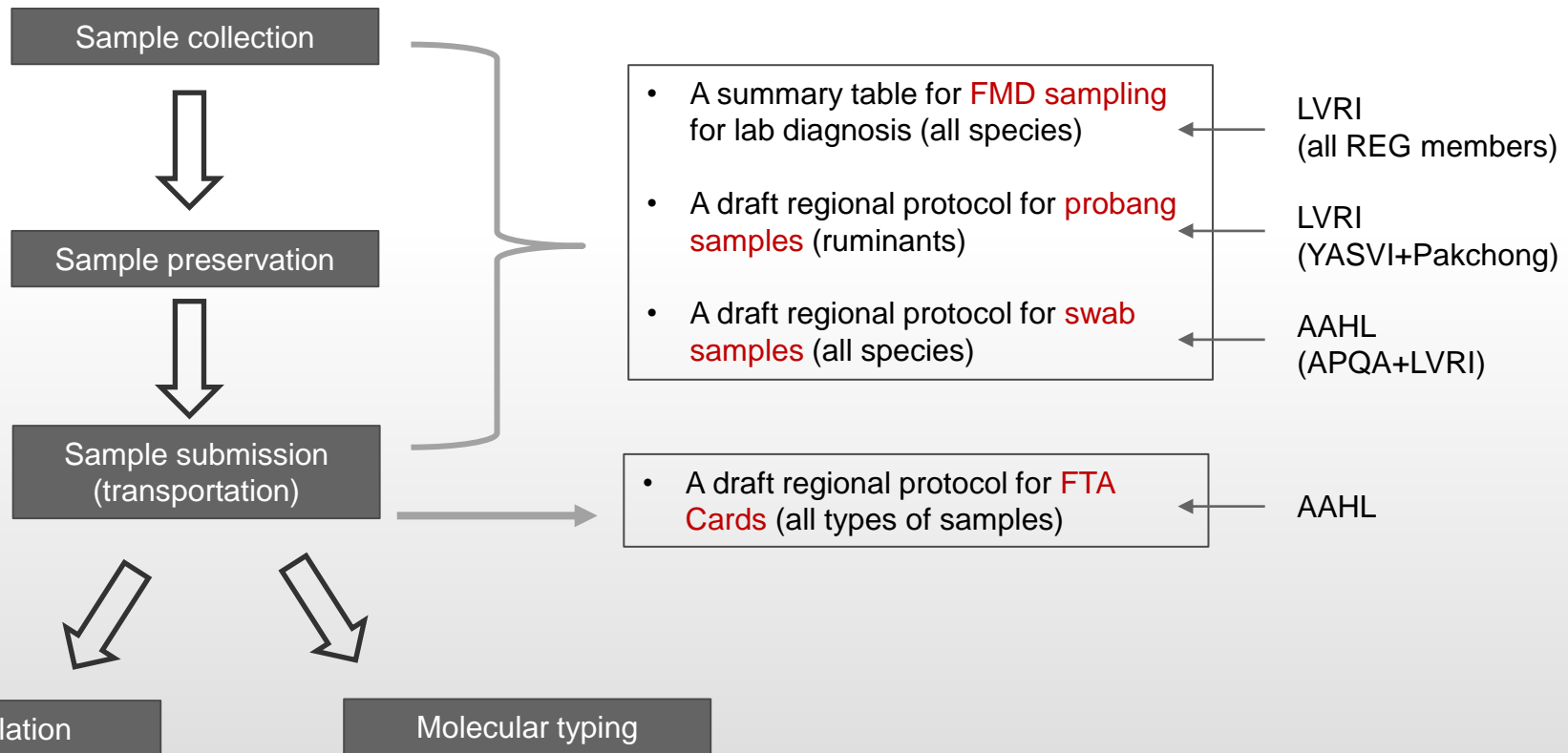


1st REG-FMD meeting, 14 – 16 May 2019, Bangkok Thailand

Proposed FMD Molecular Diagnostic Scheme



Development of SOPs for robust FMD field sampling



Agree not to explore a regional technical guideline on cell culture and VI

Discussed at Session 1

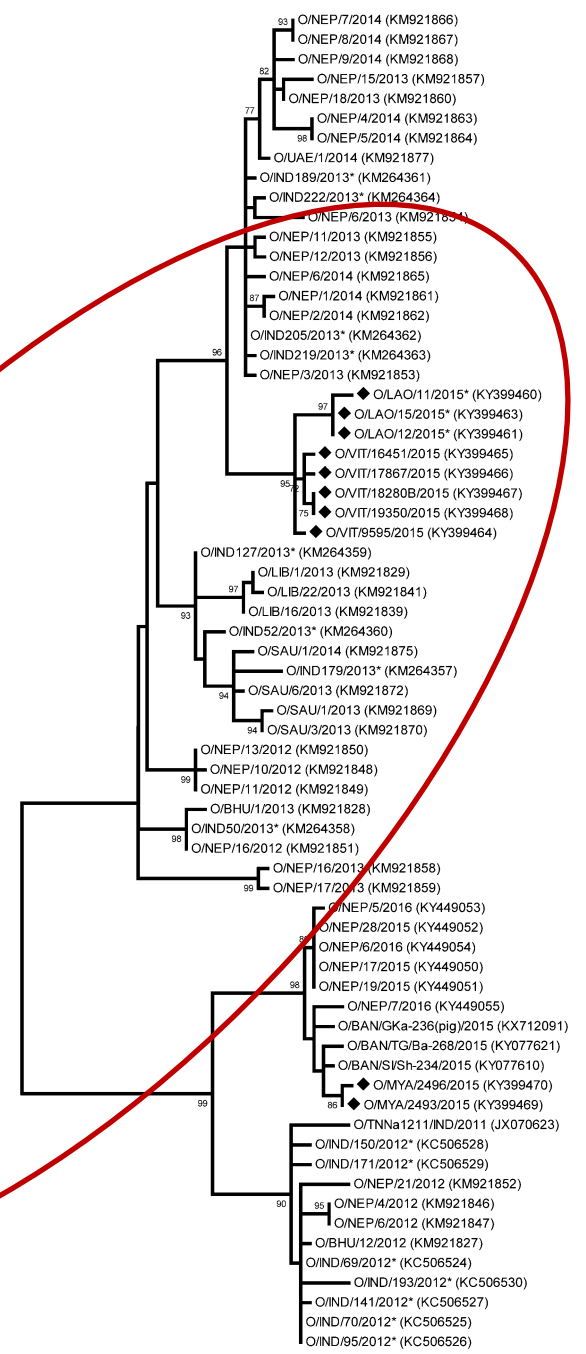
Risk of O/ME-SA/Ind2001

Updated regional situation

O/Ind2001d
2015

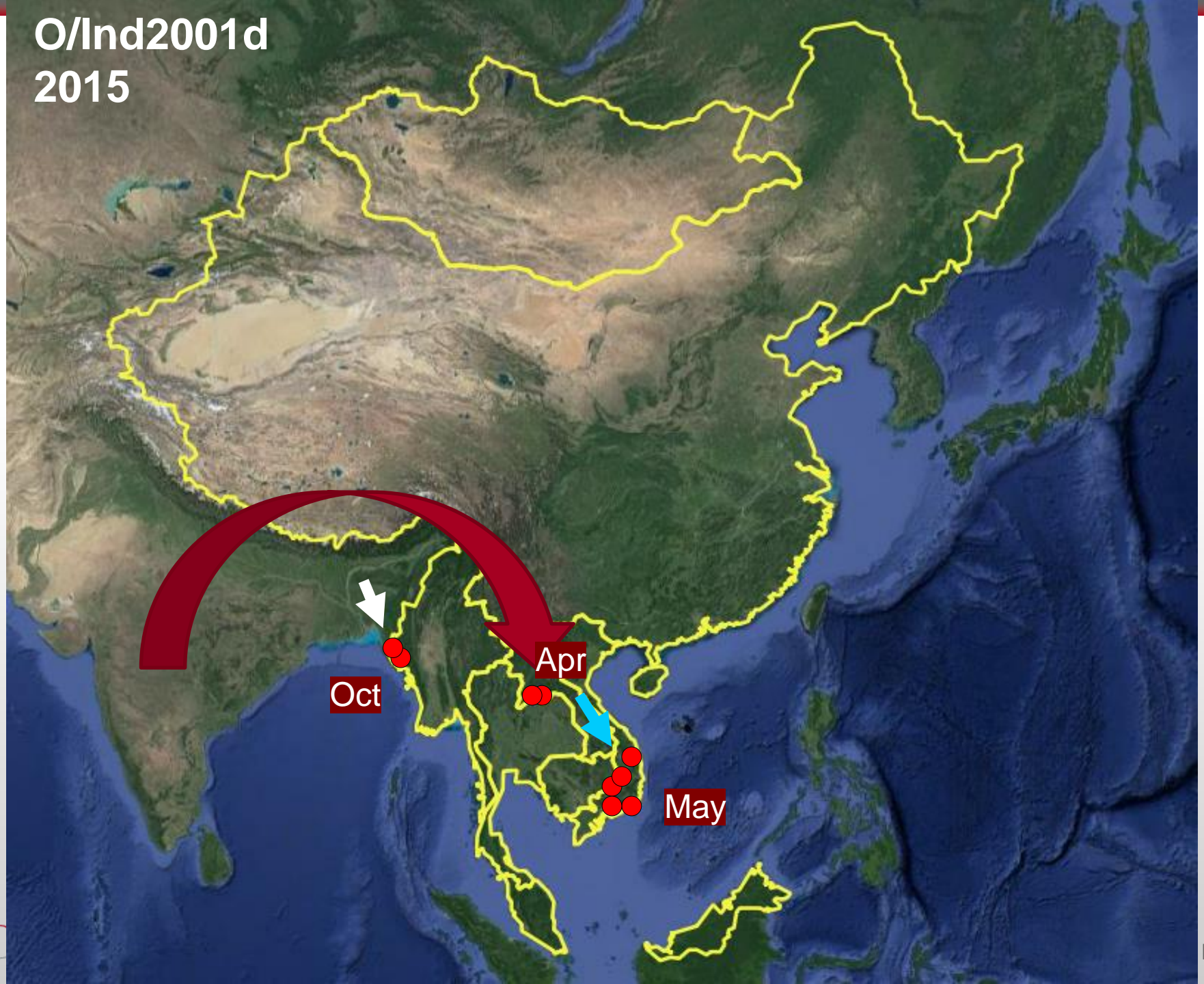


O/Ind2001d 2015

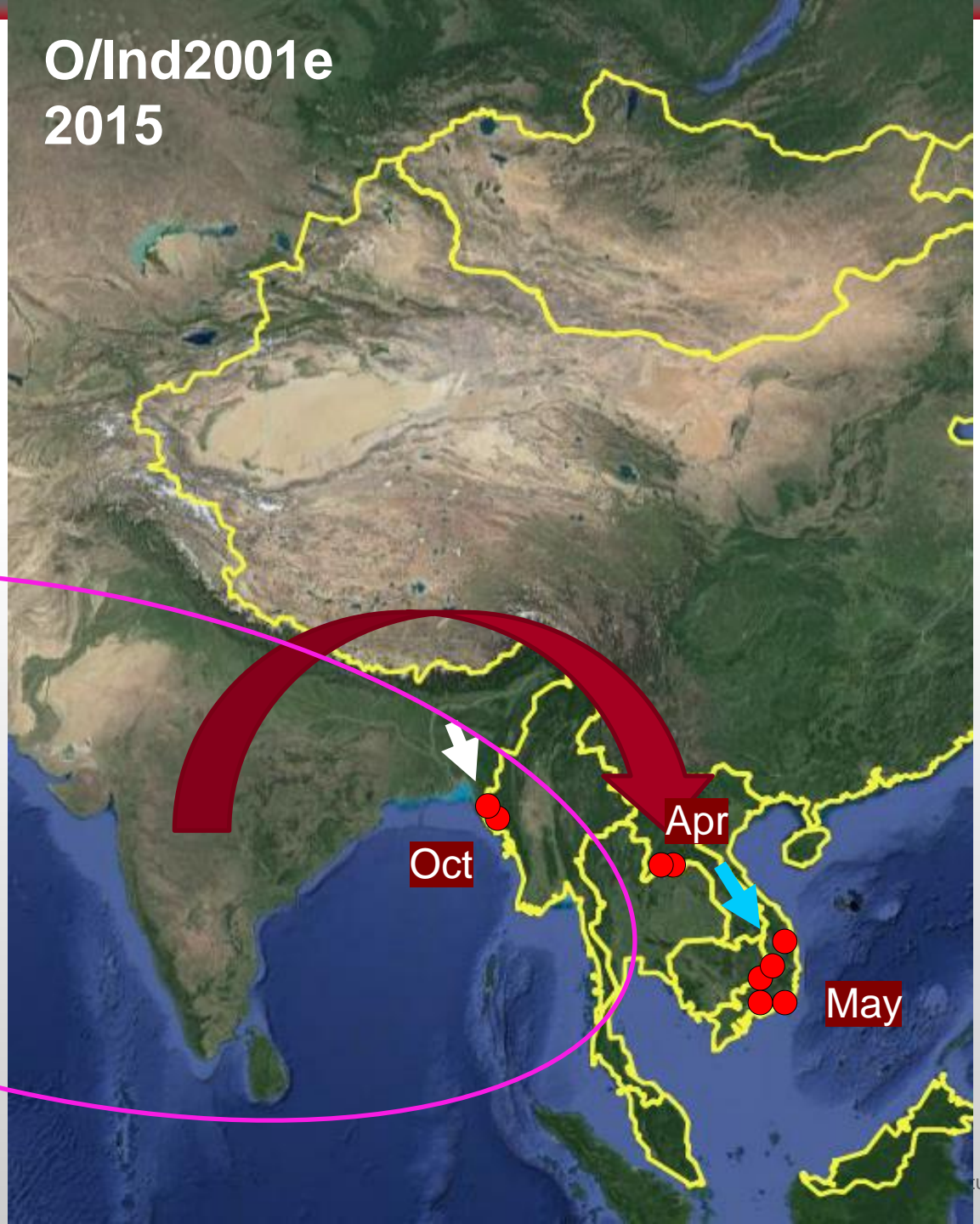
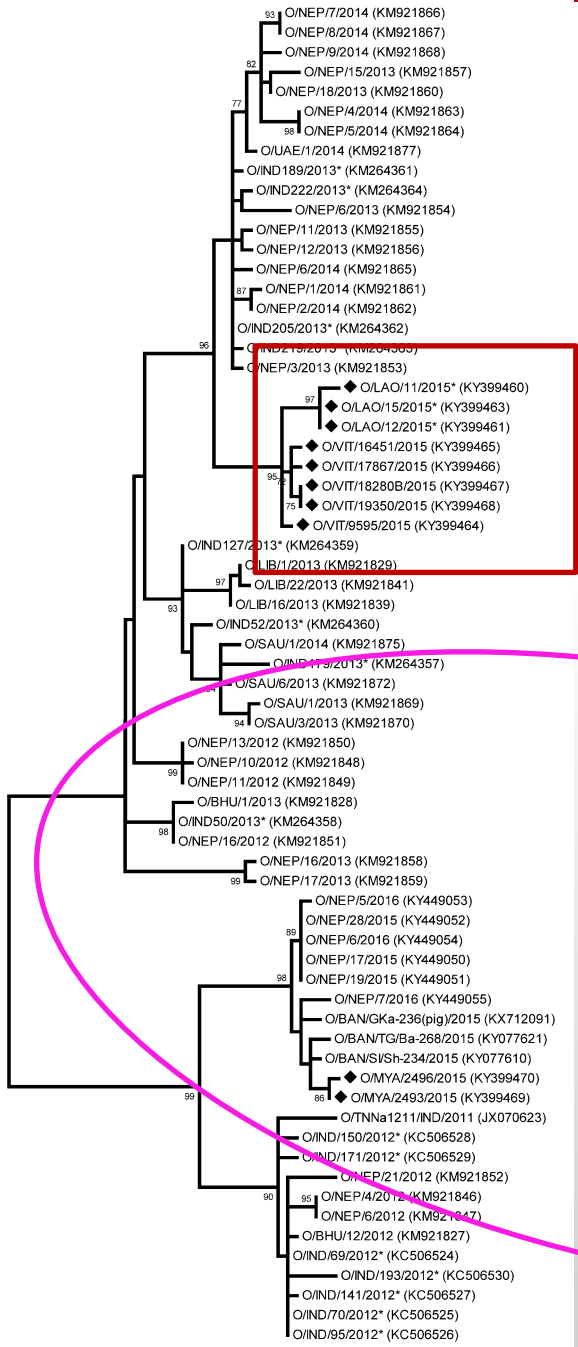


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O/Ind2001d 2015

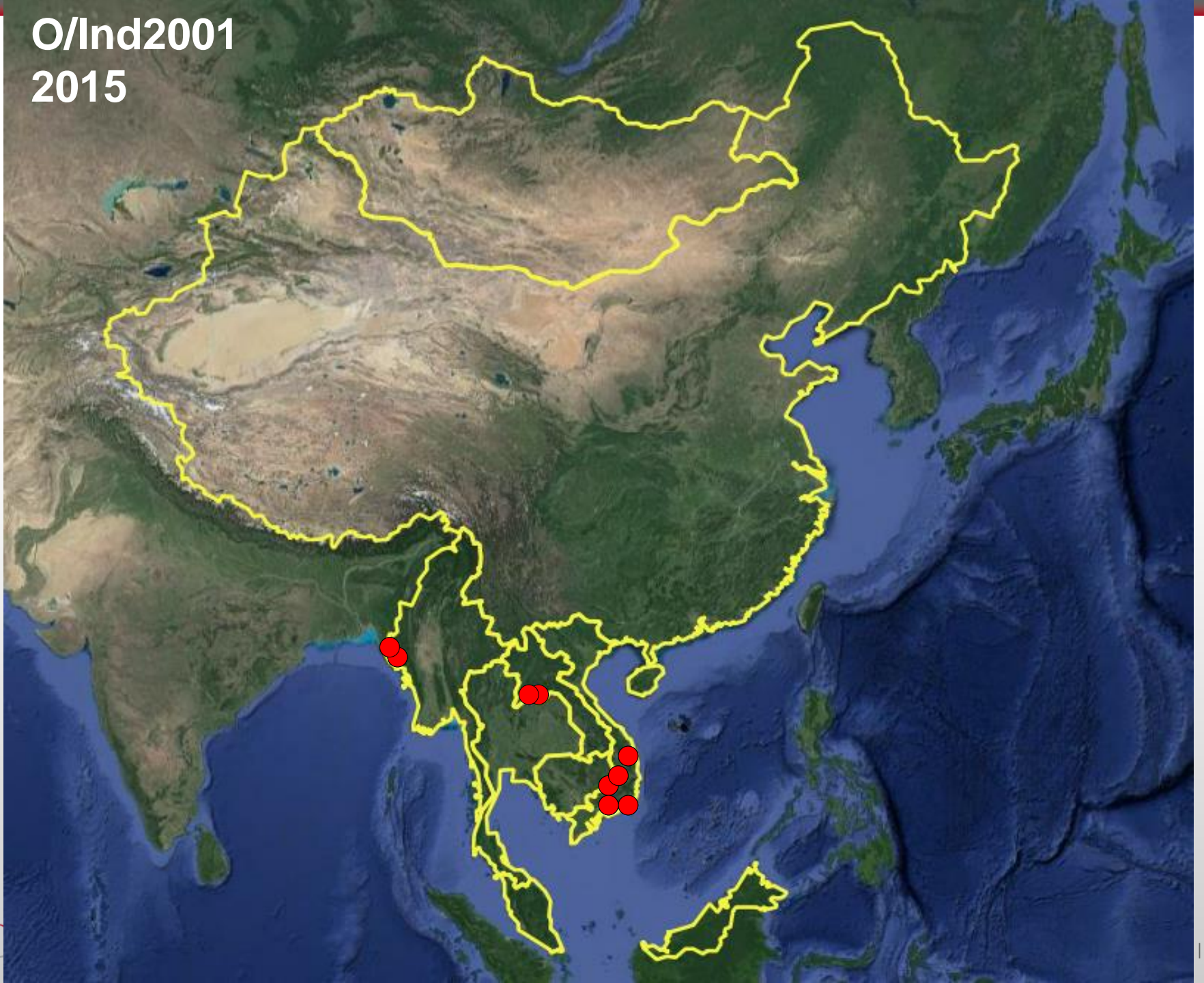


O/Ind2001e 2015

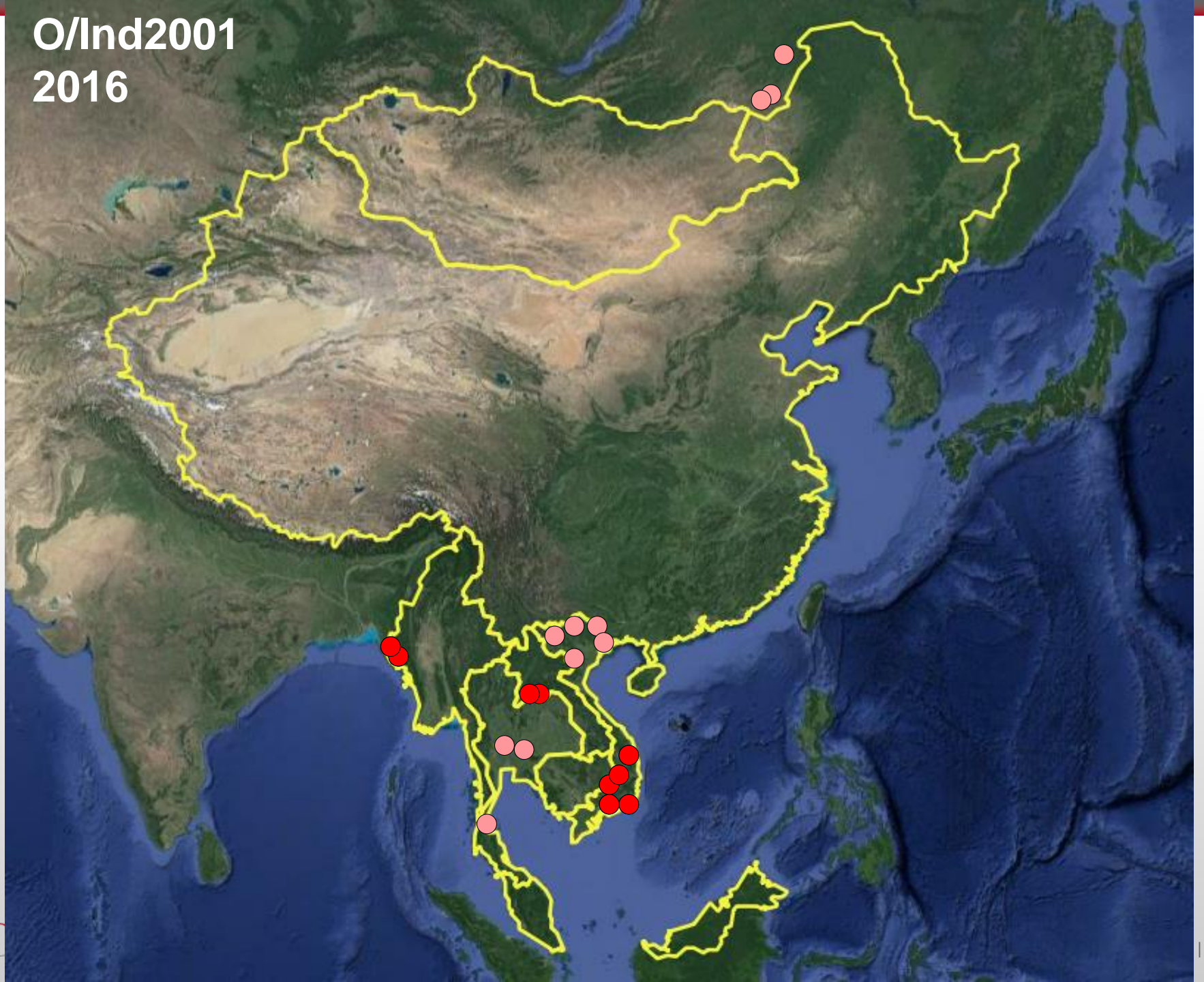


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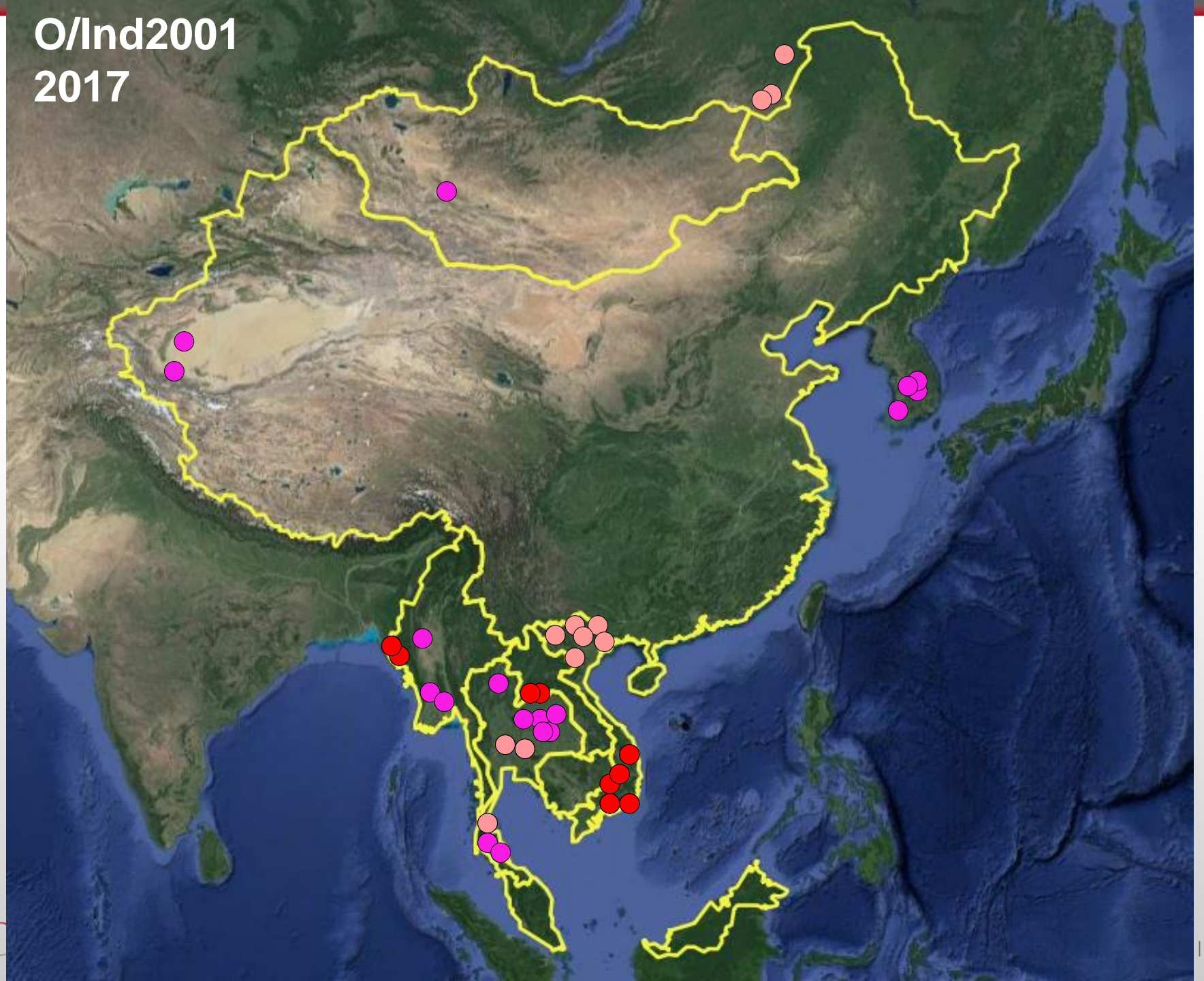
O/Ind2001
2015



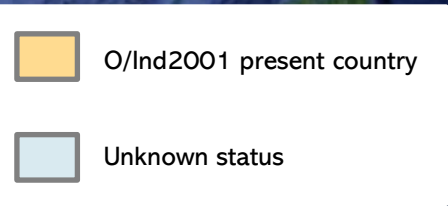
O/Ind2001
2016



O/Ind2001
2017



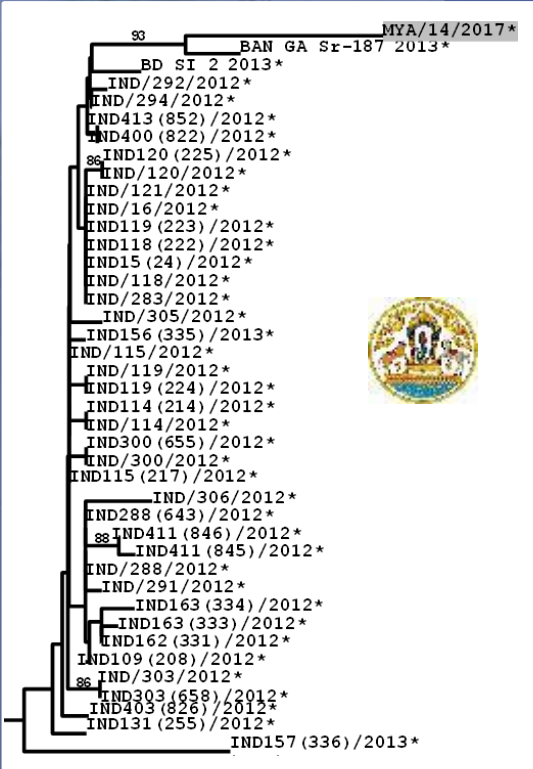
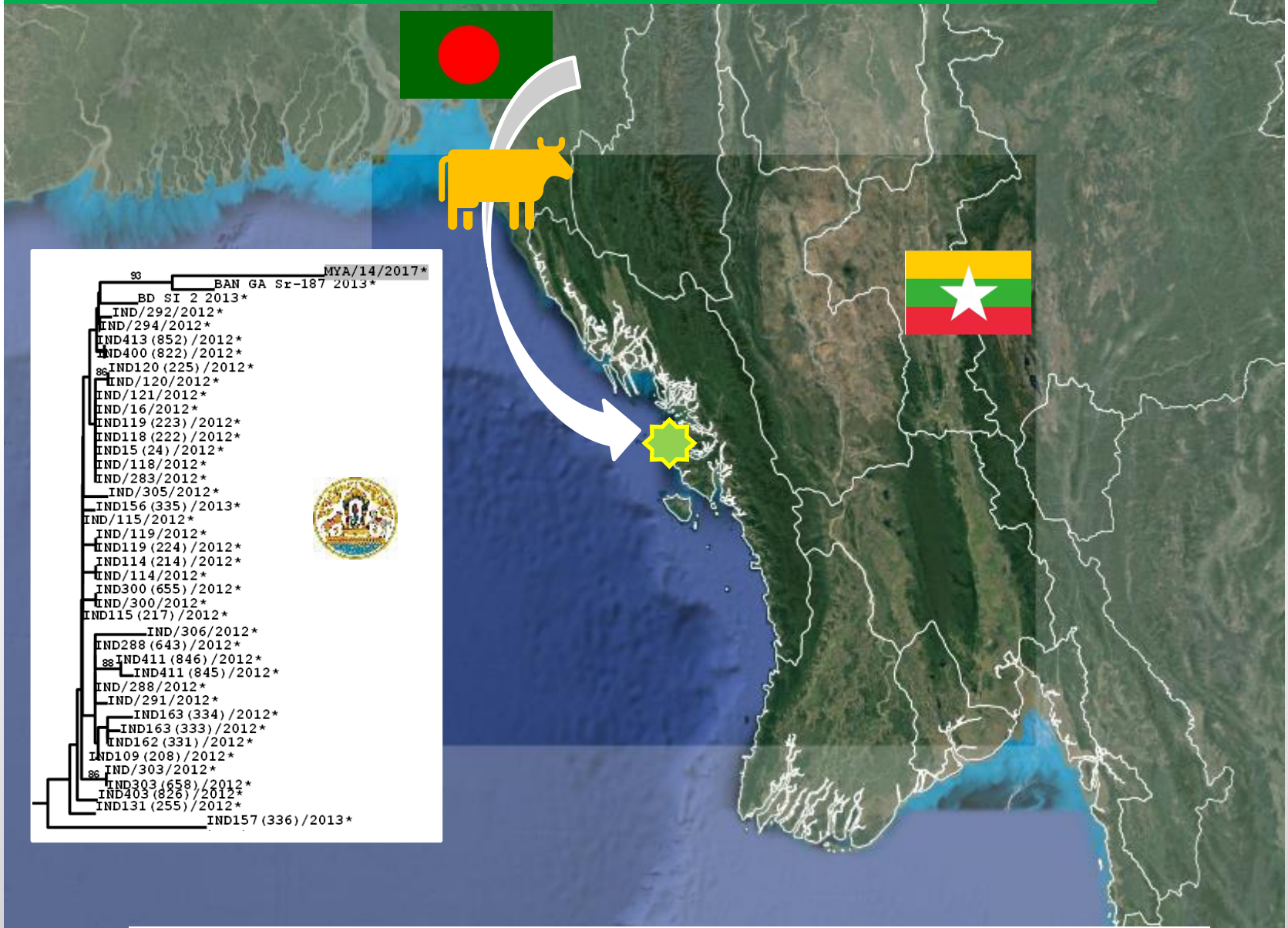
O/Ind2001 2018



Risk of Asia-1 FMD

Follow up investigation in Myanmar


Serotype Asia 1 in Myanmar in January 2017




No further Asia 1 outbreaks reported so far

Asia-1 FMD outbreak in Myanmar

SHORT COMMUNICATION

WILEY  Transboundary and Emerging Diseases

Foot-and-mouth disease outbreaks due to an exotic serotype Asia 1 virus in Myanmar in 2017

Lin Lin Bo^{1,*} | Khin Sander Lwin^{2,*} | Sahawatchara Ungvanijban³ | Nick J. Knowles⁴ |
Jemma Wadsworth⁴ | Donald P. King⁴ | Ronello Abila⁵ | Yu Qiu⁵ 



Asia-1 FMDV Serosurveillance

Study 1



- NZ vaccination project baseline survey
- Cattle sera collected from end 2016 to early 2017
- 51 samples from 18 villages sent to WRL for VNT against Type Asia-1

Asia-1 FMDV Serosurveillance

Study 1



- NZ vaccination project baseline survey
- 6 sera samples from 3 villages tested positive against Asia-1 by VNT
- 5 samples inconclusive, 40 samples negative

Asia-1 FMDV Serosurveillance

Study 2



- STANDZ FMD serosurveillance study
- Sera collected from all susceptible species in early 2018
- 152 sera samples from 41 villages tested positive against Type Asia-1 and negative against Types O and A in the screening LP ELISA tests in Myanmar
- Confirmatory test by VNT against Asia-1 at WRL

Asia-1 FMDV Serosurveillance

Study 2



- STANDZ FMD serosurveillance study
- Only 1 sample tested positive against Asia-1 by VNT at WRL
- 8 inconclusive, 144 negative

2nd REG-FMD meeting on serology

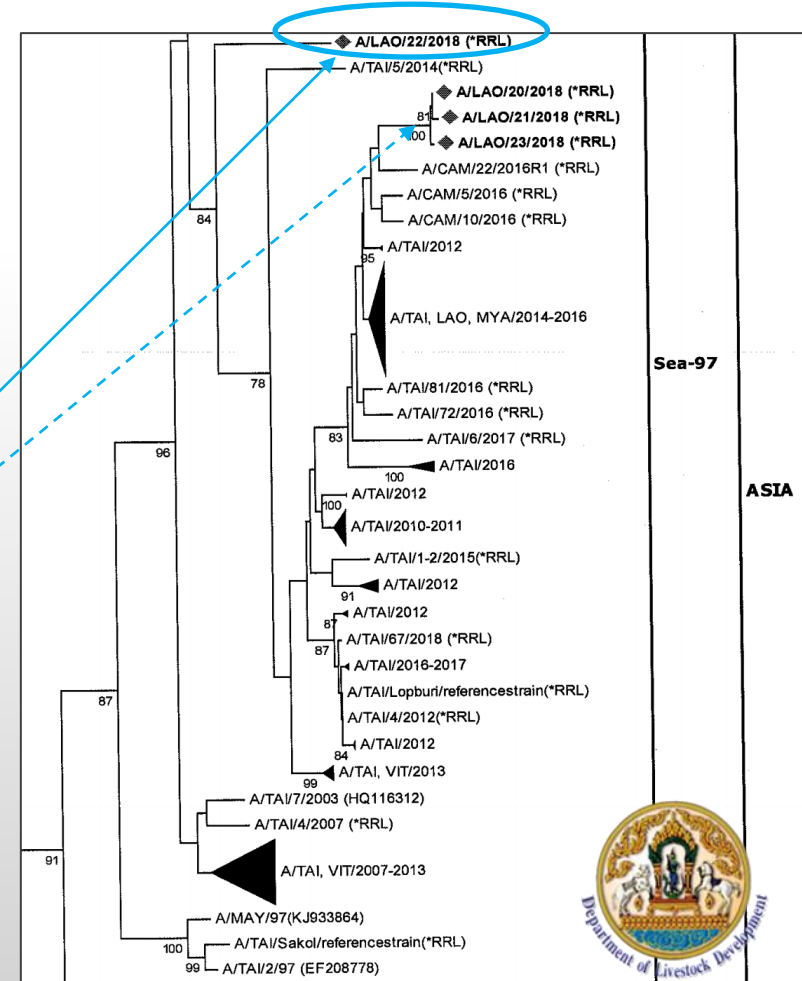
31 Oct - 1 Nov 2019, Bangkok, Thailand



Finalized recommendations will be shared with the SEACFMD LabNet

Serotype A variant in Laos in 2018

<95% identity to all known type A viruses



Conclusion

- Upsurge in serotype A outbreaks has been noted in 2019, especially in Thailand; genetic drift serotype A variant was detected in Southern Laos.
- O/ME-SA/Ind2001 lineage has been continuously circulating in the region since its introduction.
- Improved FMD sampling and molecular typing would improve our knowledge of molecular epidemiology.
- The probability of silent circulation of type Asia-1 FMDV at low levels can not be excluded. Serological surveillance can be complicated by animals' vaccination status and cross-reactivity between different serotypes; robust virological surveillance is preferred to monitor Asia-1 FMDV status.

THANKS FOR YOUR ATTENTION!

