



The Epidemiology of FMD in Vietnam and how that reflects the FMD situation in SEA

Dr. Ngo Thanh Long & Dr. Do Huu Dung
Department of Animal Health, Vietnam

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Background

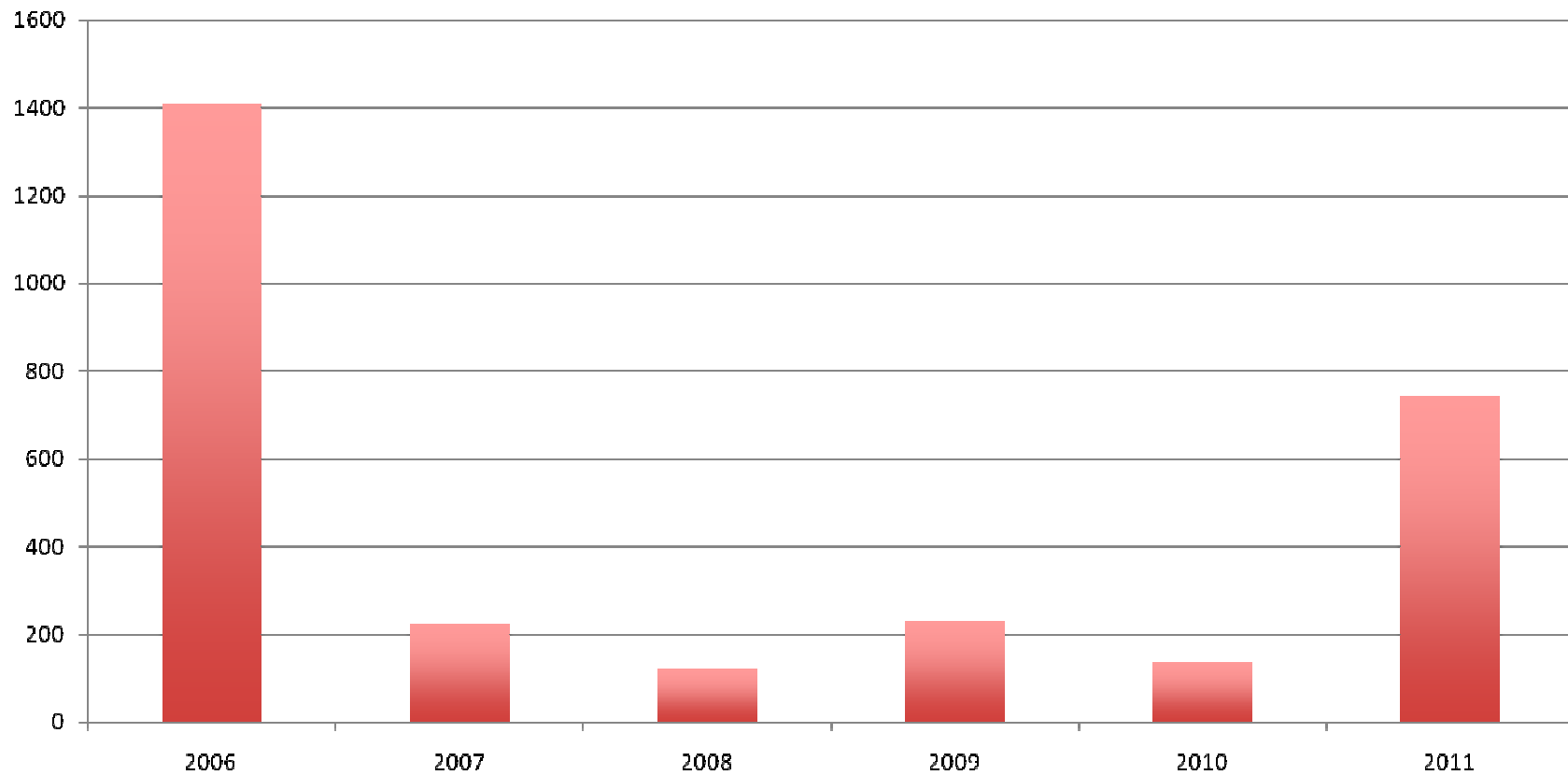
- FMD is a notifiable disease in Vietnam
- National Program on FMD Control (Phase I, 2006 - 2010, 35 million USD; Phase II, 2011 - 2015, 31 million USD):
 - Vaccine cost
 - Vaccine matching routine done by Pirbright.
 - Post-vaccination monitoring
- Member of the OIE SEACFMD Campaign

Epidemiology of FMD in Vietnam

1- Temporal distribution



No. of outbreaks by year

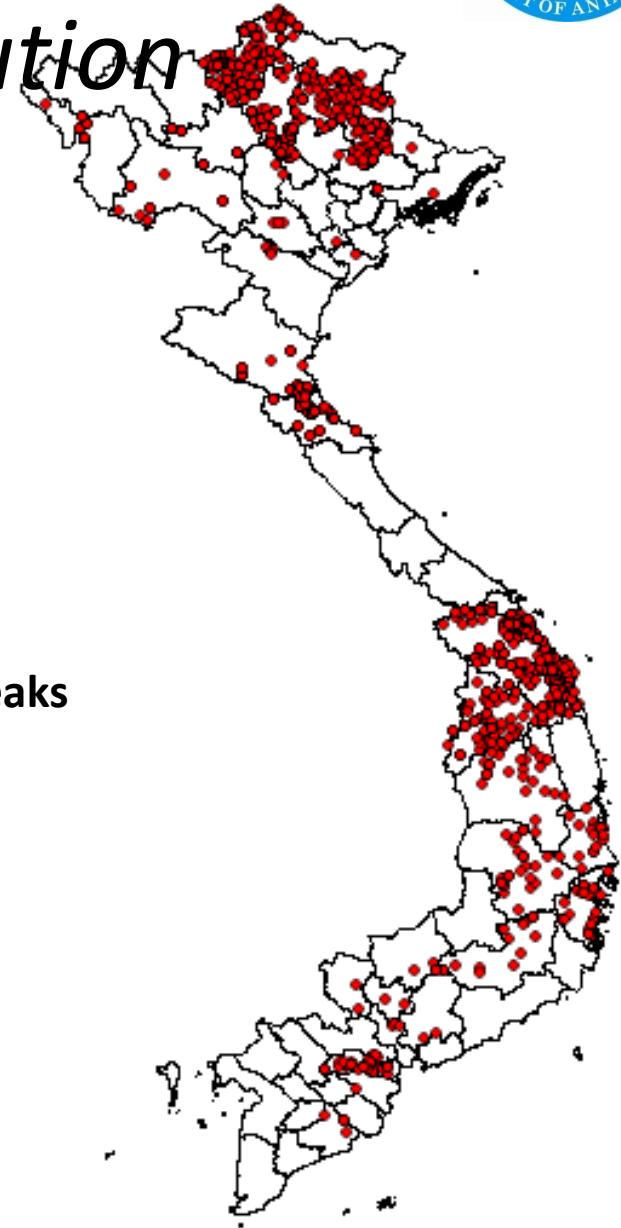


Epidemiology of FMD in Vietnam



2 - Spatial distribution

**Spatial distribution of FMD outbreaks
in Viet Nam in 2011**



Epidemiology of FMD in Vietnam

3 - *Virus serotypes*



Period/Year	Serotypes detected
1993 - 2004	O
2005	O, A, Asia1
2006	O, A
2007	O, A, Asia1
2008	O, A
2009	O, A
2010	O
2011	O

Epidemiology of FMD in Vietnam

3 - *Virus serotypes*



Serotype O

- the most common; 3 topotypes
 - SE Asia - endemic in Vietnam
 - Myanmar 98
 - Cambodia 84
 - Pan Asia - introduced in 1999
 - Cathay - pig adapted, present in Vietnam 1995 to present.

Serotype A

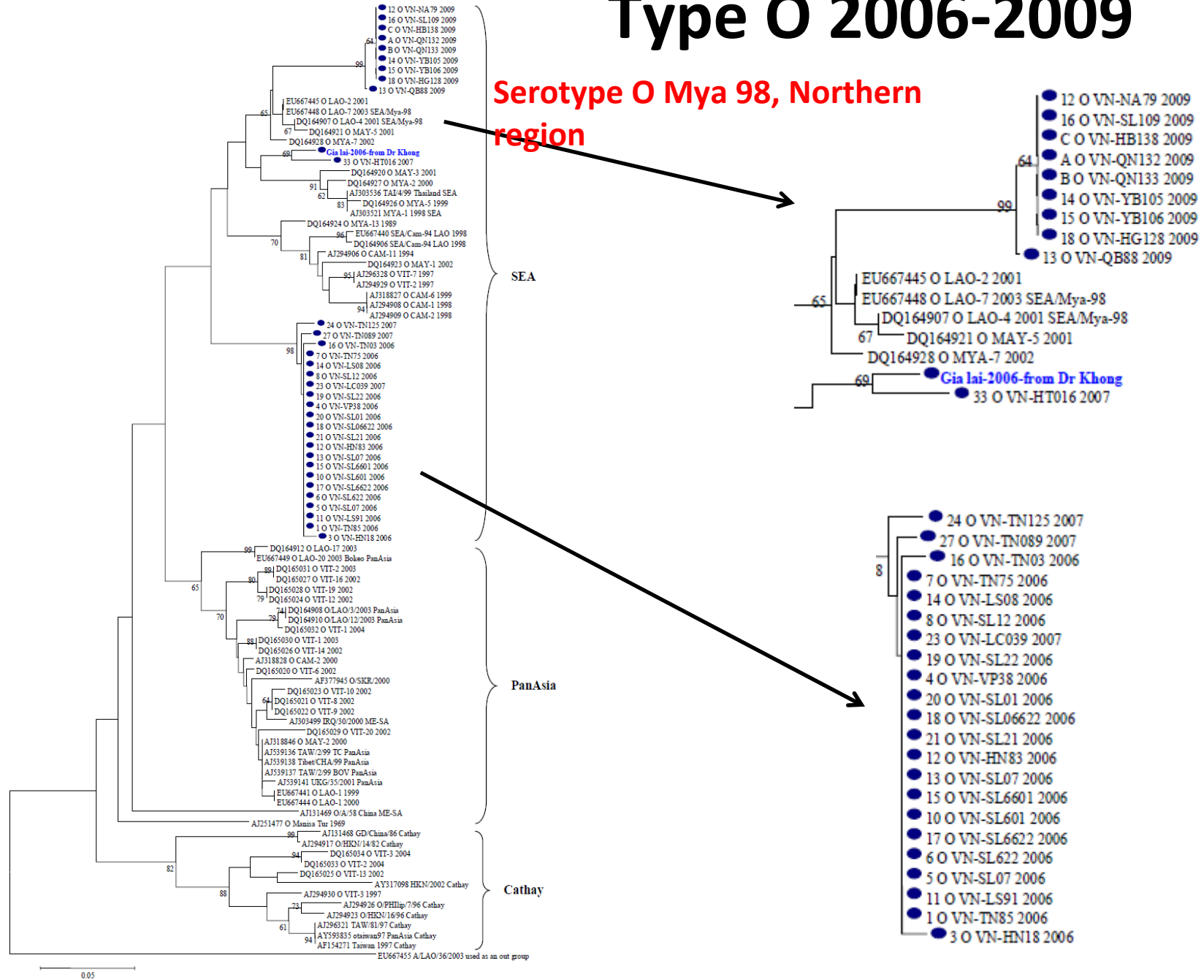
- 1st reported in Vietnam in 2004

Serotype Asia 1

- Sporadic outbreaks in Vietnam
- Last seen in Vietnam in 2007

Phylogenetic tree for type O

Type O 2006-2009



Epidemiology of FMD in Vietnam



4 - Host

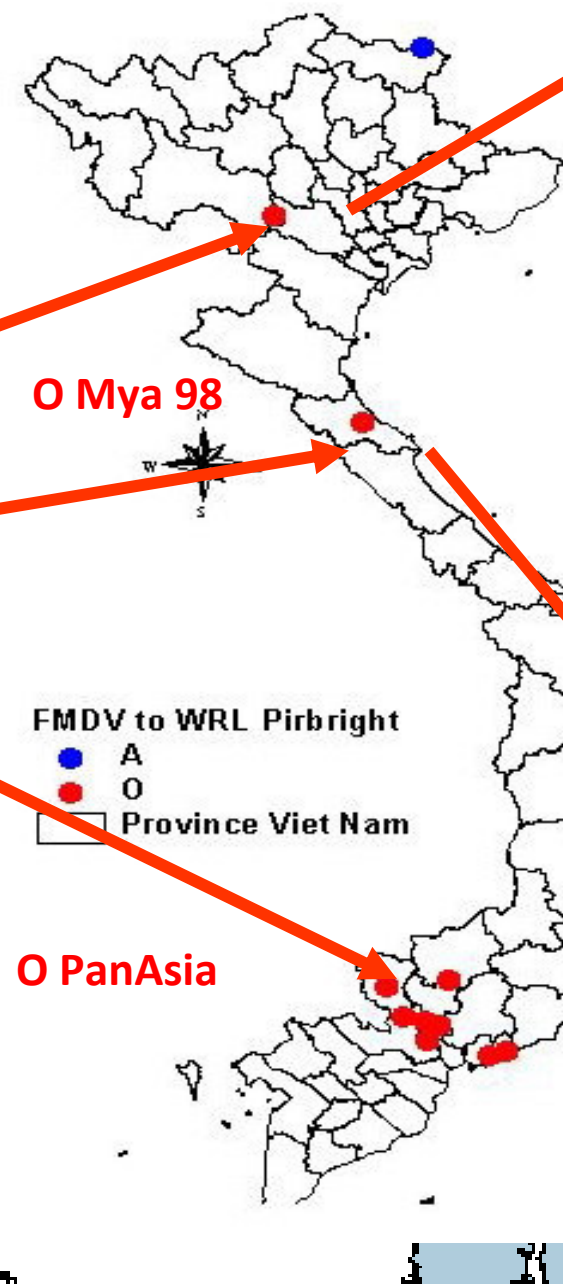
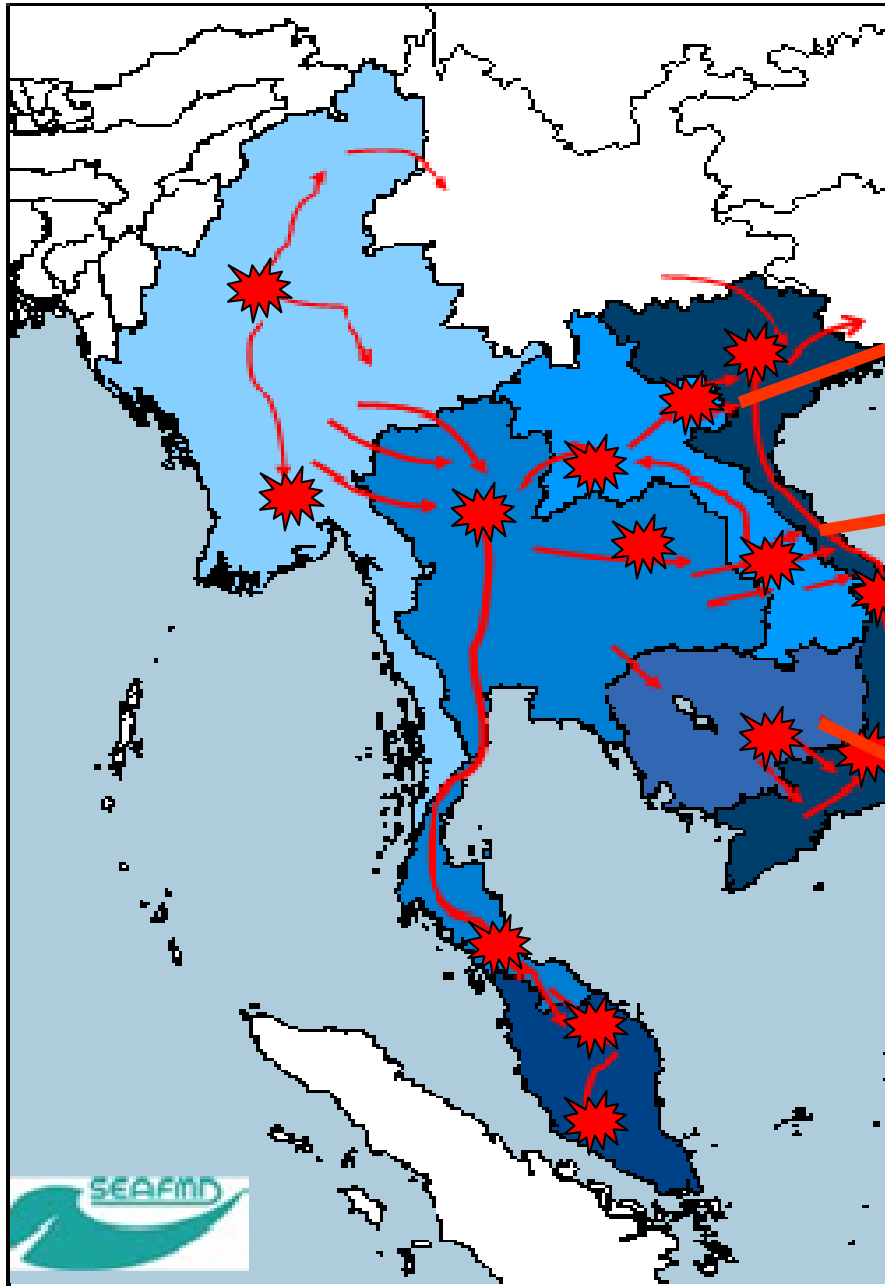
- Cattle
 - Buffaloes
 - Swine
 - Sheep/Goats
 - Deers
-
- Wild animals play a little role in epidemiology of FMD in Vietnam

FMD serotypes in Southeast Asia

Country	2004	2005	2006	2007	2008	2009	2010	2011
Brunei Indonesia Singapore	NO OUTBREAK							
Cambodia	O	O	O, A	O, A	O, A	???	O	O
Lao PDR	O	O	A	O, A	O	O	O	O
Malaysia	O, A	O, A	O	O, A	O	O, A	O	O, A
Myanmar	O	O, Asia 1	O	O	O	O	O, A	O
Philippines	O	O	NO OUTBREAK					
Thailand	O, A	O, A	O, A	O, A	O, A	O, A	O, A	O, A
Viet Nam	O	O, A Asia 1	O, A	O, A Asia 1	O	O, A,	O, A	O, A

Cattle/buffalo M

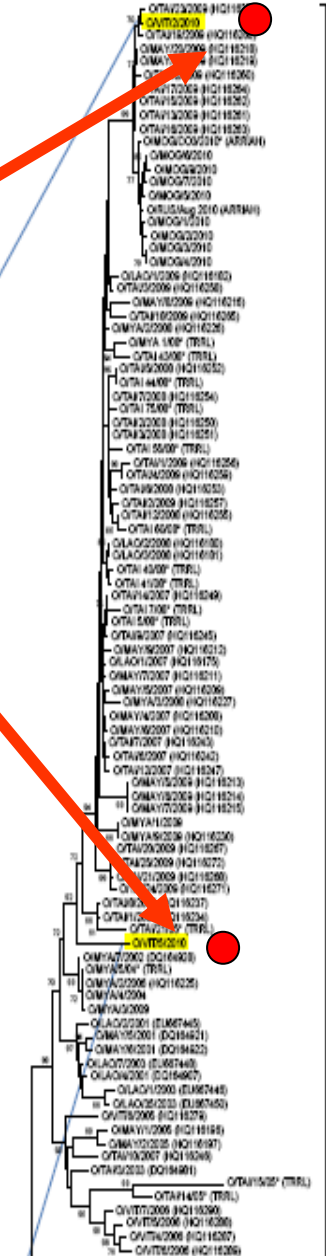
FMDV to WRL -2010



O Mya 98

O PanAsia

FMDV to WRL Pirbright
 ● A
 ● O
 □ Province Viet Nam



SEA

On-going studies on epidemiology of FMD



- USDA/ARS-funded study on persistent carrier status of Asian buffalo
- AAHL-funded study on vaccine trails
- **Gaps/Wishing list:**
 - Local production of vaccine
 - Vaccine matching done by local labs
 - Better tools to monitor progress of the program, i.e., cost-effective PVM
 - More social-economic studies



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- IAH
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