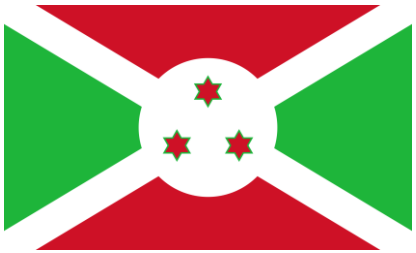


Foot-and-mouth disease in Burundi

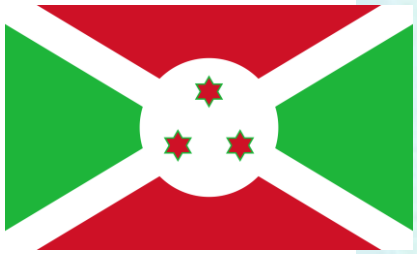
Laboratoire National Vétérinaire, Bujumbura, Burundi and Sciensano, Belgium

Andrea I Estevez Garcia, D Lefebvre, L Nyabongo, A Haegeman, C Nkundwanayo, A De Vleeschauwer, D Ntakirutimana, I De Leeuw, D Nsanganiyumwami, T van den Berg, A Niyokwishimira, Kris De Clercq

EuFMD OS18

Borgo Egnazia, Italy, October 29th-31st 2018

Burundi



sciensano

OIE

eufmd
european commission for the control of foot-and-mouth disease

.be

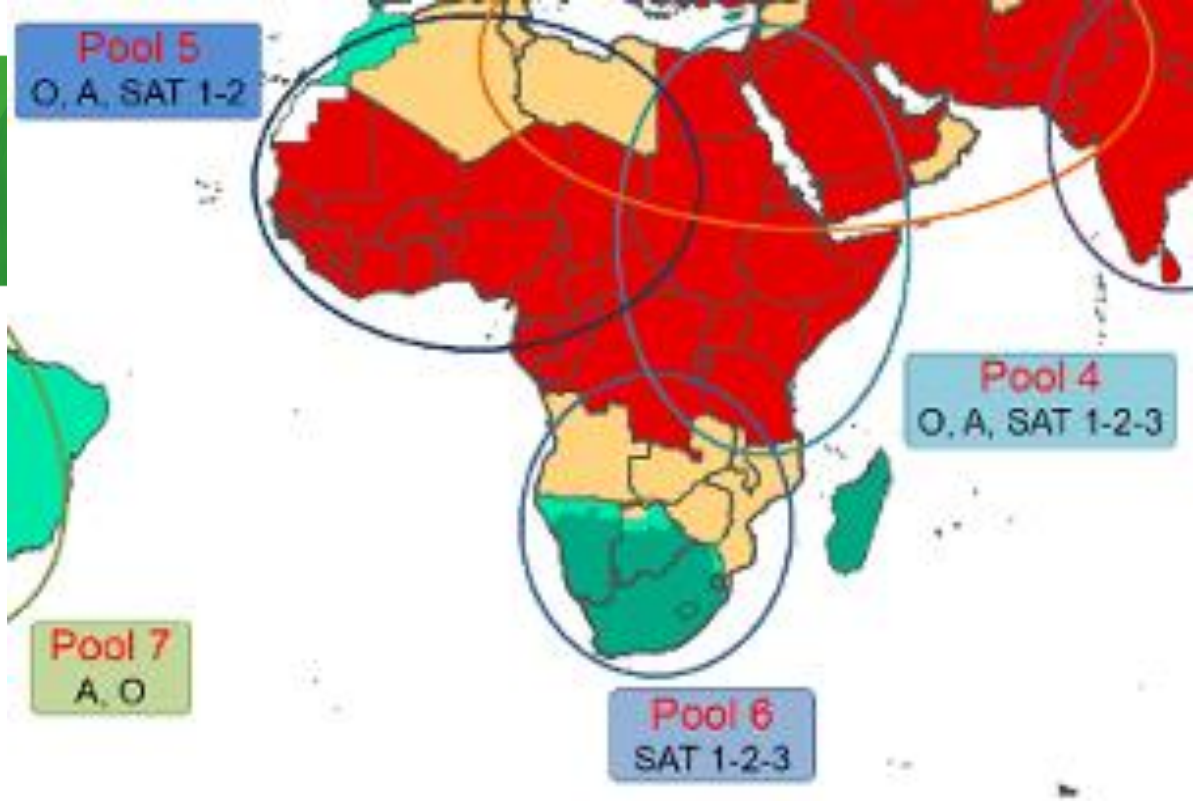
Burundi

Burundi: Pool 4 (Eastern Africa) FMDV circulating O, A, SAT1 and SAT2

FMDV SAT3 has not been described so far in Burundi.

It is present in pool 6 (Southern Africa)

August 2013 = Last reported FMD outbreak in Burundi, no information regarding serotype



Livestock management systems in Burundi

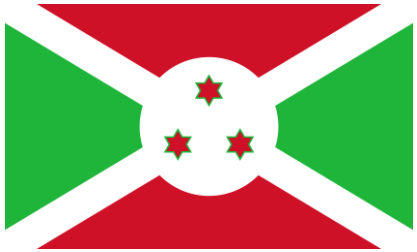
- Smallholders in subsistence-oriented mixed crop-livestock systems
- Nomadism and semi-nomadism (distant grazing areas)
- Transhumance on seasonal cycles

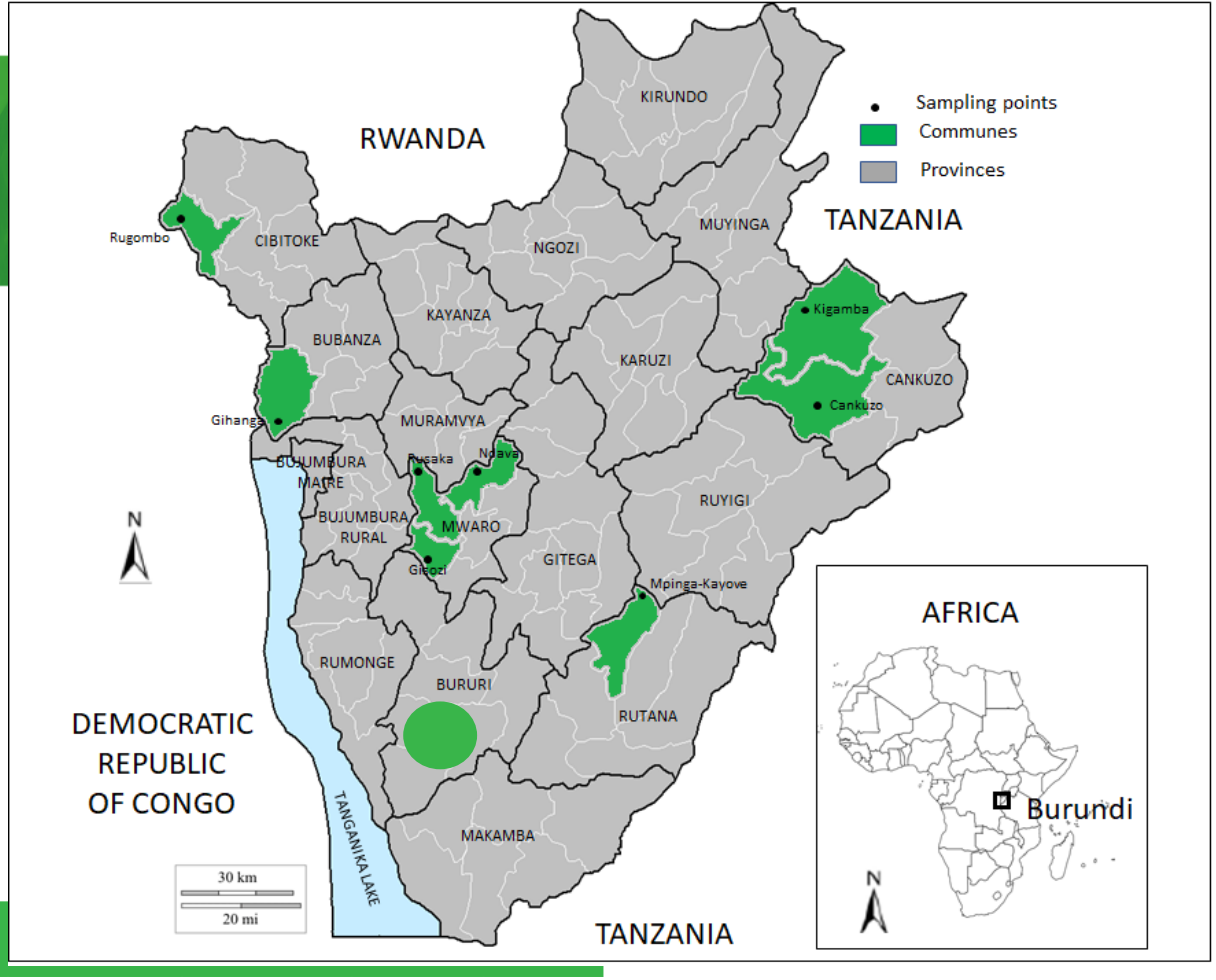
Study during the period 2016-2017

- To investigate a possible FMD epidemic in Burundi in March 2016, using clinical surveillance (clinical signs or history of clinical signs) with sampling and testing samples for serological, virological and molecular evidence of FMDV

- Local animal health authorities: outbreak probably introduced by cattle coming from Tanzania
- 423 cows were reported as affected in the Bururi Province
- There were no records of cattle vaccination and the total number of animals affected in other provinces remains unknown
- Control measures: closing cattle markets, banning transhumance and free ranging grazing and building a quarantine center in the province of Cankuzo at the Tanzanian-Burundi border.

Sampling



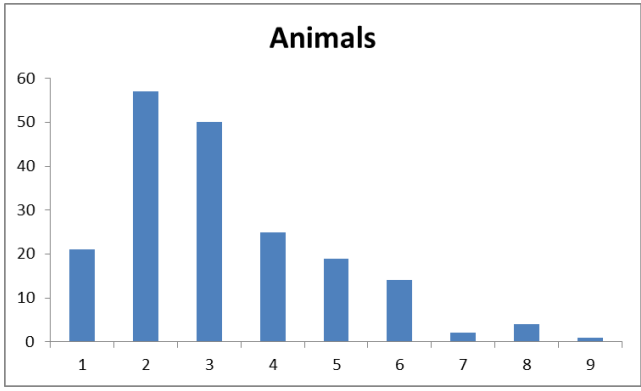


Type of Sample	Total						
		Bubanza	Bururi	Cankuzo	Cibitoke	Mwaro	Rutana
Saliva	86	56	18	0	6	6	0
Oral lesions[1]	85	0	3	10	30	9	32
Hoof Lesions	23	0	0	17	2	2	3
Total of tissue and or saliva samples	194	56	21	27	38	17	35
Total of serum samples	172	58	18	28	33	0	35

eofmd.be
european commission for the control of foot-and-mouth disease

MATERIAL AND METHODS

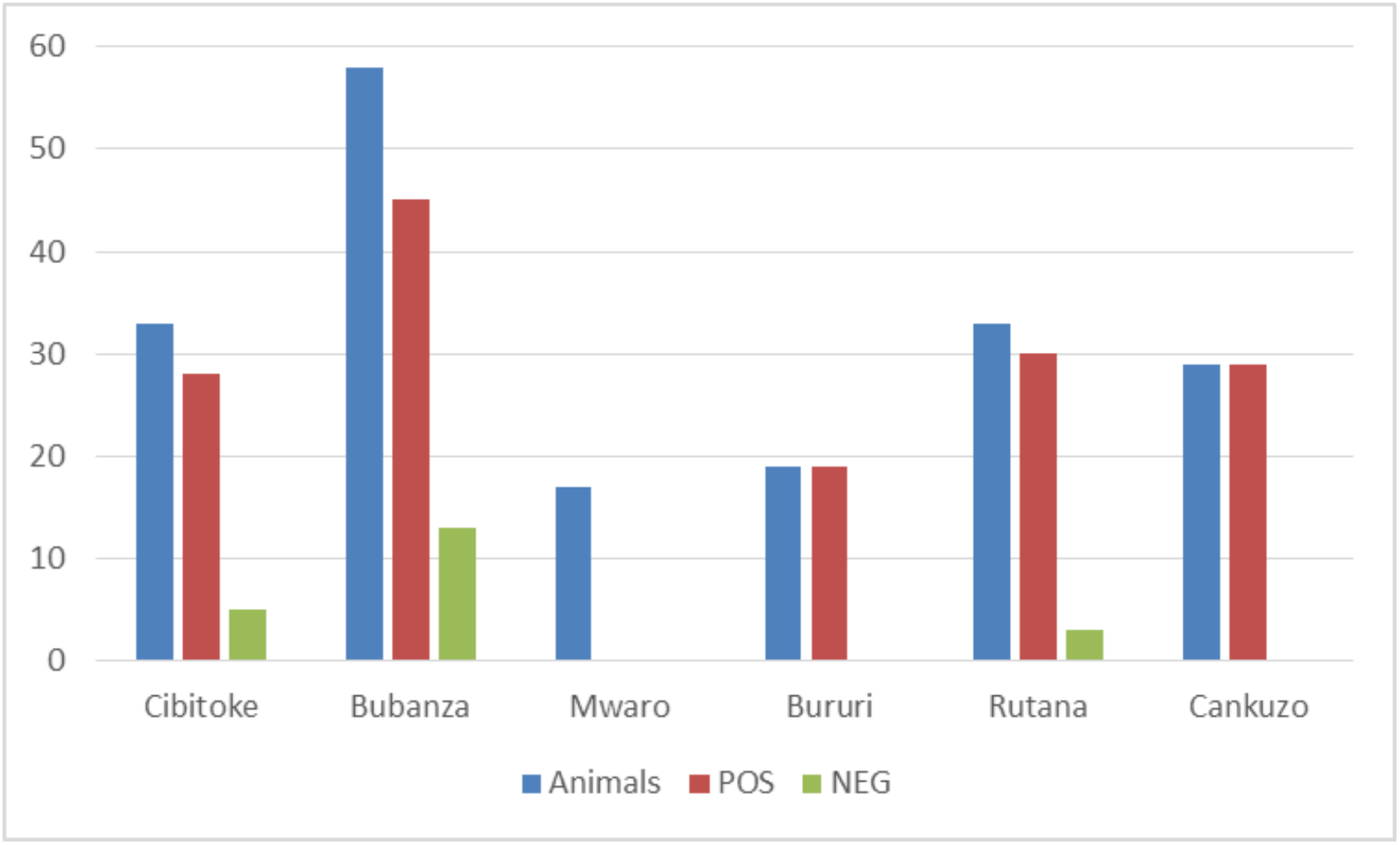
- Samples
  - 173 blood serum samples, 184 samples from vesicular lesions (oral mucosa or hooves) and/or saliva
  - Bovines 0,5 – 9 y



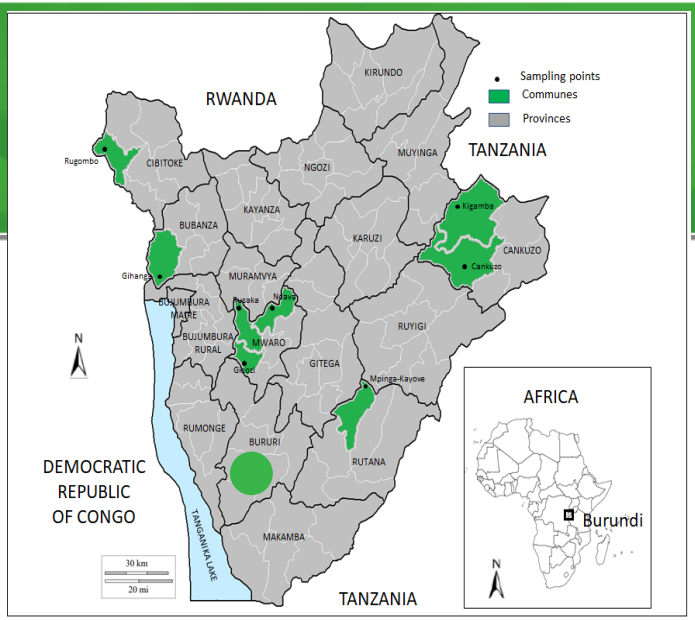
- Anti-FMDV antibodies detection
  - Solid phase competition ELISAs
  - NSP-3ABC-ELISA
- Real Time Reverse Transcription - PCR
  - Triplex one-step protocol
  - Targeting 3D gene, conserved across all FMDV serotypes
- Viral Isolation IB-RS-2 cells (3 passages)
- For samples negative in viral isolation test = electroporation (BHK-21 cells)
- Viral typing
  - Indirect antigen-ELISA = A, O, C, Asia1, SAT1, SAT2, SAT3
  - Serotype specific RT-PCRs
  - Sequencing

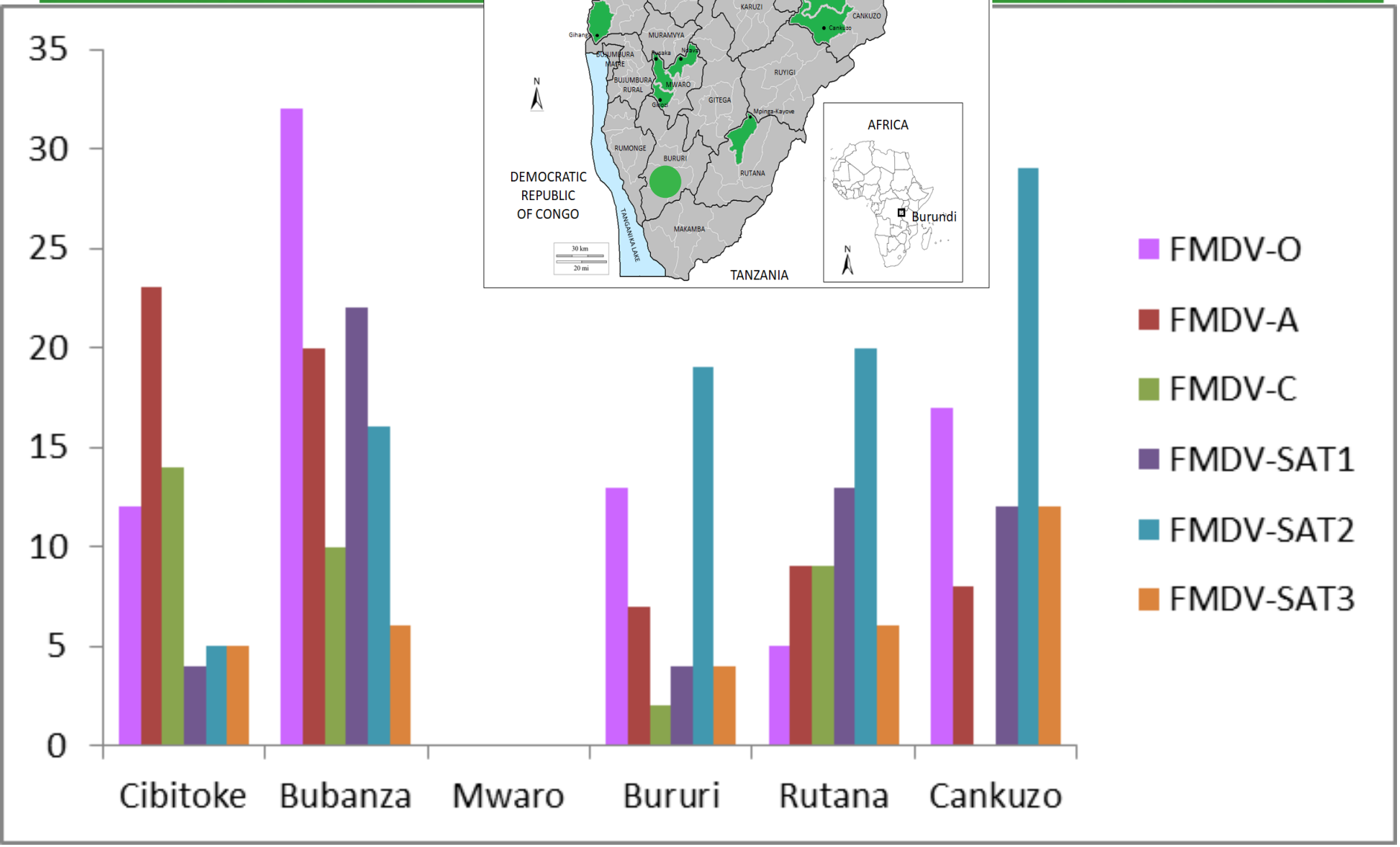
NSP Serology RESULTS

- NSP 3ABC ELISA

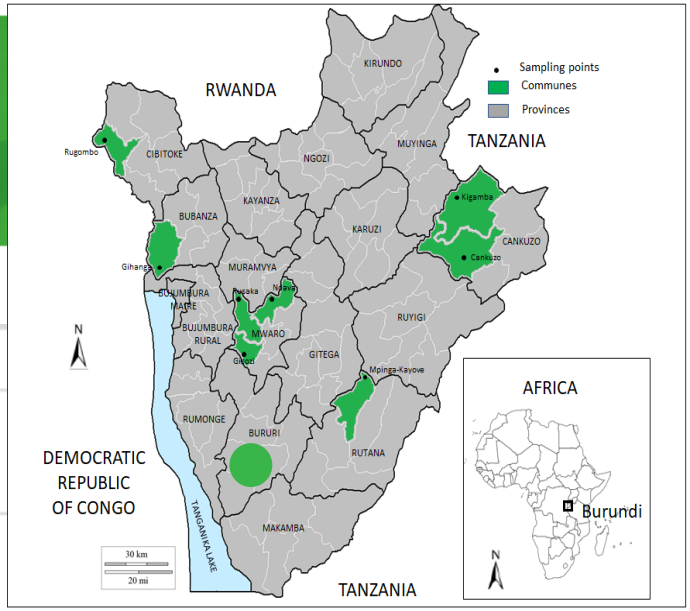


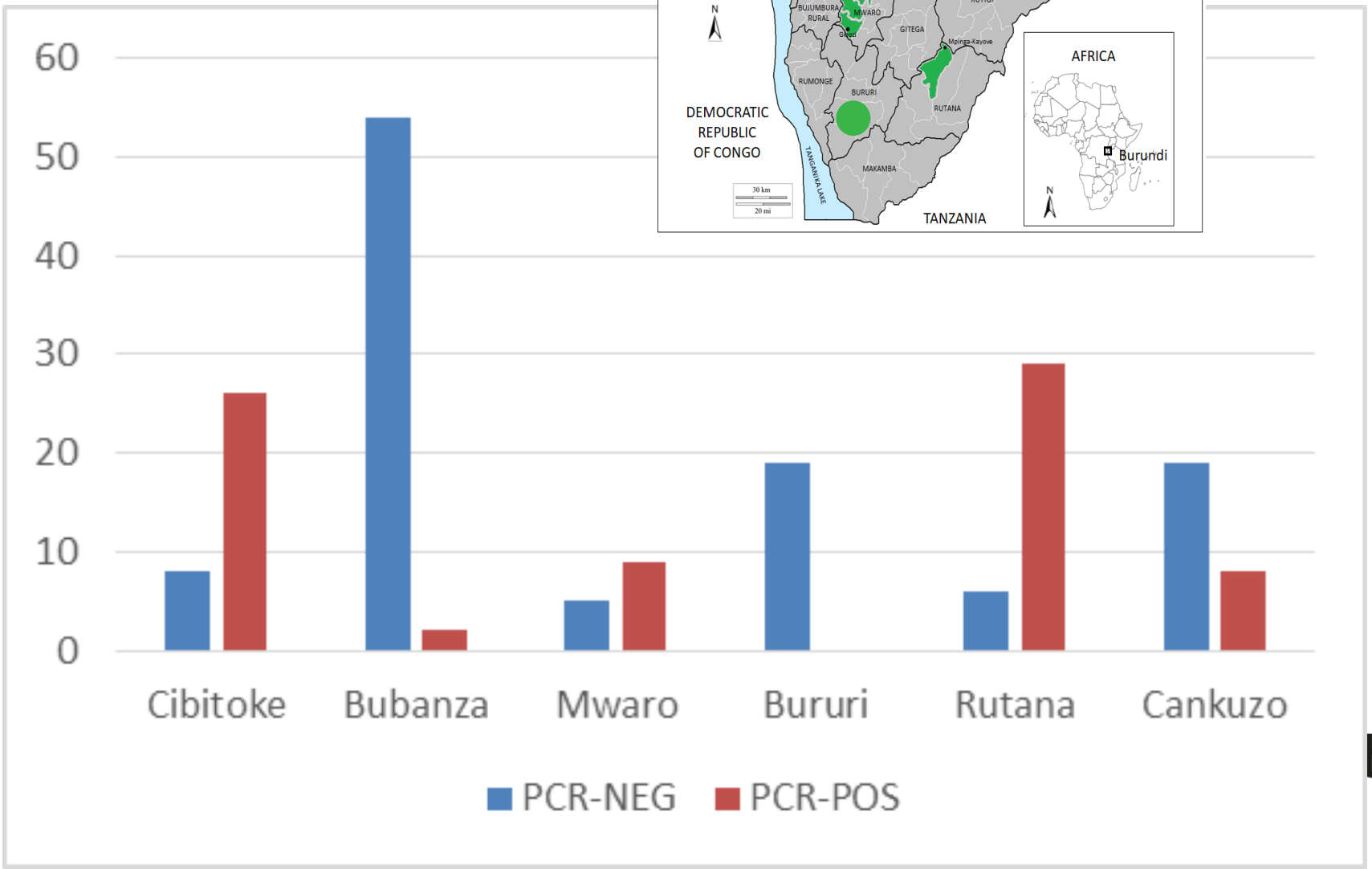
SP Serology RESULTS



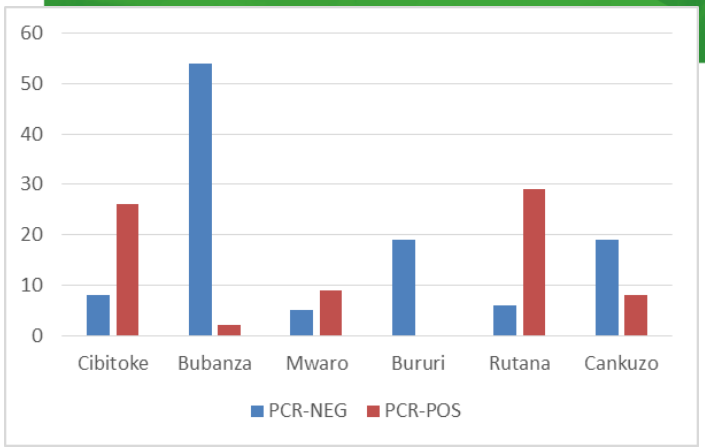


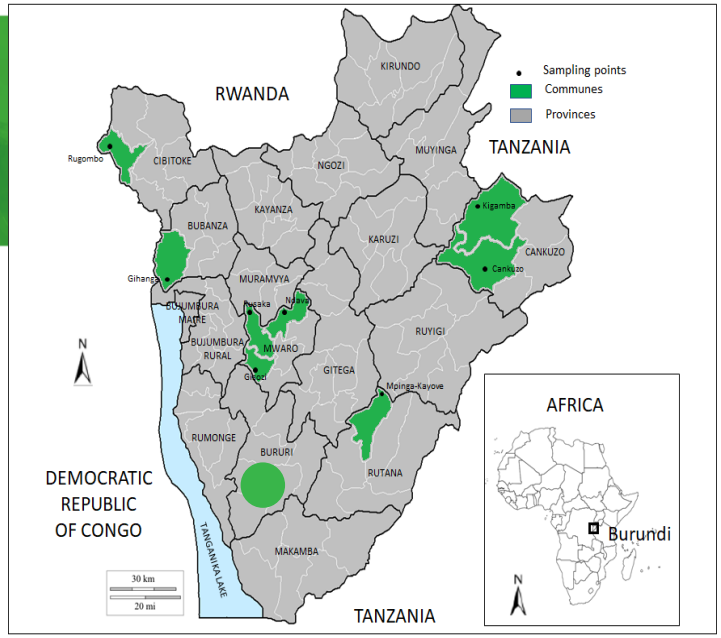
RT-PCR RESULTS

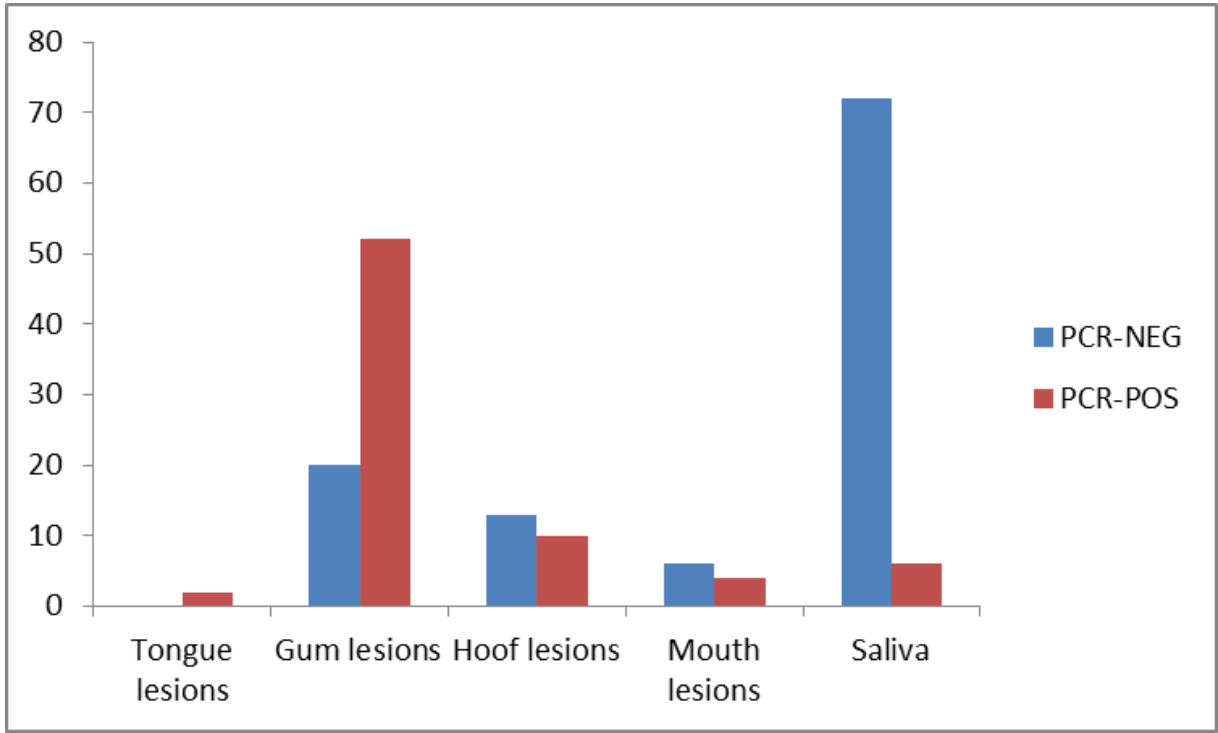




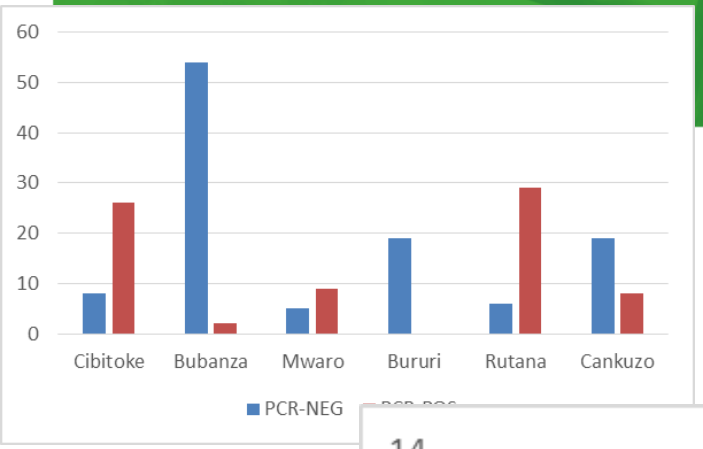
RT-PCR RESULTS

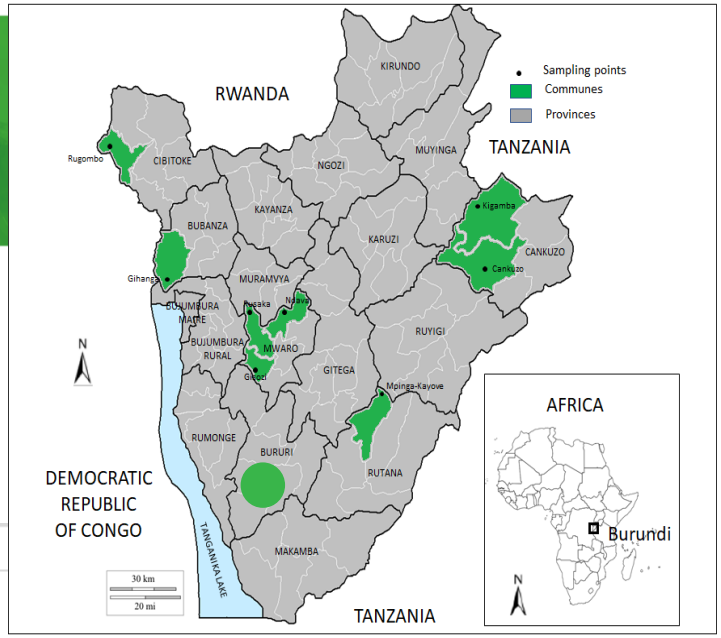


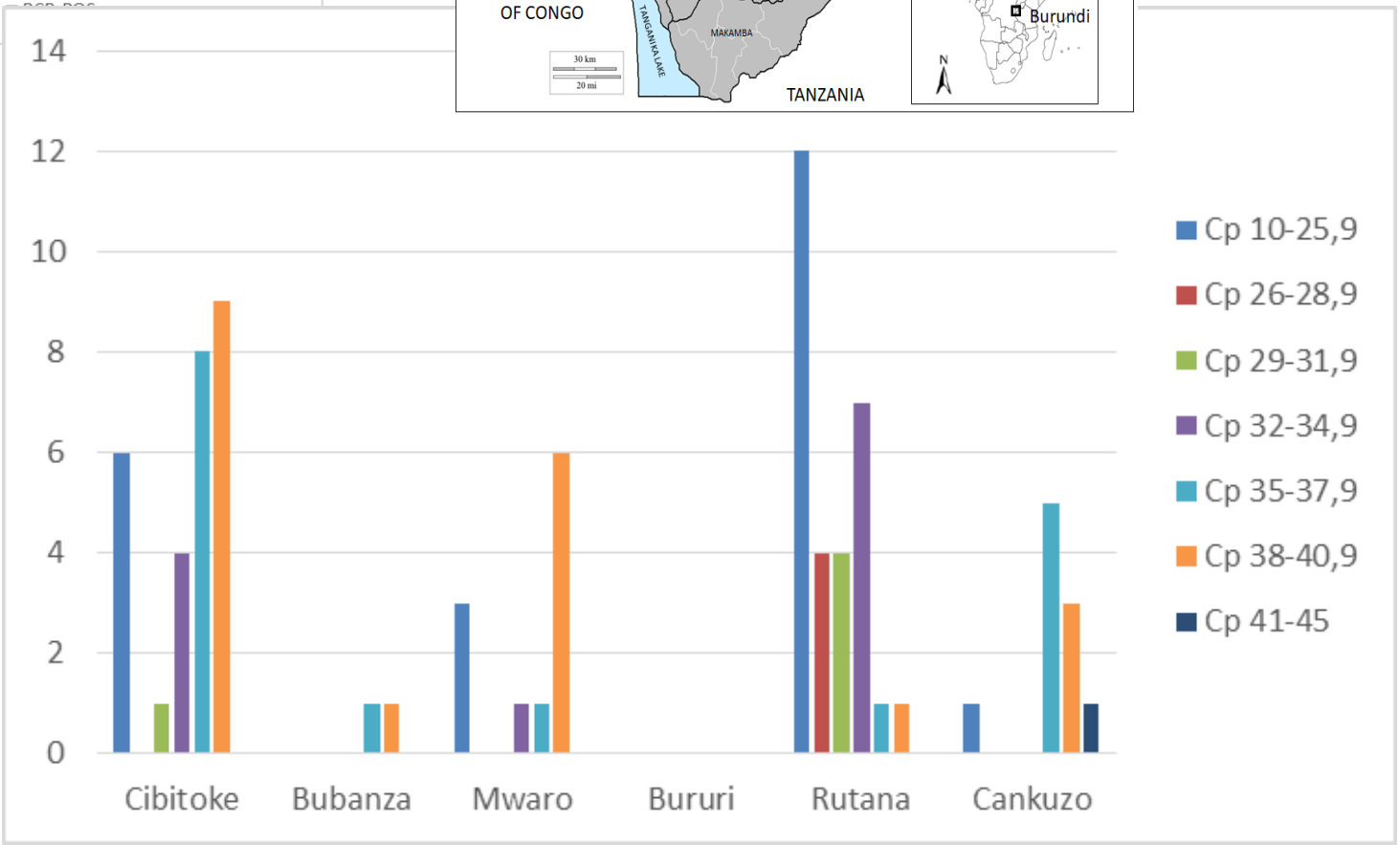




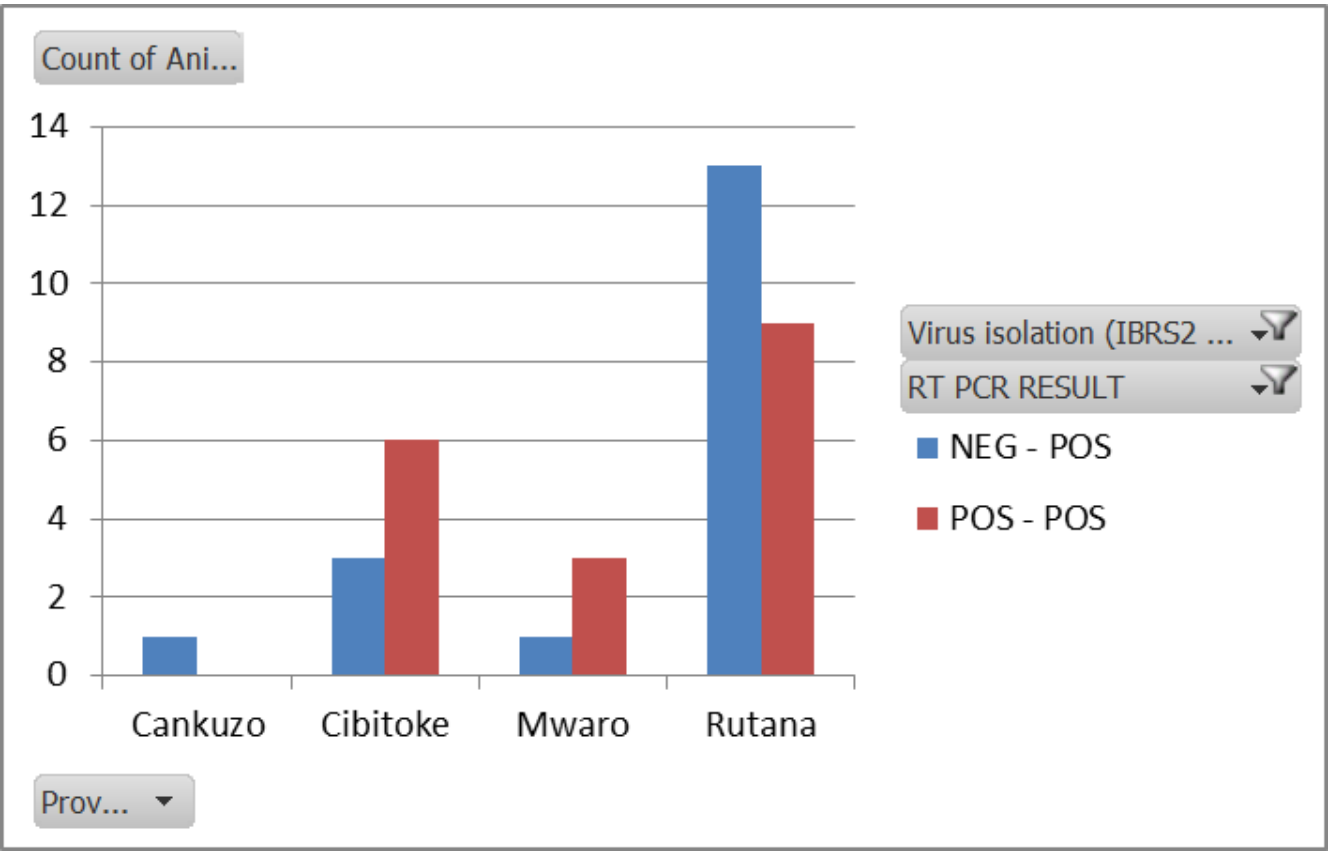
RT-PCR RESULTS







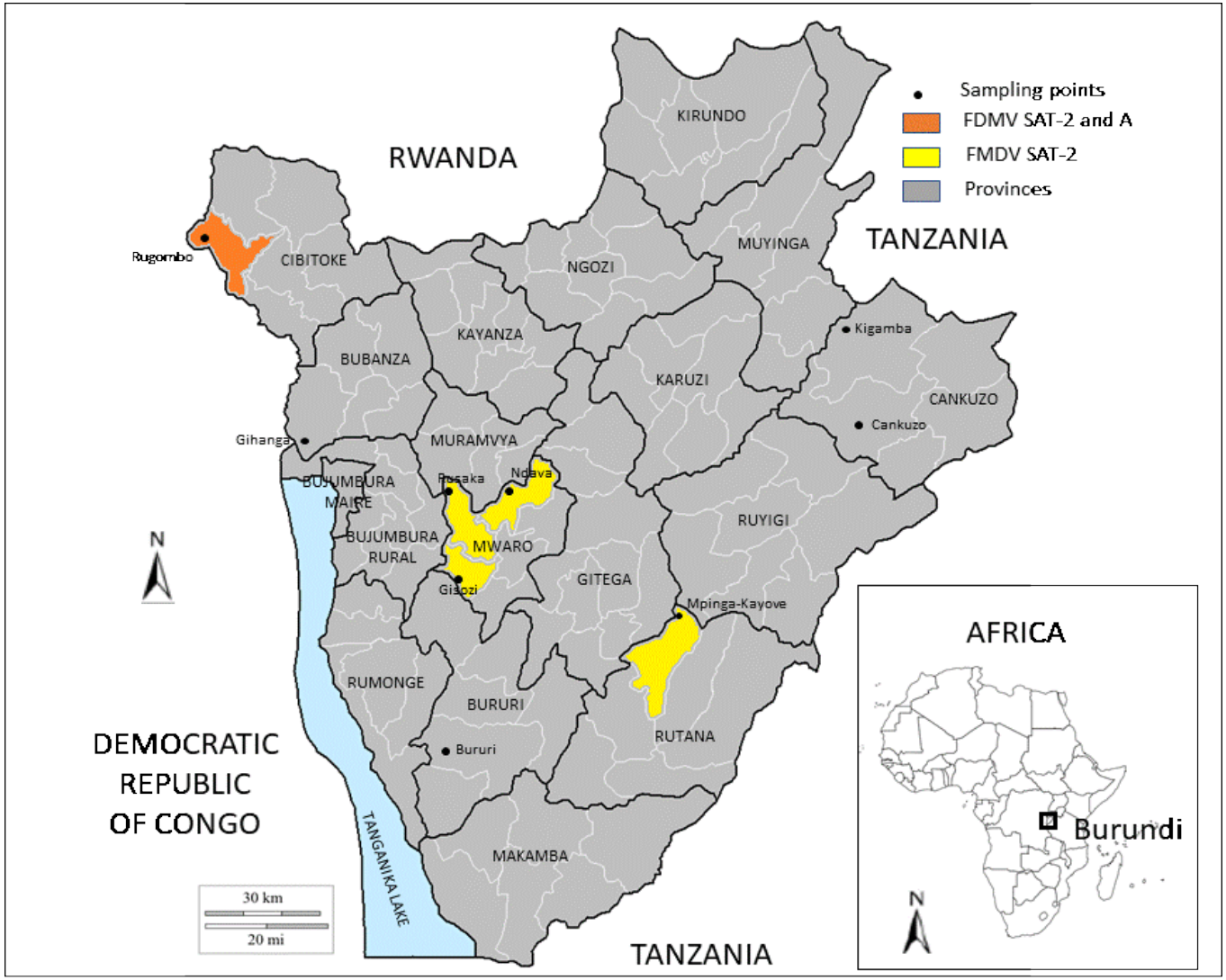
Virus isolation / RT-PCR RESULTS



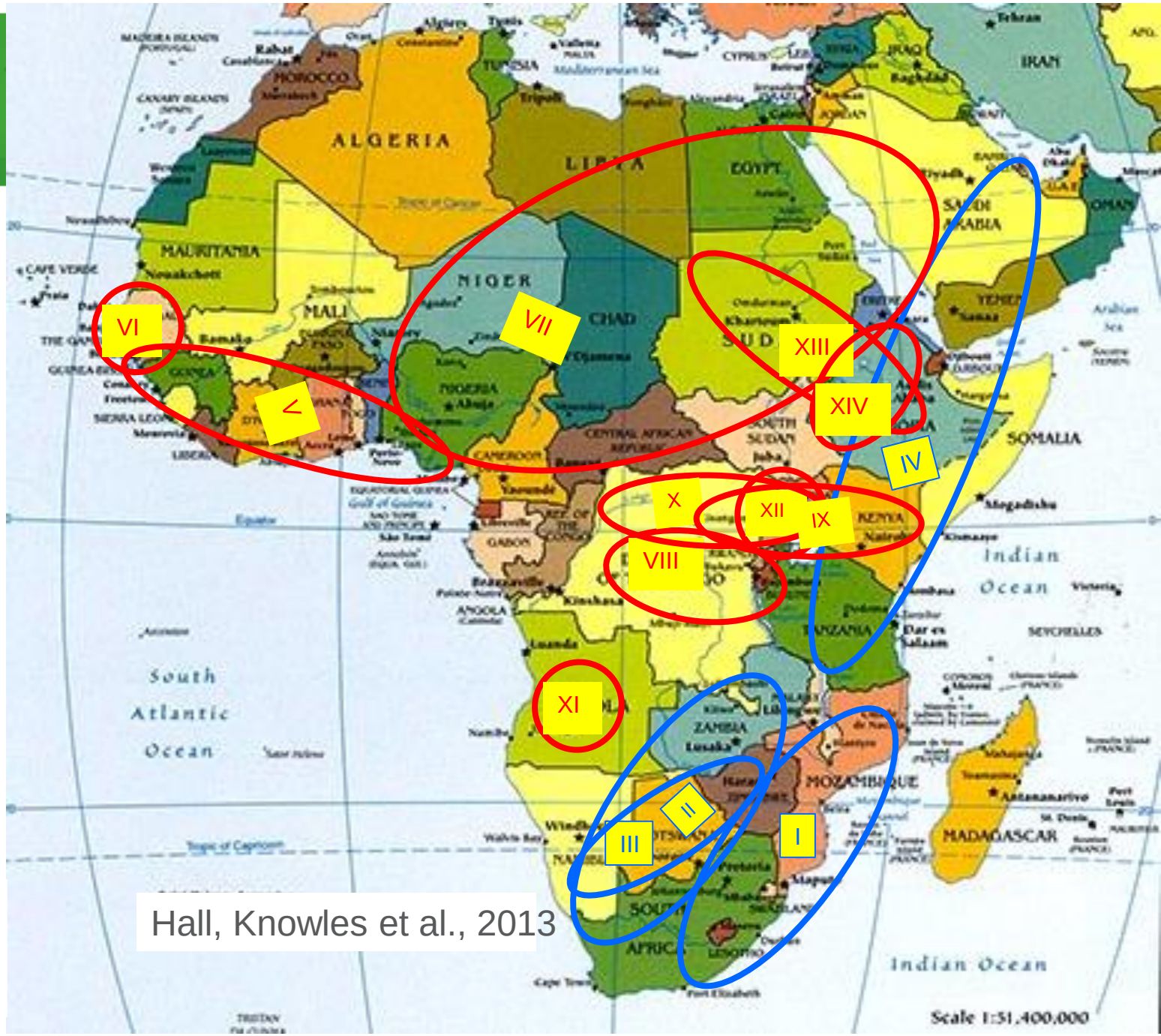
	VI POS
Cankuzo	
Cibitoke	6
Mwaro	3
Rutana	9
Total	**18**

OIE eufmd .be
european commission for the control of foot-and-mouth disease

Virus isolation RESULTS

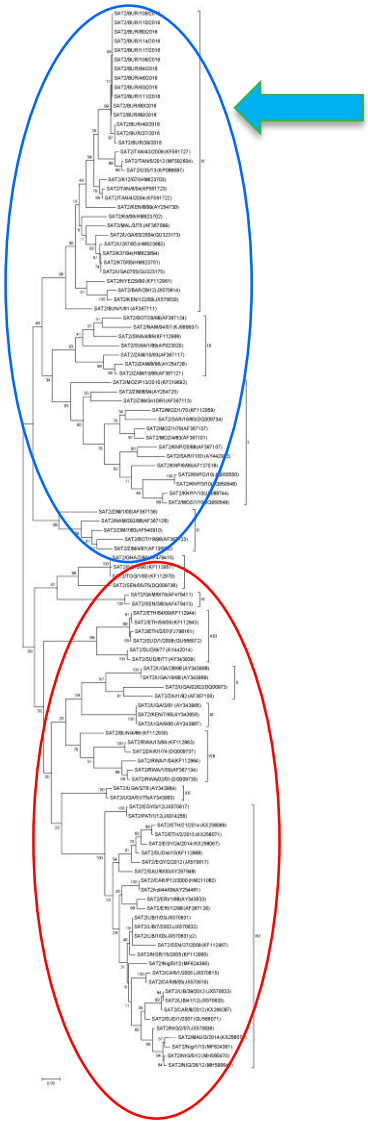


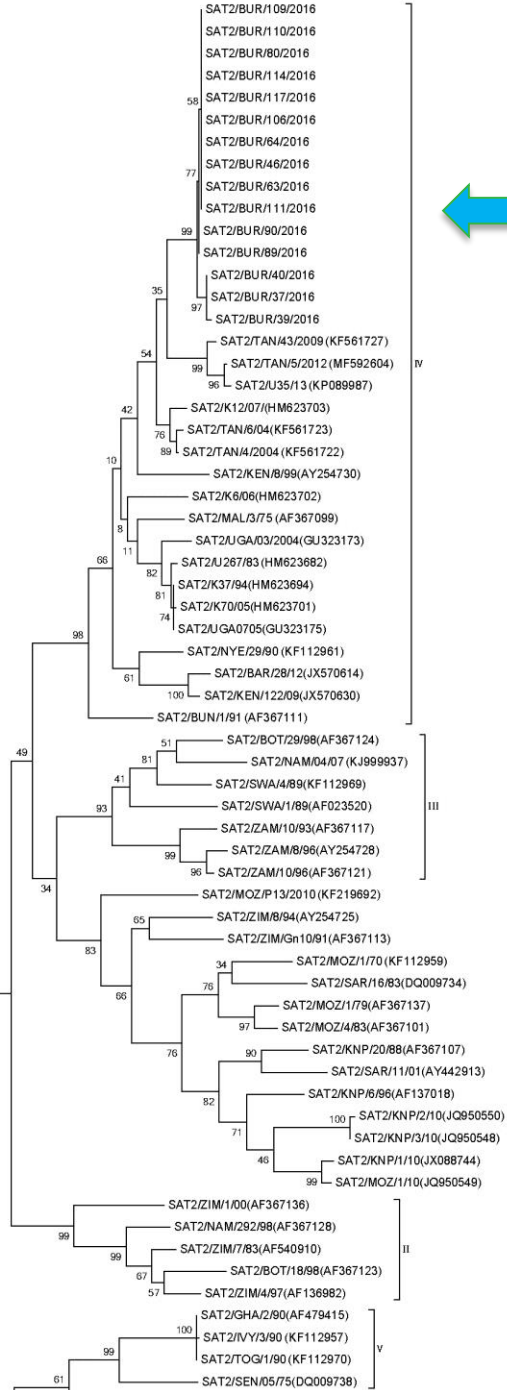
Sequencing
FMDV-SAT2

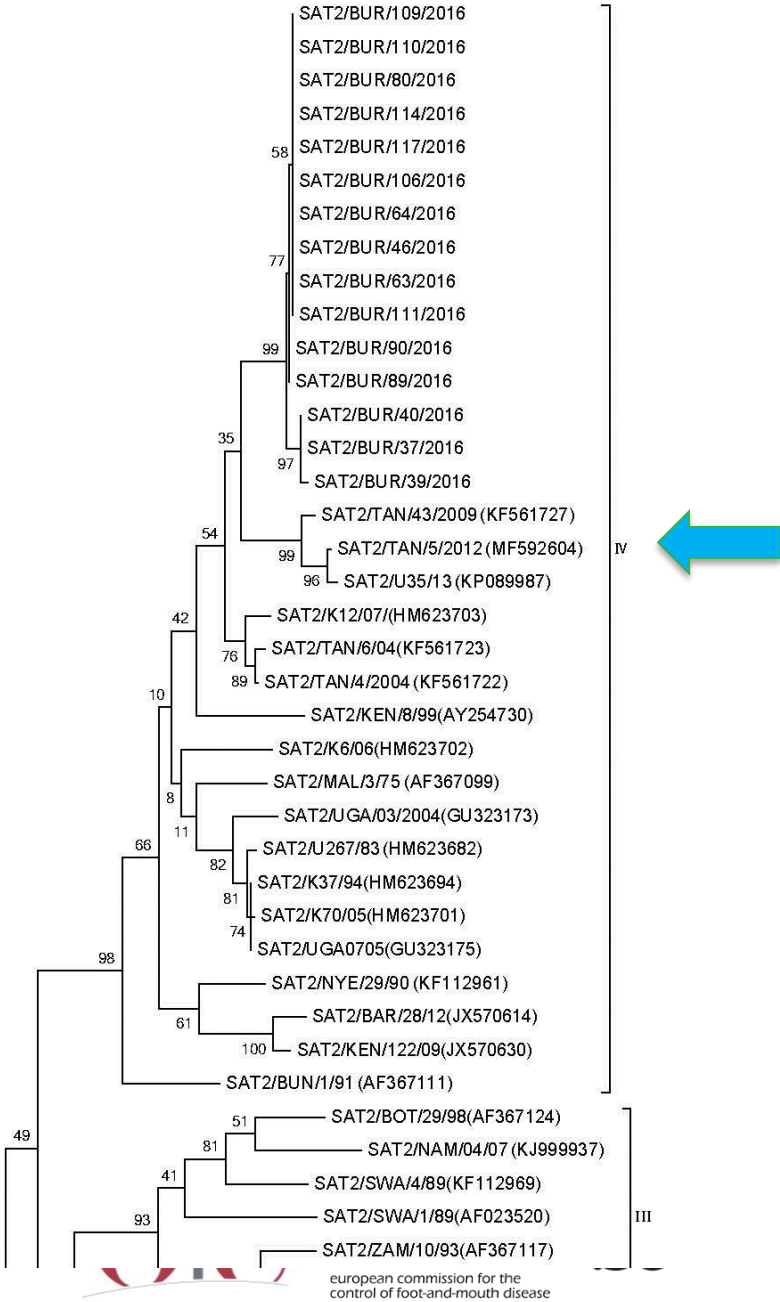


Hall, Knowles et al., 2013

Sequencing FMDV-SAT2

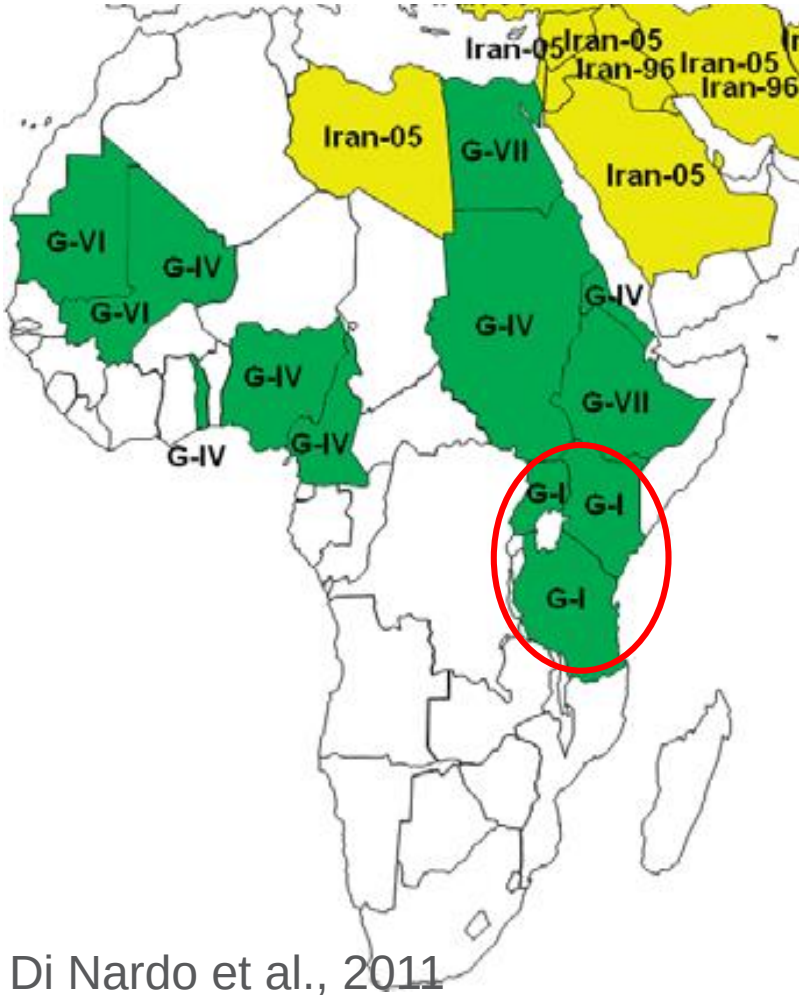




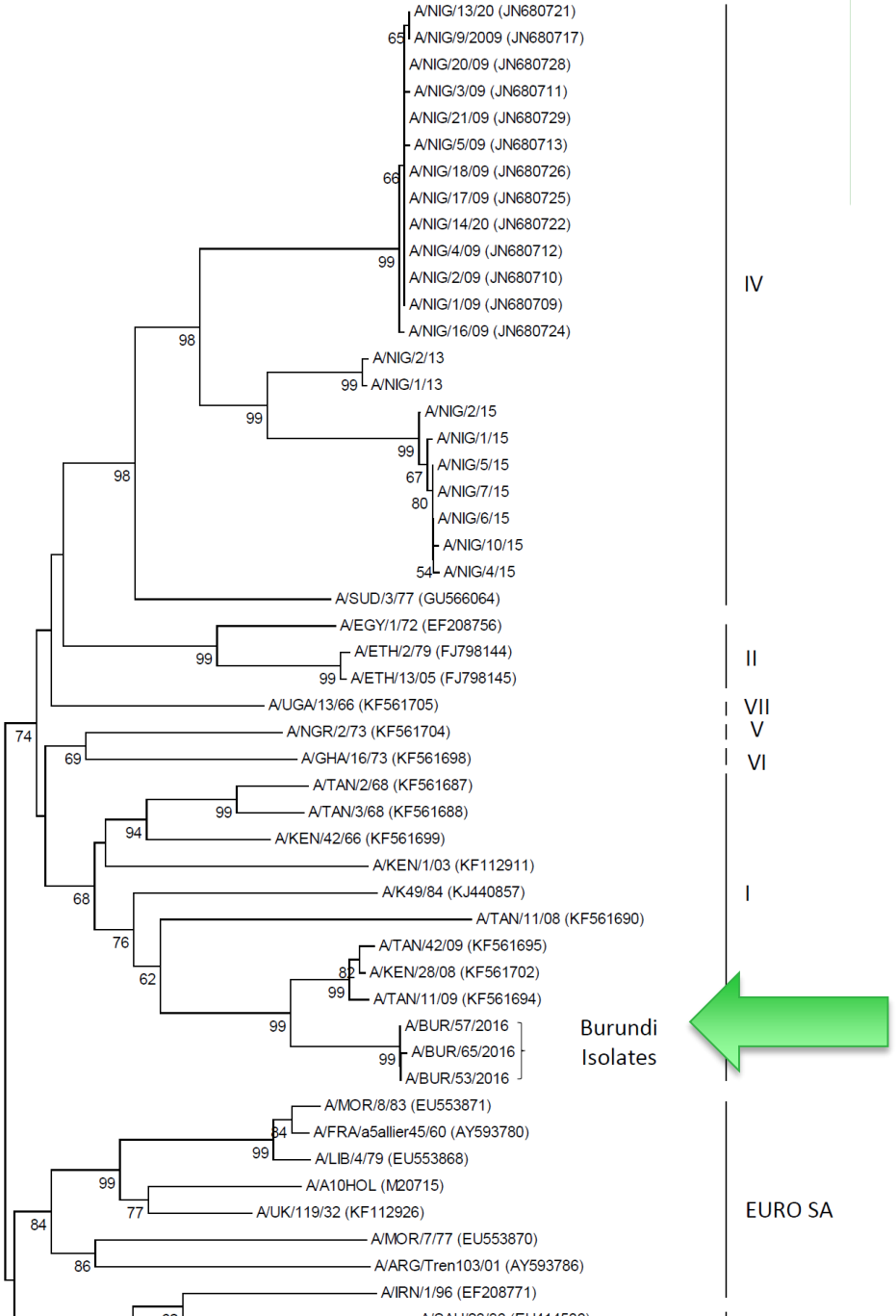


european commission for the control of foot-and-mouth disease

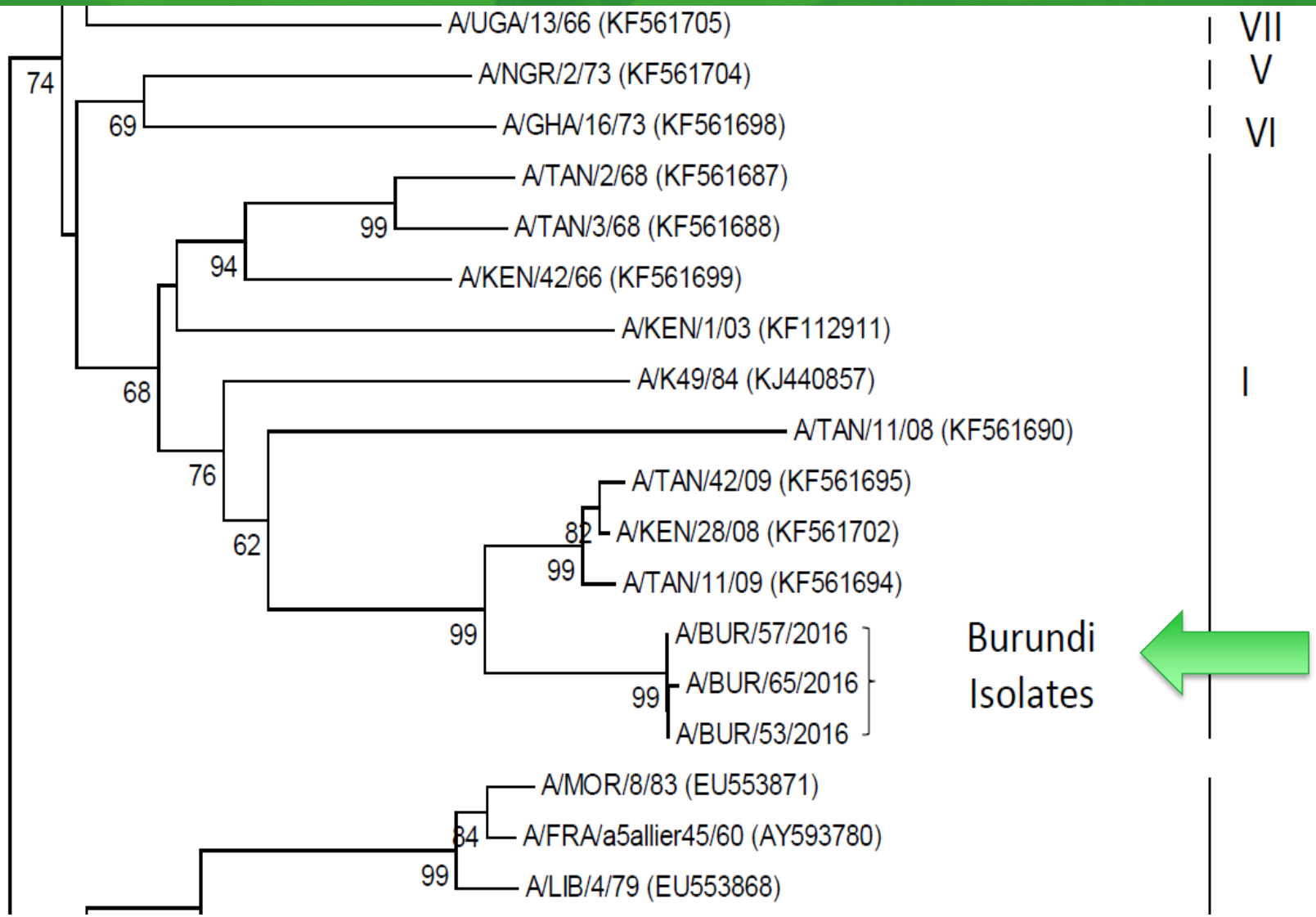
Sequencing FMDV-A



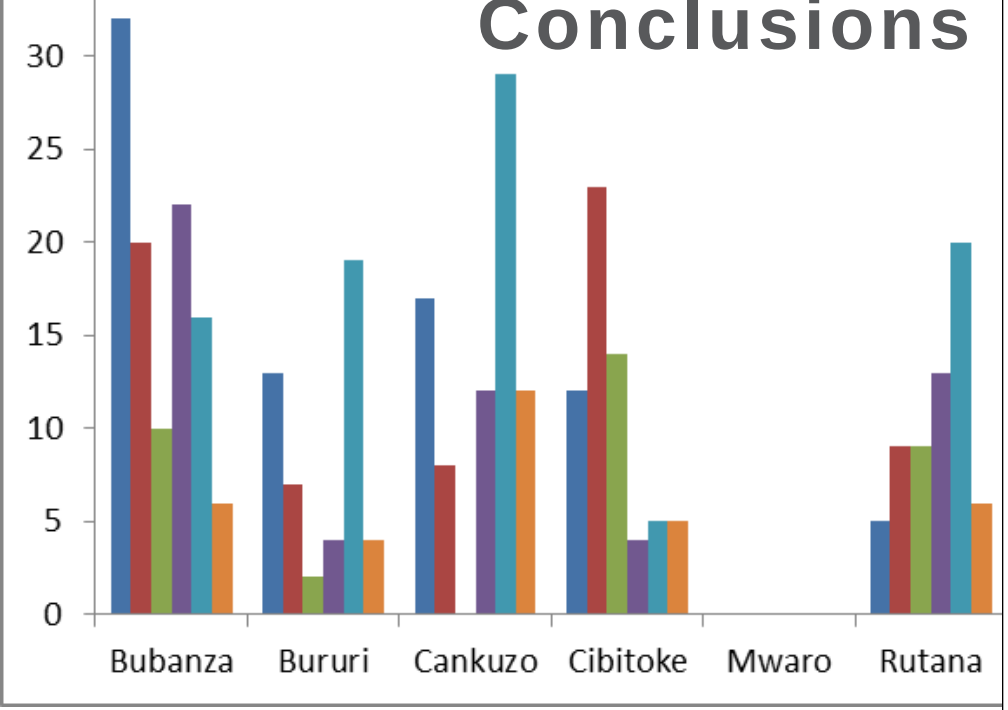
Di Nardo et al., 2011

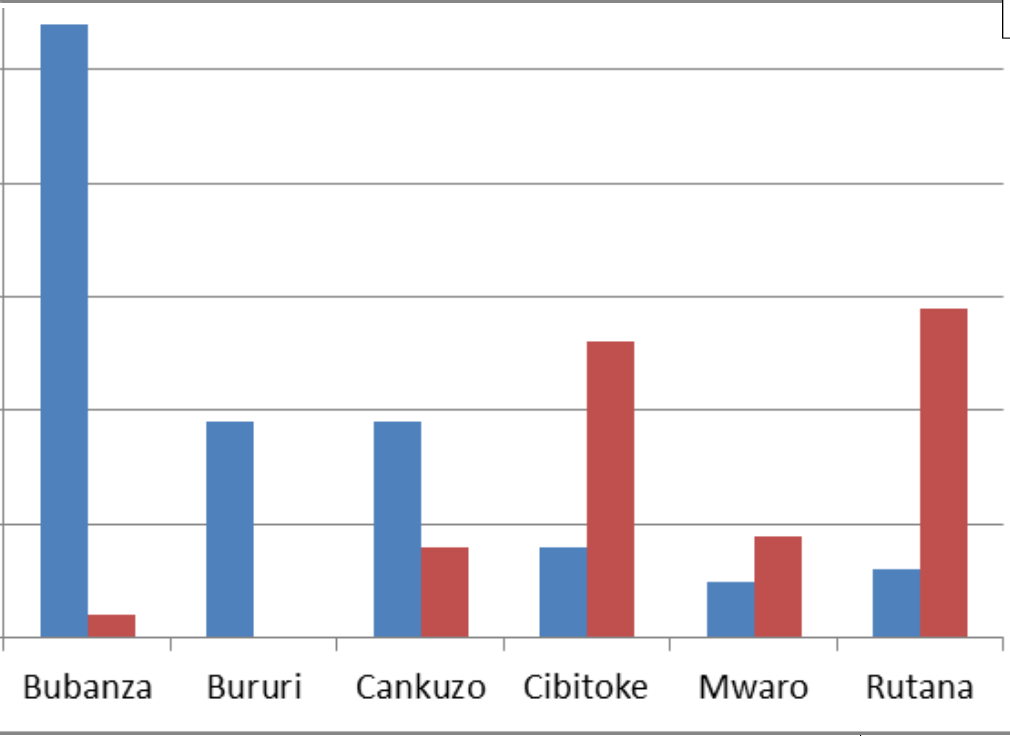


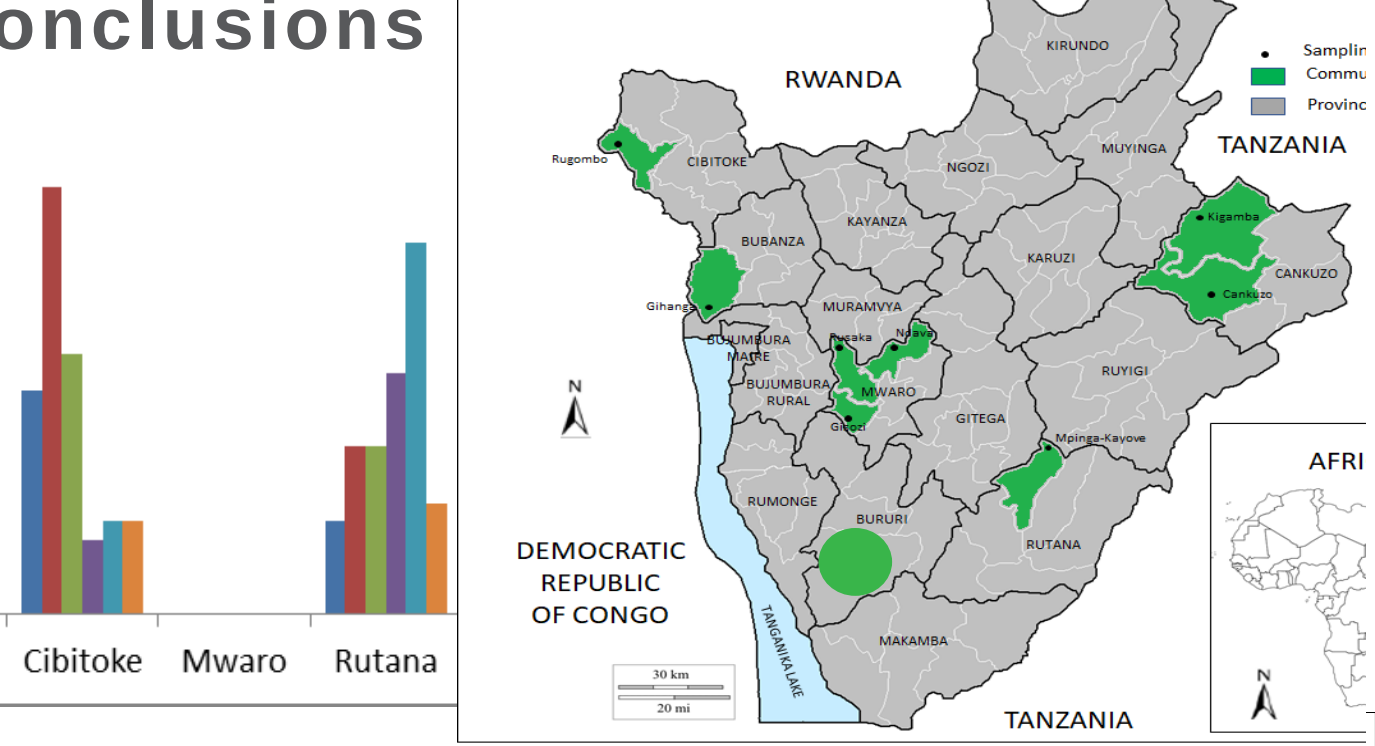
Sequencing FMDV-A

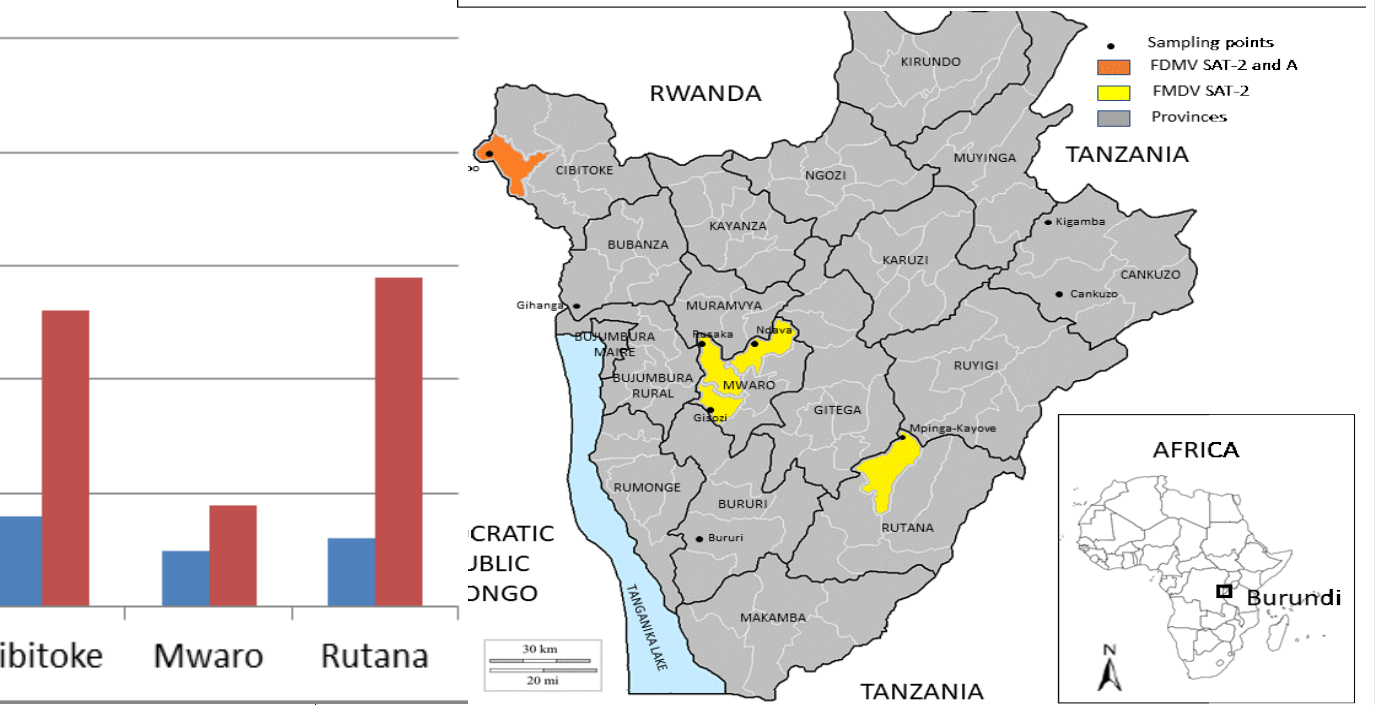


Conclusions









Thank you for your attention!

sciensano

OIE

eufmd
european commission for the control of foot-and-mouth disease

.be