Dourine in southern Africa: A neglected subject of research

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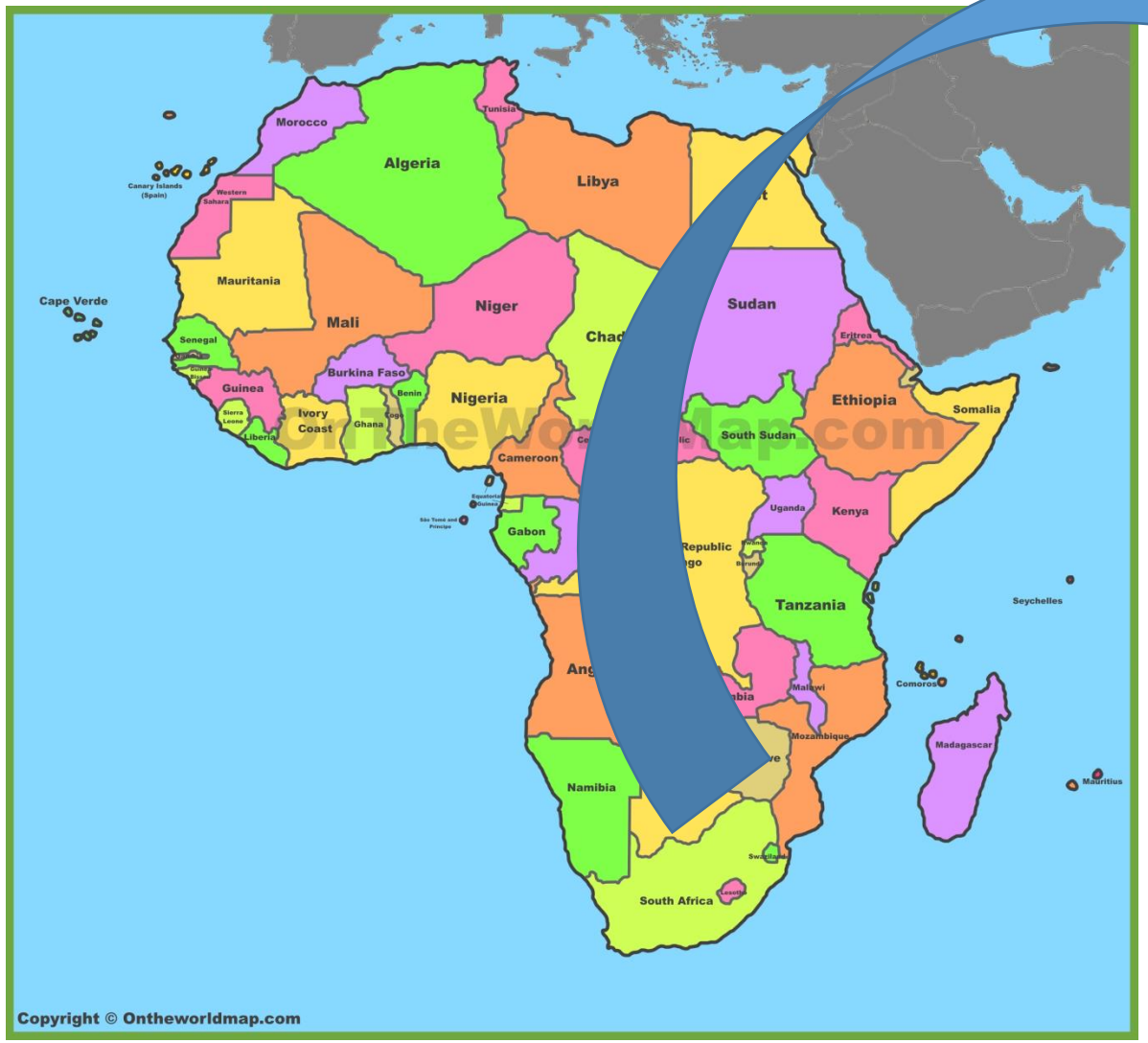
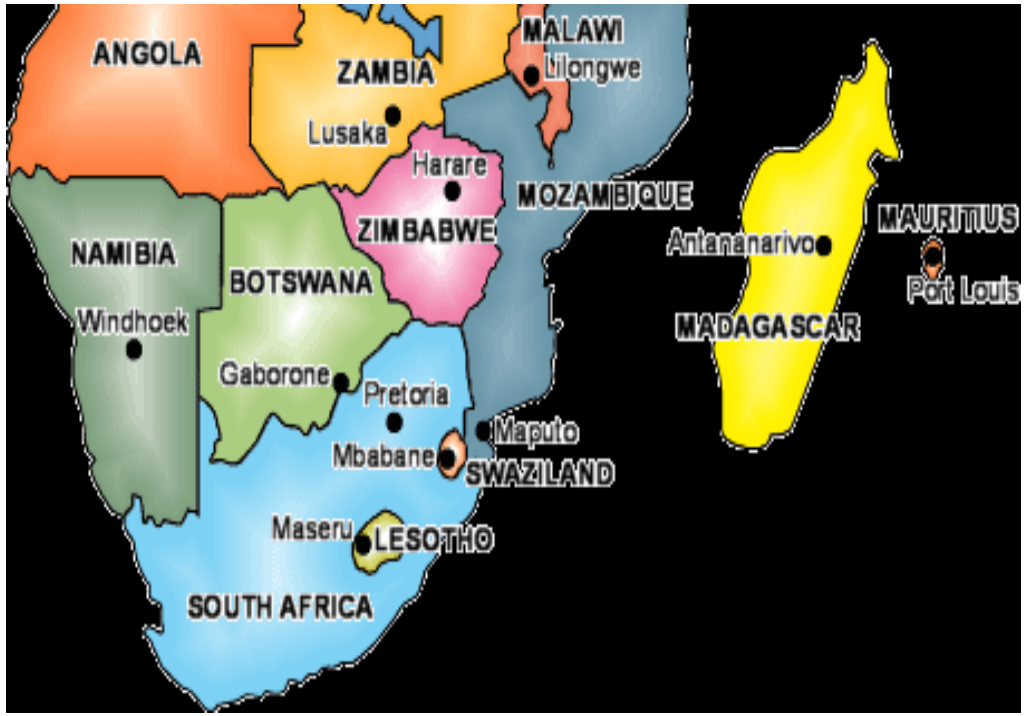
Non-tsetse animal trypanosomosis in southern Africa

Africa



Southern Africa



Non-tsetse animal trypanosomosis in southern Africa

Trypanosoma evansi

- Causes disease called surra

- Mechanically transmitted (Stomoxys and Tabanid flies)

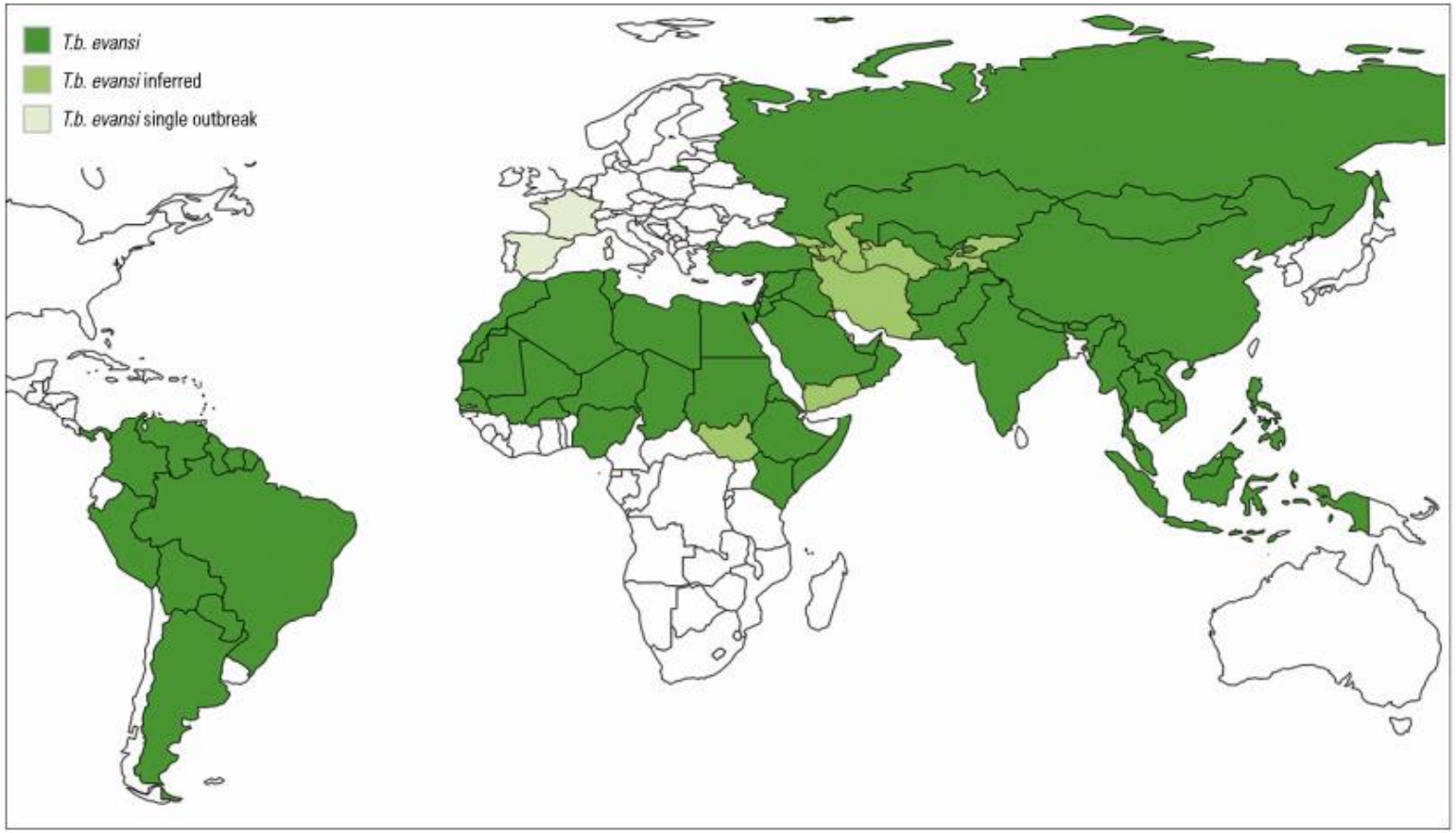
- Distribution: Africa, Asia & South America

- Infects all domestic animals & wildlife

- No surra or *T. evansi* infection reported in southern Africa (Auty et al 2015)

Non-tsetse animal trypanosomosis in southern Africa

Trypanosoma evansi



Non-tsetse animal trypanosomosis in southern Africa

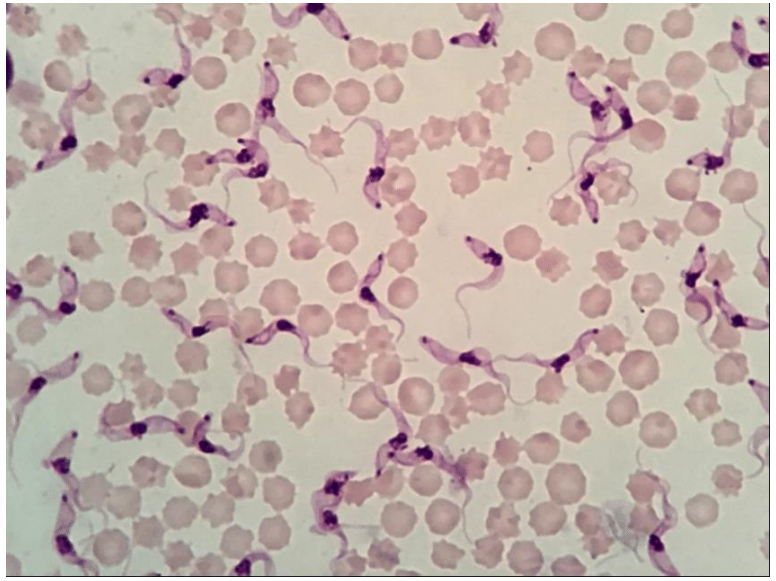
Trypanosoma vivax

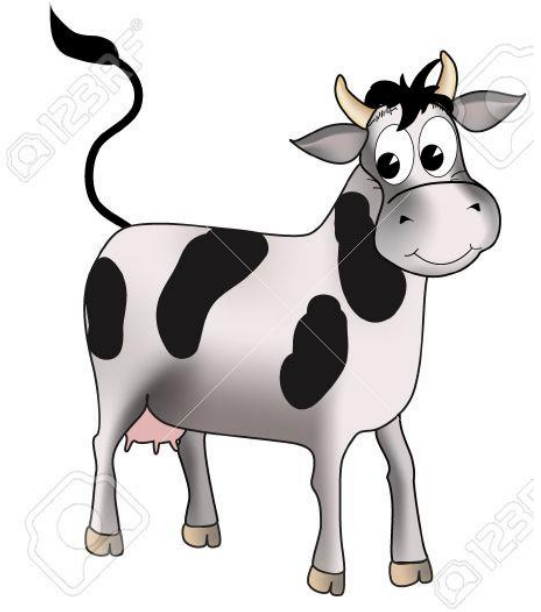
- Causes disease called nagana (AAT)

- Transmitted by tsetse but also mechanically transmitted (*Stomoxys* and Tabanid flies)

- Distribution: Africa & South America

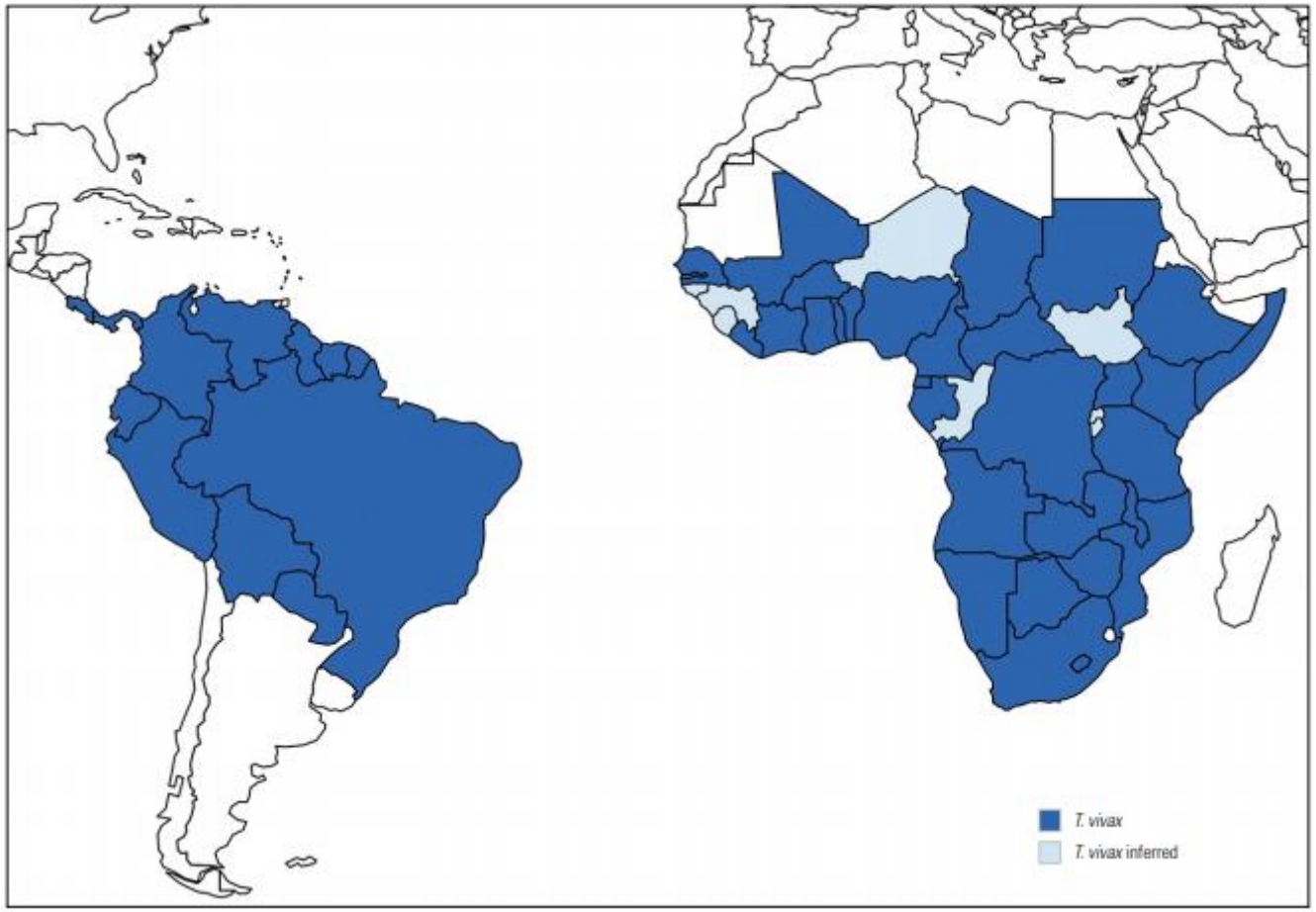
- Mainly infects cattle

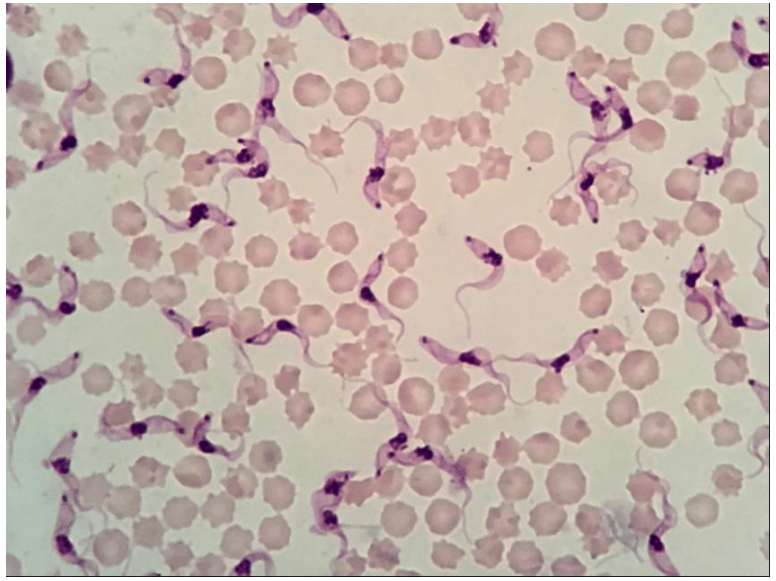


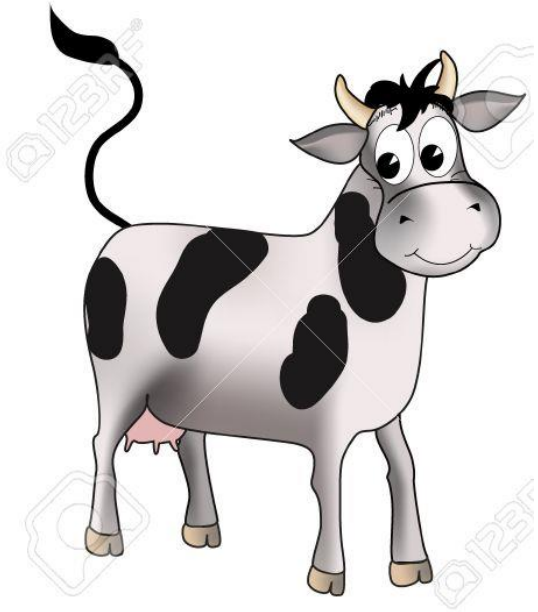


Non-tsetse animal trypanosomosis in southern Africa

Trypanosoma vivax distribution





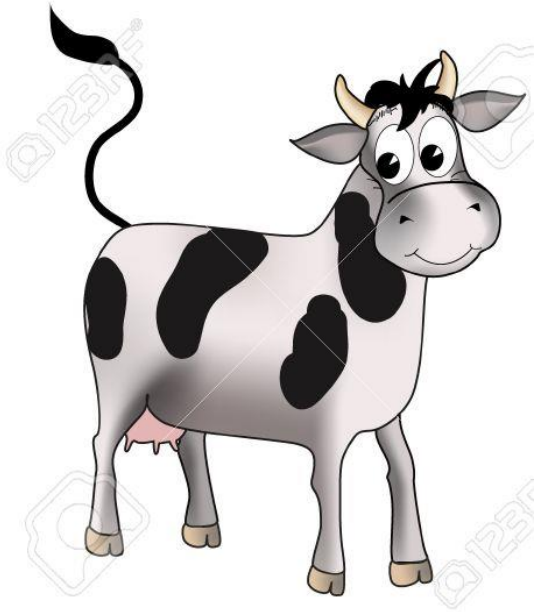


Non-tsetse animal trypanosomosis in southern Africa

Trypanosoma vivax

- Reported in southern Africa

- Botswana (Sharma et al 2001)
- Namibia (Kumba et al 2002; Auty et al 2015)
- Mozambique (Specht 2008, Rodrigues et al 2017)
- South Africa (Mamabolo et al 2009)
- Zambia (Nakayima et al 2013)
- Zimbabwe (Shereni et al 2016)



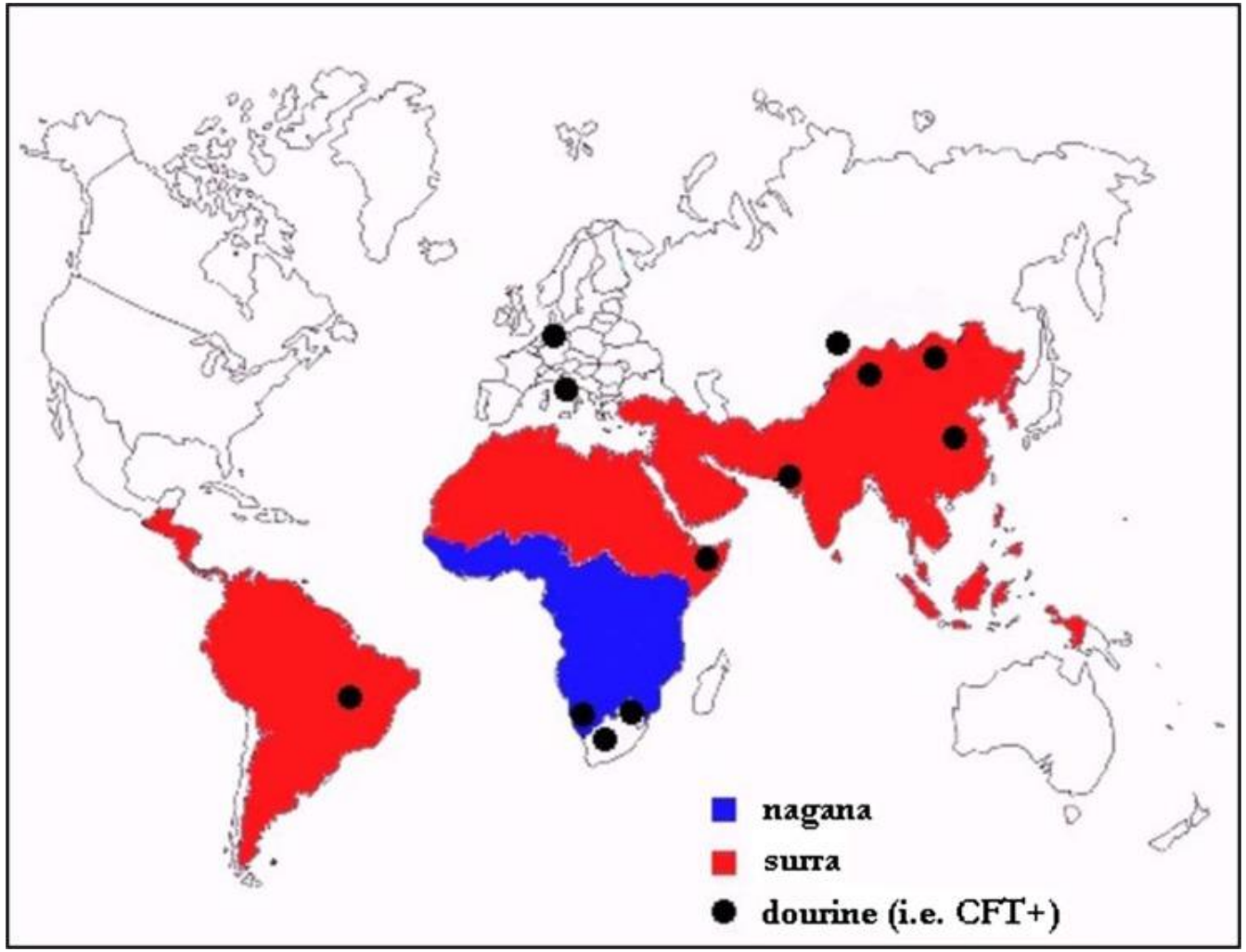
Non-tsetse animal trypanosomosis in southern Africa

Trypanosoma equiperdum

- Causes disease called dourine in equines
- Sexually transmitted from animal to animal
- Infects all equids: Horses, donkeys and mules.

Non-tsetse animal trypanosomosis in southern Africa

Trypanosoma equiperdum
Distribution: Africa, Asia, South America & Europe



Dourine in Namibia

Apparent prevalence of dourine in the Khomas region of Namibia

F.F. KUMBA, B. CLAASEN and P. PETRUS

Department of Animal Science, Faculty of Agriculture and Natural Resources, University of Namibia
Private Bag 13301, Windhoek, Namibia

ABSTRACT

KUMBA, F.F., CLAASEN, B. & PETRUS, P. 2002. Apparent prevalence of dourine in the Khomas region of Namibia. *Onderstepoort Journal of Veterinary Research*, 69:295–298

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Dourine in South Africa

Onderstepoort Journal of Veterinary Science and Animal Industry, Volume 23, Numbers 1 and 2, March, 1948.

Printed in the Union of South Africa by the Government Printer, Pretoria.

Transmission of the South African Strain of Dourine to Laboratory Animals.

By D. A. HAIG and (the late) A. S. LUND, Section of Bacteriology, Onderstepoort.

Rabbit and White Rats

Dourine in South Africa

Onderstepoort J. vet. Res. 43 (2), 55–66 (1976)

OBSERVATIONS ON THE TRANSMISSION, IMMUNOLOGY, CLINICAL SIGNS AND CHEMOTHERAPY OF DOURINE (*TRYPANOSOMA EQUIPERDUM* INFECTION) IN HORSES, WITH SPECIAL REFERENCE TO CEREBRO-SPINAL FLUID

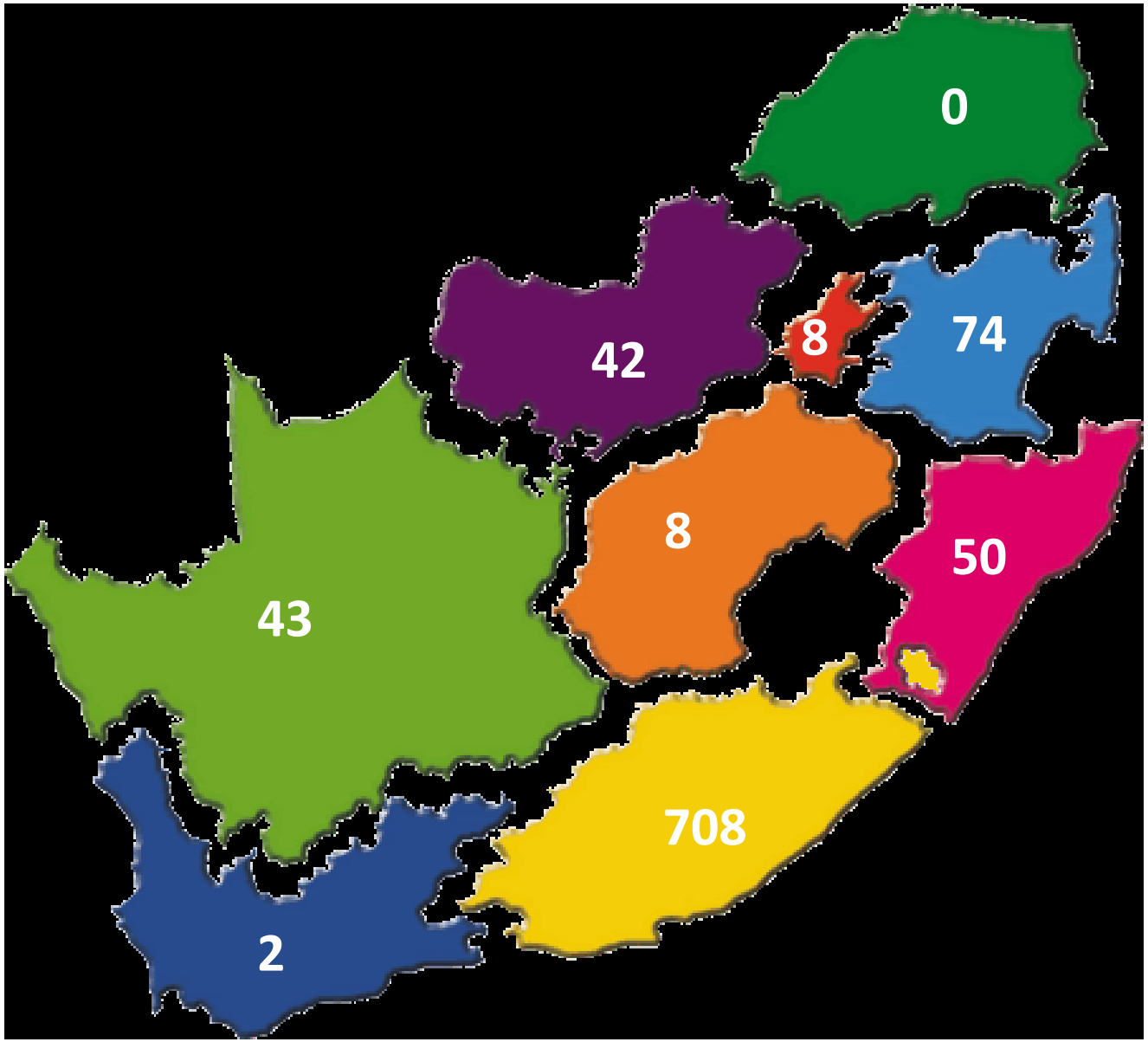
P. R. BARROWMAN, Veterinary Research Institute, Onderstepoort

ABSTRACT

BARROWMAN, P. R., 1976. Observations on the transmission, immunology, clinical signs and chemotherapy of dourine (*Trypanosoma equiperdum* infection) in horses, with special reference to cerebro-spinal fluid. *Onderstepoort Journal of Veterinary Research* 43 (2), 55–66 (1976).

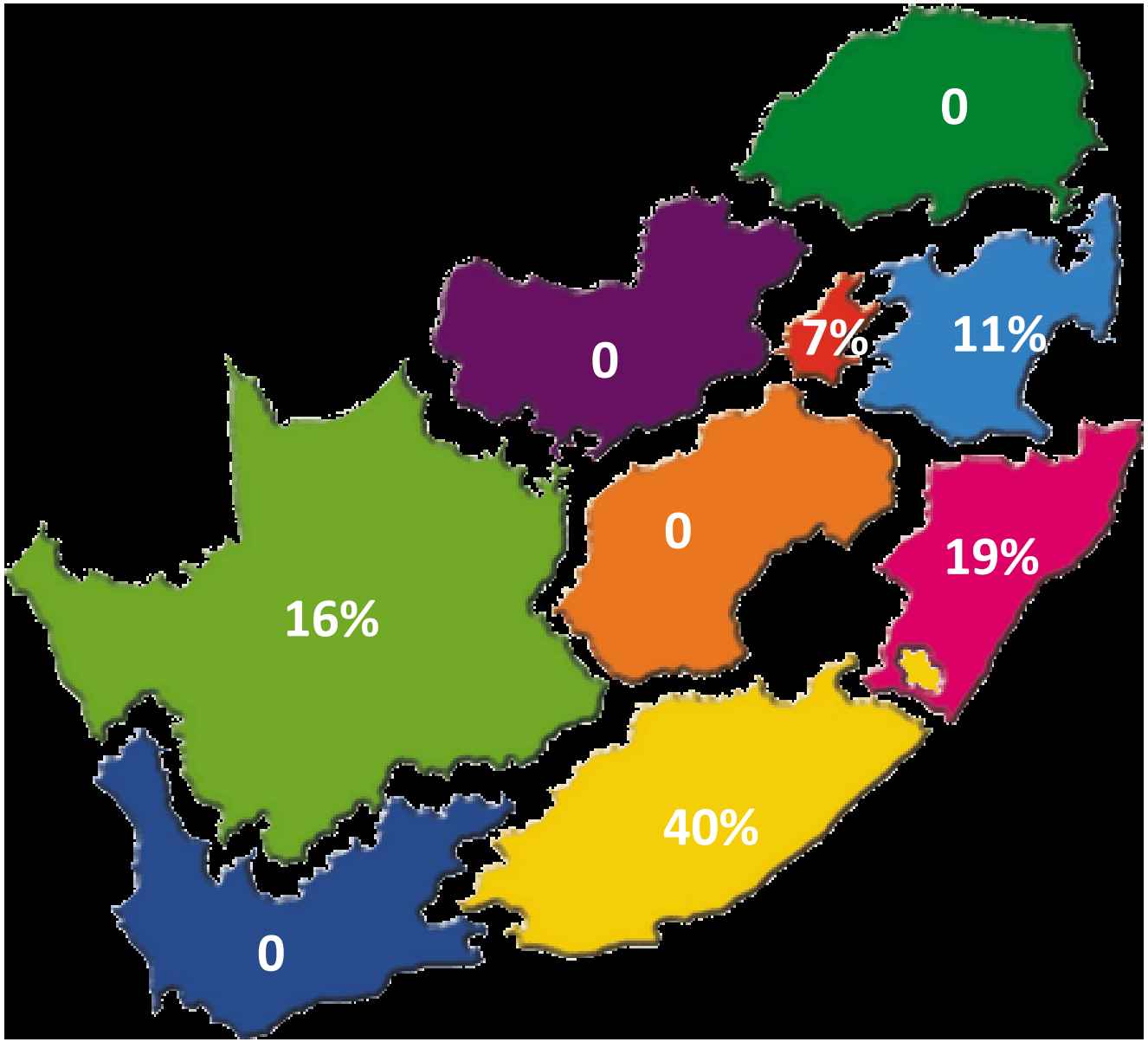
This paper is a record of observations on the transmission and clinical signs of dourine in naturally infected cases of known duration, and of temporal and quantitative aspects of the immune response in blood and cerebro-spinal fluid. Included in the record are observations on the presence of *Trypanosoma equiperdum* parasites in these body fluids and methods for their detection. There is evidence that the occurrence of nervous symptoms and lesions in infected horses is associated with the presence of *Trypanosoma equiperdum* parasites in cerebro-spinal fluid. The suitability of cerebro-spinal fluid as an environment for the parasite and its relationship with nervous manifestations of the disease are discussed. Observations support the previously reported lesions of peripheral polyneuritis and suggest a possible correlation between the consistent position of the nervous lesions and the drainage of cerebro-spinal fluid containing the parasite. Chemotherapy with an experimental drug MSbE was used with varying results in 4 horses at different stages of infection.

Dourine in South Africa: 2000 - 2010



908

Dourine in South Africa: 2011 - 2015



105

DOURINE IN SOUTHERN AFRICA 1981 – 1984: SEROLOGICAL FINDINGS FROM THE VETERINARY RESEARCH INSTITUTE, ONDERSTEPOORT

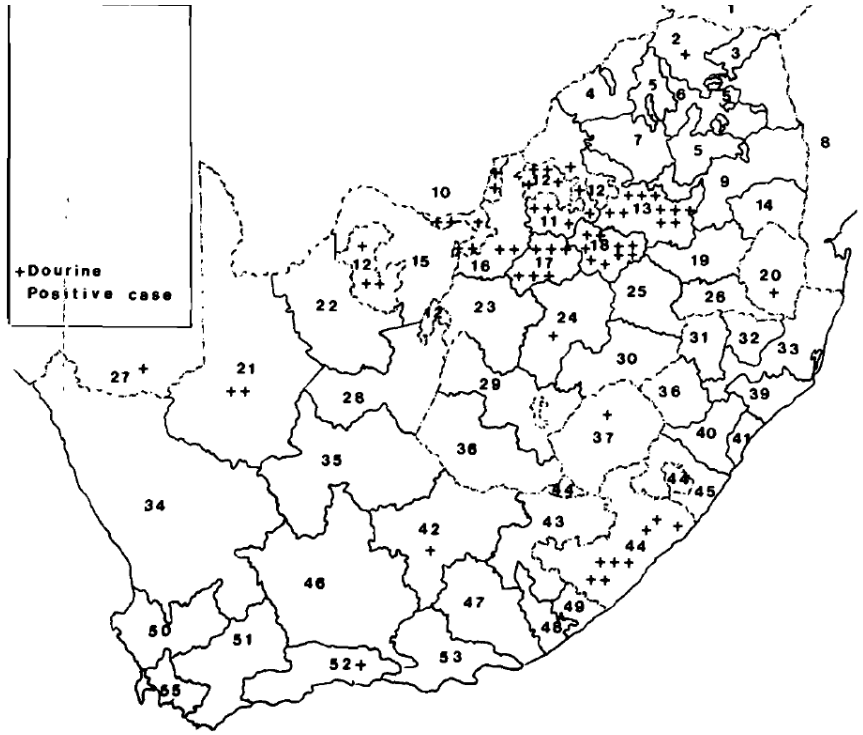
CATHERINE C. WILLIAMSON* and S. HERR*

ABSTRACT: Williamson C.C.; Herr, S. **Dourine in Southern Africa 1981 – 1984: Serological findings from the Veterinary Research Institute, Onderstepoort.** *Journal of the South African Veterinary Association* (1986) **57** No. 3, 163-165 (En) Veterinary Research Institute, 0110 Onderstepoort, Republic of South Africa.

The distribution of positive dourine cases found on the complement fixation test at the Veterinary Research Institute, Onderstepoort from 1981 to 1984, is recorded. Within the Republic of South Africa, foci of infection occurred in the Johannesburg, Pretoria, Potchefstroom, Rustenburg, Upington, Lichtenburg, Kroonstad, Louis Trichardt, Middelburg (Cape) and Mossel Bay state veterinary districts. In Bophuthatswana, Transkei, Lesotho, South West Africa and Swaziland, positive cases were also recorded.

Anti-complementary activity of horse sera does not present a problem. In donkey and mule sera, however, sera show anti-complementary activity in approximately 50% of cases. This can be reduced by diluting the sera ½ before inactivating at 63°C for 1h.

Key words: Dourine, occurrence, southern Africa, anti-complementary activity.



Jl. S. Afr. vet. Ass. 47(2) 83-85 1976

THE PREVALENCE OF DOURINE IN SOUTHERN AFRICA

P.R. BARROWMAN* AND MARIANA VAN VUUREN*

Table 1: TERRITORIAL DISTRIBUTION OF POSITIVE DOURINE CASES RECORDED AT ONDERSTEPOORT FROM 1954 TO 1975

Year	Republic of South Africa	South-West Africa	Bots-wana	Lesotho	Swazi-land	Rhodesia
1/7/54 - 30/6/55	41	115	11			
1/7/55 - 30/6/56	28	124	11			
1/7/56 - 30/6/57	84	68	4			
1/6/57 - 31/5/58	18	321	1			
1/6/58 - 31/5/59	7	22				
1/6/59 - 31/12/59	12	44	2			
1960	36	11	3			
1961	55	4	2			
1962	82	1	3			
1963	19	2	3			
1964	35	10	1			
1965	14	4				
1967	5	11	1			
1968	10	12	18			
1969	25	20	11			
1970	24	26				
1971	23	7			2	
1972	61	10				1
1973	31	5		12		
1974	47	5	1	6		
1/1/75 - 31/5/75	15	7		2		
Totals	672	829	72	20	2	1

Trypanosoma equiperdum **OVI strain 1977**

This is the strain isolated in South Africa and is used worldwide by various scientists for diagnostics, genomics etc.

No active scientific studies conducted on *T. equiperdum* and dourine in South Africa

Current dourine research in South Africa presented in 2017 at the 2nd OIE-NTTAT Conference

Assessment of alternative diagnostic techniques for detection of *Trypanosoma equiperdum* infections in horses and donkeys in South Africa

Oriel Thekisoe[1], M. A. Mlangeni[1], M. O. Taioe[1], M. Mefane[2], M. Nyirenda[2], L. Mefane[2], T. T. Nguyen[3], K. Suganume[3], Noboru Inoue[3]

[1]Unit for Environmental Sciences and Management, North-West University, Potchefstroom Campus

[2]Animal Health Program, North-West University, Mafikeng Campus

[3]National Research Centre for Protozoan Diseases, Obihiro University of Agriculture and Veterinary Medicine

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- Lack of dourine research in southern Africa is alarming.

- There is need to increase research efforts on dourine is southern Africa.

- There is need to increase research capacity by developing more scientists in the trypanosome research field.

ELSEVIER
Opinion
TRENDS in Parasitology Vol.21 No.7 July 2005
Full text provided by www.sciencedirect.com

Trypanosoma equiperdum: master of disguise or historical mistake?

Filip Claes[1,2], Philippe Büscher[2], Louis Touratier[3] and Bruno Maria Goddeeris[1]

[1]Katholieke Universiteit Leuven Leuven, Faculty of Applied Bioscience and Engineering, Department of Animal Sciences, Kasteelpark Arenberg 30, 3001 Leuven, Belgium
[2]Institute of Tropical Medicine, Department of Parasitology, Nationalestraat 155, 2000 Antwerpen, Belgium
[3]World Organization for Animal Health, 12 Rue de Prony, 75017 Paris, France

- The above article stimulated research on dourine and *T. equiperdum*.

- I hope similar review article on status of dourine and *T. equiperdum* in southern Africa will also stimulate research on the subject in the region.

Thank you