World Organisation for Animal Health

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WOAH Collaborative Centre Reports Activities 2024

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CENTRE INFORMATION

***Title of WOAH Collaborating Centre**	Training in Integrated Livestock/Wildlife Health
***Address of WOAH Collaborating Centre**	Department of Veterinary Tropical Diseases
***Tel:**	+27-12 529.84.26
***E-mail address:**	u02527006@up.ac.za
Website:	https://www.up.ac.za/woah-collaborating-centre
***Name Director of Institute (Responsible Official):**	Prof. Vinny Naidoo
***Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):**	Prof. Anita L Michel
***Name of the writer:**	Prof. Anita L Michel

TOR 1 AND 2: SERVICES PROVIDED

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by WOAH

Category	Title of activity	Scope
		As a result of increasing transmission of

Disease control (true)	Investigation of bovine brucellosis and bovine tuberculosis transmission in African buffalo	brucellosis and bovine tuberculosis between livestock and wildlife and the economic and potential conservation impact it is of crucial importance to study the transmission of both causative pathogens from African buffalo. Two studies were launched in this regard with the aim to aid in the control of both diseases through improved knowledge of pathogen dissemination from infected buffalo.
Training, capacity building (true)	Zoonotic risks and prevention for veterinary field technicians	Training session held as part of a capacity building workshop for 80 veterinary field techncians of the Gauteng Province in South Africa.
Wildlife (true)	1. Health checks on wildlife 2. Clinical pathology services for wildlife 3. Dentistry cases in wildlife 4. Serological diagnostic testing of wildlife 5. Bacteriological diagnostic testing of wildlife 6. Pathology on wildlife cases	1. General annual health checks including dental health on 16 chimpanzees were carried out for a primate rehabilitation centre. 2. 1064 individual clinical pathology samples were processed for general health checks or wild animals presented at the wildlife hospital. Those included samples from giraffe, rhinoceros, lion, vultures, cheetah, caracal, African wild cat, crocodile and others. 3. 25 wild animal patients were treated for teeth fractures or extractions, including lion, leopard, tiger. 4. 94 serum samples from carnivores (lion, cheetah, black footed cat) were tested for feline corona virus, toxoplasma and distemper virus antibodies. 76 serum samples were submitted from African buffalo for brucellosis testing. 5. 209 bacteriological isolations were made from African buffalo, carnivores (lion, cheetah, wild dog, caracal etc) various antelope species, rhino, various reptiles and bird species. In most cases these were collected at postmortem for disease investigation. 6. 60 cases (postmortem examinaton and histopathology) were handled including 15 lion, 7 cheetah, 6 vervet monkeys, 3 wild dogs, 3 buffalo and a spread of other species.

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TOR 3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main fucus area for which you were designated

Proposal title	Scope/Content	Applicable Area

3. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

No

4. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

No

TOR 4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of WOAH CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
Collaborating Center for Surveillance and Control of Animal Diseases, Onderstepoort	Onderstepoort, South Africa	Africa	Presentation of a joint poster on transboundary animal diseases at the 8th One Health Congress in Cape Town, South Africa
Rabies Reference Laboratory; ARC-Onderstepoort Veterinary Research	Onderstepoort, South Africa	Africa	Claude Sabeta is acting as Head of the Rabies Reference laboratory
University of Limoges	France	Europe	Isolation and characterisation of Toxoplasmosis gondii in wildlife and livestock in southern Africa

Instituto Zooprofilattico Sperimentale (Anthrax Reference Laboratory)	Italy	Europe	Virulence and AMR genes of Bacillus anthracis using whole genome sequencing (ongoing research collaboration)
University of Castilla- La Mancha (Christian Gortazar) and Neiker Tecnalia (Ramon Juste)	Spain	Europe	Vaccination of African buffalo against Mycobacterium bovis (ongoing research collaboration)
National Bio and Agro-Defense Facility (William Wilson) USDA Agricultural Research Service (ARS)	United States of America	Americas	Molecular Characterisation of Arboviruses in South African Livestock (ongoing research collaboration)
Department of Ecology and Evolutionary Biology, Yale University	United States of America	Americas	Coupled Macroparasite-Microparasite Interactions: Ecological and Evolutionary Consequences of Coinfection - Study on bovine TB in buffalo in the Kruger National Park
Institute of Veterinary Pathobiology, National Institute of Agricultural Technology	Argentina	Americas	Bovine theileriosis research
Agricultural Research Council - Transboundary Animal Diseases	South Africa	Africa	Foot-and-mouth disease research
Central Veterinary Research Institute	Zambia	Africa	Bovine theileriosis research
Egerton University	Kenya	Africa	Bovine theileriosis research

TOR 6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOAH?

No

TOR 7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

Yes

In June 2024 a group of veterinary clinicians from our CC teamed up with final-year veterinary students to provide primary animal health services to cattle owners in several rural farming communities in Lesotho.

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOAH, to personnel from WOAH Members?

Yes

a) Technical visit : 1

b) Seminars : 4

c) Hands-on training courses: 4

d) Internships (>1 month) : 4

Type of technical training provided (a, b, c or d)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
C	5-day hands-on and theory Tick identification course identifiying up to 18 tick species	Mozambique	4
C	5-day hands-on and theory Tick identification course identifiying up to 18 tick species	Zimbabwe	16
B	Exotic animal dentistry training workshop	China	39
C	Whole genome sequencing and comparative genomics analyses workshop	South Africa	8
D	Laboratory training in brucellosis detection methods	Tanzania	1

D	Laboratory training in anthrax detection methods	Mozambique	1
D	Laboratory training in anthrax detection methods	South Africa	1
D	Anthrax research internship	Italy	1
A	The role of the veterinarian in a veterinary diagnostic bacteriology laboraltory	South Africa	1
B	FAO VLC SADC: Capacitating veterinarians in prevention and control of African swine fever in resource-limited settings	SADC	40
B	FAO VLC SADC: On farm biosecurity and One Health for Veterinary Para-professionals	SADC	50
B	BSL-3 Training programme	USA	30
C	Gap analysis workshop on Rift Valley Fever	South Africa	10

TOR 8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOAH?

No

TOR 9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOAH that may be useful to Members

of WOAH

a) Articles published in peer-reviewed journals:

39

1. Christine Fehlner-Gardiner, Gyanendra Gongal, Tenzin Tenzin, Claude Sabeta, Paola De Benedictis, Silene Manrique Rocha, Alexander Vargas, Natalia Cediel-Becerra, Luis Carlos Gomez, Joanne Maki and Charles E. Rupprecht. (2024). Rabies in cats – an emerging public health issue (review), Viruses 2024, 16, 1635. https://doi.org/10.3390/ v16101635.

2. Bilaide, S., Nicolau, Q., Mapaco, L., Fafetine, J.M., Sabeta, C.T., Rodrigues, F., Júnior, A.P., Chilundo, A. and Mapatse, M. (2024). Retrospective study of animal rabies (2001-2017) in Mozambique. Journal of the South African Veterinary Association. J S Afr Vet Assoc. 2024;95:55-66. https://doi.org/10.36303/JSAVA.639.

3. Ngoepe, C.E.; Shumba, W. and Sabeta, C. (2024). Evidence for a host-switch in the maintenance of canid rabies variant in the Northern Cape Province, South Africa. Journal of the South African Veterinary Association; 94:123-129. https://doi.org/10.36303/JSAVA.527.

4. Mogano, K., Sabeta, C., Makita, K., Suzuki, T., and Chirima, G.J. 2024. Patterns of animal rabies incidence in northern South Africa between 1998 and 2017. Tropical Medicine and Infectious Diseases. 9, 27. https://doi.org/10.3390/tropicalmed9010027.

5. CHIMVWELE N. CHOOPA, WALTER MULEYA, PAUL FANDAMU, LUBEMBE D. MUKOLWE, KGOMOTSO P. SIBEKO-MATJILA (2024). p67 gene alleles sequence analysis reveals Theileria parva parasites associated with East Coast fever and Corridor disease in buffalo from Zambia Veterinary Parasitology 330, 110240 https://doi.org/10.1016/j.vetpar.2024.110240

6. Penrith, M.-L., van Emmenis, J., Hakizimana, J.L., Heath, L., Kabuuka, T., Misinzo, G., Odoom, T., Wade, A., Zerbo, H.L., Luka, P.D. 2024. African swine fever diagnosis in Africa: Challenges and opportunities. Pathogens, 13, 296 doi: 10.3390/pathogens13040296

7. Fasina, F.O., Mtui-Malamsha, N., Nonga, H.E., Ranga, S., Sambu, R.M., Majalima, J., Kamani, E., Okuthe, S., Kivaria, F., Bebay, C., Penrith, M.-L. 2024. Semi-quantitative risk evaluation reveals drivers of African swine fever virus transmission in smallholder pig farms and gaps in biosecurity, Tanzania. Veterinary Medicine International, 2024, Article ID 4929141 doi: 10.1155/2024/4929141.

8. Michel AL. Vaccines to control tuberculosis in cattle. Science. 2024 Mar 29;383(6690):1410-1411. doi: 10.1126/science.ado4333. Epub 2024 Mar 28. PMID: 38547294.

9. Erika T Machtinger, Karen C Poh, Risa Pesapane, and Danielle M Tufts. 2024. "An integrative framework for tick management: the need to connect wildlife science, One Health, and interdisciplinary perspectives". Current Opinion in Insect Science 2024, 61:101131

10. Goatley L, Freimanis G, Tennakoon C, Bastos AD, Heath L, Netherton C. 2024. African swine fever virus NAM P1/95 is a mixture of genotype I andgenotype VIII viruses. Microbiology Resource Announcements

12. KD Mazwi, FB Kolo, IF Jaja, C. Byaruhanga, A Hassim and H van Heerden 2024. Polyphasic Characterization of Brucella spp. in Livestock Slaughtered from Abattoirs in Eastern Cape, South Africa. Microorganisms 2024, 12, 223

13. Claire Julie Akwongo, Charles Byaruhanga 2024. Epidemiology of Anaplasma species amongst cattle in Africa from 1970 to 2022: A systematic review and meta-analysis. Preventive Veterinary Medicine

14. V Phetla , M Chaisi , M P Malatji 2024. Epidemiology and diversity of gastrointestinal tract helminths of wild ruminants in sub-Saharan Africa: a review. J Helminthol

15. Jennifer Mattock, Marie Anne Chattaway, Hassan Hartman et al. 2024. A One Health Perspective on Salmonella enterica Serovar Infantis, an Emerging Human Multidrug-Resistant Pathogen. Emerging Infectious Diseases

16. Weldegebrial G. Aregawil D, Bruno Levecke, Hagos Ashenafi, et al. 2024. Epidemiology of Echinococcus granulosus sensu lato in the Greater Horn of Africa: A systematic review. Viruses 2024,

17. T. Yazwinski, David Burden, R B Besier, D J Bartley, T P Elliott, E. Claerebout, S. Rehbein, . J. Hoglund, . J A Van Wyk, . J F.J. Torres-Acosta. 2024. World Association for the Advancement of Veterinary Parasitology (W.A.A.V.P.): Third edition of the guideline for evaluating efficacy of anthelmintics in ruminants. Veterinary Parasitology

18. Sudhanshu S. Panda, Thomas H. Terrill, Aftab Siddique, Ajit K. Mahapatra, Eric R. Morgan, Andres A. Pech-Cervantes and Jan A. Van Wyk. 2024. Development of a Decision Support System for Animal Health Management Using Geo-Information Technology: A Novel Approach to Precision Livestock. Agriculture 2024, 14, 696. https://doi.org/10.3390/agriculture14050696

19. Ntelekwane George Khasapane, Jane Nkhebenyane,et al. 2024. Comprehensive whole genome analysis of Staphylococcus aureus isolates from dairy cows with subclinical mastitis. Pathogens 2024, 13, 304. https://doi.org/10.3390/pathogens13040304

20. P Munzhelele, NPS Sibeko,JW Oguttu,CA Mbajiorgu,FO Fasin. 2024. Parasites burden in peri-urban free-roaming pigs in Gert Sibande District Municipality, Mpumalanga Province, South Africa. Frontiers in Microbiology, 15, p.1376620

21. FM Hagg, LJ Erasmus, WH Stoltsz. 2024. The potential effect of Garlium GEM HCTM as a tick control agent in cattle. J S Afr Vet Assoc.

2024;95:1-6
22. Koketso Desiree Mazwi, Kgaugelo Edward Lekota, Barbara Akofo Glover, et al. 2024. Whole Genome Sequence Analysis of Brucella spp. from Human, Livestock, and Wildlife in South Africa. Journal of Microbiology
23. Chimvwele N. Choopa, Walter Muleya, Paul Fandamu, Lubembe D. Mukolwe, Kgomotso P. Sibeko-Matjila. 2024. p67 gene alleles sequence analysis reveals Theileria parva parasites associated with East Coast fever and Corridor disease in buffalo from Zambia. Veterinary Parasitology
24. Whatmore Munetsi Tagwireyi,Peter N. Thompson, Gema Alvarez Garcia, Darshana Morar-Leather, Luis Neves. 2024. Seroprevalence and associated risk factors for Neospora caninum infection in dairy cattle in South Africa. Parasitology Research (2024) 123:298
25. Trujillo J, Wilson W, Craig AF, van den Bergh C, Wang T, Thompson PN, Swanepoel R, Morozov I, Richt JAR. 2024. Rift Valley Fever virus M and L genome segment detection: acomparison of field-deployable reverse transcription insulated isothermal PCR(RT-iiPCR) and laboratory-based multiplex reverse transcription real-time PCR. Journal of Clinical Microbiology
26. Sunday O. Ochai ,Lourens Snyman,Amelie C. Dolfi,Abel Ramoelo,Brian K. Reilly,Judith M. Botha,Edgar H. Dekker,O. Louis van Schalkwyk,Pauline L. Kamath,Emma Archer,Wendy C. Turner,Henriette van Heerden 2024. Roles of host and environment in shift of primary anthrax host species in Kruger National Park. PLOS One
27. Kgaugelo Edward Lekota, Ayesha Hassim, Maphuti Betty Ledwaba, Barbara A. Glover, Edgar. H. Dekker, Louis Ockert van Schalkwyk, Jennifer Rossouw, Wolfgang Beyer, Gilles Vergnaud and Henriette van Heerden. 2024. Bacillus anthracis in South Africa, 1975–2013: are some lineages vanishing? BMC Genomics
28. Refilwe P. Bokaba, Veronique Dermauw, Darshana Morar-Leather, Pierre Dorny, Louis van Schalkwyk, Luis Neves. 2024. An investigation into Toxoplasma gondii at the human-livestock-wildlife interface, South Africa. Onderstepoort Journal of Veterinary Research
29. Wikus Wiedeman, Akorfa B. Glover, Johan Steyl, Jacques O'Dell, Henriette van Heerden. 2024. Clinical Coxiella burnetii infection in sable and roan antelope in South Africa. Onderstepoort Journal of Veterinary Research
30. Carlo Andrea Cossu, Sunday Ochonu Ochai, Milana Troskie , Axel Hartmann, Jacques Godfroid , Lin-Mari de Klerk , Wendy Turner , Pauline Kamath , Ockert Louis van Schalkwyk, Rudi Cassini , Raksha Bhoora , and Henriette van Heerden. 2024. Detection of Tick-Borne Pathogen Coinfections and Coexposures to Foot-and-Mouth Disease, Brucellosis, and Q Fever in Selected Wildlife From Kruger National Park, South Africa, and Etosha National Park, Namibia.Transboundary and Emerging DiseasesVolume 2024, Article ID 2417717, 17 pageshttps://doi.org/10.1155/tbed/2417717
31. Alec Evans, Maxime Madder, Josephus Fourie, L´enaïg Halos, Bersissa Kumsa, Elikira Kimbita, Joseph Byaruhanga, Frank Norbert Mwiine, Dennis Muhanguzi,
Safiou Bienvenu Adehan, Alassane Toure, Jahashi Nzalawahe, Fred Aboagye-Antwi,Ndudim Isaac Ogo, Leon Meyerl, Frans Jongejan , Imad Bouzaidi Cheikhi, Maggie Fisher, Peter Holdsworth. 2024. Acaricide resistance status of livestock ticks from East and West Africa and in vivo efficacy of acaricides to control them. International Journal for Parasitology: Drugs and Drug Resistance
32. Ivan G. Horak, Joop Boomker, Vasily I. Grabovsky, Irina S. Khokhlova, Kerstin Junker, Juliana P. Sanchez, M. Fernanda López Berrizbeitia, 2024. Searching for common patterns in parasite ecology: species and host contributions to beta-diversity in helminths of South African ungulates and fleas of South American rodents. International Journal for Parasitology
33. IG Horak, K Junker, LEO Braack, GJ Gallivan 2024. Helminth parasites of impalas, Aepyceros melampus, in eastern southern Africa, collected during 1973 to 2007. Journal of the South African Veterinary Association 2024; 95(1
34. Frans Jongejan, Laura Berger, Laura Homminga, Iris Hulsebos, Alita Petersen, Priscila Teixeira Ferreira, José Reck and Guilherme Klafke. 2024. Resistance intensity test (RIT): a novel
bioassay for quantifying the level of acaricide resistance in Rhipicephalus microplus ticks. Parasites & Vectors (2024) 17:480
35. Kerstin Junker, Joop Boomker, Ivan G. Horak and Boris R. Krasnov.2024. Ecto-and endoparasites of common reedbuck, Redunca arundinum, at two localities in KwaZulu-Natal Province, South Africa: Community and network structure. Parasitology 151, 657–670. https://doi.org/ 10.1017/S0031182024000532
36. Emmanuel P. LitaID, Erneo B. Ochi, Gerald Misinzo, Henriette van Heerden,Robab Katani, Jacques Godfroid, Coletha Mathew. 2024. Seroprevalence and risk factors of brucellosis
in pastoralists and their livestock in Central Equatoria State, South Sudan. PLOS NEGLECTED TROPICAL DISEASES
37. Sunday Ochonu Ochai, Ayesha Hassim, Edgar H. Dekker, Thuto Magome, Kgaugelo Edward Lekota, S. Marcus Makgabo, Lin-Mari de Klerk-Loris, Louis O. van
Schalkwyk, Pauline L. Kamath, Wendy C. Turner, Henriette van Heerden. 2024. Comparing microbiological and molecular diagnostic tools for the surveillance of anthrax. PLOS Neglected Tropical Diseases.

38. Antoinette van Schalkwyk, Pravesh Kara, Robert D. Last, Marco Romito and David B. Wallace. 2024. Detection and Genome Sequencing of Lumpy Skin Disease Viruses in Wildlife Game Species in South Africa.Viruses 2024, 16, 172. https://doi.org/10.3390/v16020172

39. L. Sims, S. von Dobschuetz, X. Roche, D. Pfeiffer, T. Harder, G. Fournié, A. Bataille, F. Leighton,F. Fasina, B. Martínez López,J. Taylor. 2024. Avian influenza – a constant threat: Gaps that need filling in order to improve early warning, risk assessment and modelling for targeted and timely intervention. EMPRES 360, 2020.

b) International conferences:

14

1. Mogano, K., Sabeta, C., Makita, K. and Chirima, GJ. Ecological Niche Modelling Based On Ensemble Algorithms To Predict Current Potential Distribution Of Wildlife Rabies Host In Northern South Africa. ISVEE conference, Sydney, Australia, 11-15 November 2024.

2. Embregts, C; Kroh, K; Ravensberg, M; Javeria, A; Naseer, F; Gohar, A; Schipper, D; Rahmat, R; Hasan, I; Basher, A; Leonhard, S; Kuiken, T; Koopmans, M; Islam, Z; Sabeta, C; Salahuddin, N; Geurtsvankessel, C. Translational Studies Exploring the lack of Immunity against Rabies Virus Infection, One health Congress, Cape Town, September 2024.

3. Embregts, C; Ravensberg, M; Kroh, K; Schipper, D; Rahmat, R; Voermans, J; Oude Munnink, B; Sabeta, C; Geurtsvankessel, C. Characterization of rabies virus populations and the host response in dogs during a rabies outbreak in Nelson Mandela Bay Municipality, South Africa. September 2024.

4. Anyango, R.A., Kamau, J and Sabeta, C.T. Dog - mediated Human Rabies Elimination in Kenya: Status, and assessment of knowledge, attitude, and practices of Rabies Elimination Strategy
implementation in Selected Counties, SASVEPM, 21-23 August 2024.

5. Eze, U., Ogbu,K.I., Ezeokonkwo, R.C., Anene, B.M. and Sabeta, C.T. Dog-mediated human rabies elimination in Nigeria by 2030 - will dog markets stifle progress towards elimination? SASVEPM, 21-23 August 2024.

6. Kgaogelo Mogano, K., Sabeta, C., Suzuki, T., Makita, K. and Chirima, G. Patterns of Rabies Prevalence in northern South Africa between 1998 and 2022, World Veterinary Association Congress, Cape Town, April 2024.

7. Attended a WOAH Laboratory Twinning Programme Community Forum/Evaluation workshop, 27-28 June 2024, Paris (France).

8. Miyen, M., Sabeta, C., Moropeng, R., Dermauw, V. and Van Schalkwyk, A. Phylogenetic analyses of recent dog rabies viruses from an outbreak in the Eastern Cape Province, SA; Virology Africa, Stellenbosch, April 2024.

9. Moné Kruger1, Leonhard Schnittger2,3, Kgomotso P. Sibeko-Matjila. Genome-wide analysis of Theileria parva proteases for identification of potential drug targets. 11th Ticks and Tick-borne Pathogens International Conference, 1-6 September 2024. Cuba.

10. CN Choopa1, W Muleya2, D Mukolwe3, P Fandamu4, KP Sibeko-Matjila. Antigenic diversity of cattle- and buffalo-associated Theileria parva parasites from Zambia. : 32nd National Conference of Parasitology; 3-5 October 2024; Pune, India.

11. ML Penrith. Principles and innovations for managing ASF covering the different production systems (SGE 4th meeting) and Promoting evidence-based control policies (SGE 4th meeting).

12. M Engelbrecht, A Jonker, J Wentzel, A Michel. Hippopotamus-Human Conflict: A Case For A One Health Approach. Oral presentation, World Veterinary Congress, 16-19 APRIL 2024, Cape Town.

13. A.L. Michel, Preliminary results of brucellosis research in a commercial herd of African buffalo. Oral presentation, World Veterinary Congress, 16-19 APRIL 2024, Cape Town.

14. J Hewlett, LM de Klerk Lorist, L Nupen, R Juste, C Gortazar, E Mitchell, V Rutten, A Michel. Oral presentation. VACCINATION OF AFRICAN BUFFALO AGAINST BOVINE TUBERCULOSIS REDUCES LESIONS AND BACTERIAL VIABILITY Dr JennieAmerican Association of Zoo Veterinarian conference, Toronto, Canada, September 2024.

c) National conferences:
1
O. Rikhotso, P Thompson, A. Michel. Assessment of the Tuberculin Skin Test Training Programme of Animal Health Technicians in Bushbuckridge, South Africa. Poster presented at the 21st Annual SASVEPM Meeting, 19-23 August 2024, Cape Town. South Africa.

d) Other (Provide website address or link to appropriate information):
3
PhD thesis: A. Jonker. Bacterial and fungal causes of abortion in domestic ruminants in South Africa. https://repository.up.ac.za/handle/2263/96689

MSc thesis: Martinet Labuschagne. Evaluation of five housekeeping genes for genotyping southern African Ehrlichia ruminantium strains. https://repository.up.ac.za/handle/2263/98371

MSc thesis: M Antrobus. Mycobacterial safety of meat cuts from BCG-vaccinated African buffaloes (Syncerus caffer) experimentally infected with Mycobacterium bovis. https://repository.up.ac.za/handle/2263/98374

11. What have you done in the past year to advance your area of focus, e.g. updated technology?
The CC's Onderstepoort Veterinary Academic Hospital has acquired the largest CT scanner for veterinary practice in South Africa. Given that the Faculty of Veterinary Science at UP is the sole veterinary school in the country and the second oldest on the continent, the state-of-the-art scanner will undoubtedly advance the training of veterinary specialists, clinical research capabilities, and innovation.

To braden our focus we have partnered with the Southern African Wildlife College's Herding Academy. The SAWC Herding Academy provide an enabling role through capacity building (professional herder courses) for farmers, and their herders to achieve an harmonious state between nature and people using livestock as the tool. The SAWC Herding Academy also advocates for livestock grazing integration into conservation areas, and capacitate policy makers and managers on how to access and embrace grazier culture in order to benefit from grazing practice. At the same time growing the inclusivity in conservation practice and adopting an Africa centric conservation model to grow into the future.

12. Additional comments regarding your report:
This is not intended as an excuse but as an explanation that the annual report for this CC is an incomplete account of the WOAH relevant activities because of its due date in January. The academic year closes on 22 December with part of the staff being unavailable until second half of January which does not allow time to submit a through activity report to the writer of this annual report.