

SEEKING GRADUATE STUDENTS FOR COLLABORATIVE (US / SA / UK) STUDIES ON ECOLOGY AND EVOLUTION OF INFECTIOUS DISEASES IN WILDLIFE: FOOT-AND-MOUTH DISEASE IN AFRICAN BUFFALO.

Positions:

We are looking to recruit PhD / MS students in the areas of disease ecology / mathematical modeling, wildlife conservation / eco-physiology. Positions are available through Oregon State University (USA), and collaborating institutions in the US (U. Louisiana), South Africa (U. Pretoria, U. Mpumalanga), and the UK (U. Warwick, U. of Glasgow). Our field work is based at Kruger National Park.

We are looking for talented, highly motivated team players interested in joining us in investigating the dynamics of infectious diseases in African buffalo (see project description below). This project is just beginning; as such, there are many possible directions for students to pursue. We offer cross-disciplinary training opportunities with an international team of investigators. We consider recruiting South African students and building research capacity in South Africa a priority in our work.

Contacts:

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Buffalo / Foot-and-Mouth Disease Virus Project Overview: Infectious diseases function at several scales: Pathogens reproduce within cells and organs of their hosts, they transmit among individuals and spread across populations. Because pathogens – especially viruses – replicate rapidly and have high mutation rates, they evolve new variants quickly, changing the ways in which they interact with their hosts – from cellular interactions to how they spread on the landscape. Predicting which viral genetic variants will be more harmful to hosts, which will spread widely, and which will persist in their host populations in the long run is a major challenge in infectious disease biology.

We will investigate viral dynamics from genomic to landscape scales studying a suite of foot-and-mouth disease viruses (FMDVs) in their reservoir host, African buffalo. FMDVs are some of the fastest-evolving and most contagious known pathogens, which cause enormous losses when they spillover from wildlife to livestock populations. Our work combines experimental, observational and mathematical approaches to test whether viral dynamics within hosts, at population and landscape scales, can be predicted from phenotypic variation among viral lineages.

This is important, because viral interactions with host cells can be screened across thousands of variants in laboratory experiments. By contrast, the spread of new variants in host populations can typically only be observed as it is happening in real-time – and at that point the most efficient variants are difficult to control. Identifying dangerous viral variants before they spread could help prevent disease epidemics.

Q&A with Professor Michelle Miller, who is involved with the project:

- What is being offered?
- These are opportunities for graduate study, at the PhD or MSc level. Funding includes salary and tuition costs for the duration of the degree.

- Where will participants be based?
- Oregon State University, USA; and Kruger National Park - for field work.
(Depending on the student's interests, we can also put them in touch with some of our collaborators at other universities, if they wish).

- What is the closing date for applications and what is required to apply?
- Formal application deadlines for our graduate programs are in December. However, we strongly recommend that students make enquiries with us well in advance of the application deadline, so that we can start planning (incl visas and possible fellowship applications).

- When will the opportunity commence and how long is it likely to last?
- Students will enter OSU in Sep 2024. However, depending on student interests and availability, it may be possible to participate in field work sooner. MSc degrees last 2 years, PhD degrees typically last 5 years at US universities.

- What is being offered? A scholarship (if yes, at what value), or just a study opportunity or perhaps a research assistant opportunity?
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