Welcome to the first outreach update on elk hoof disease research at Washington State University.

We want to share the progress underway in finding answers to combat this debilitating disease. Regular updates will include noteworthy accomplishments, press releases, and links to reports and publications. This information can also be found on our website.

Additionally, updates will include stories from the field, posts that explain where our research is directed and why, and important challenges that we face. I will choose the topics in each posting based upon those I enjoy discussing with you when we have the opportunity to visit in person.

It has been a busy first year actively planning and initiating research since I began as the program manager in August 2018. We developed a plan for our research program, initiated studies to detect disease-causing organisms in hoof samples, and are completing a state-of-the-art elk research facility.

Construction of the $1.2 million structure is over halfway completed. A generous $100,000 grant from the Rocky Mountain Elk Foundation provided essential funding for the project.

The individual housing pens are framed-in and extensive groundwork has been conducted to make way for the feed building, capture pen, and handling areas. Following construction, the pasture fencing and a perimeter fence will be installed. Biosecurity is a critical component of design to reduce risk of unintended spread of disease between animals in the facility and escape of disease beyond the facility. Concrete-lined pens that will house elk during studies, waste water management, and double fencing are a few of the biosecurity features.

The WSU team addressing hoof disease is growing to implement our multi-pronged research approach.

We have recruited our first graduate student. Dr. Liz Goldsmith is a veterinarian pursuing a PhD and residency in anatomic pathology in our department. Dr. Goldsmith will be studying the disease causing agents we call pathogens that are associated with hoof lesions, including using cutting-edge “DNA fingerprinting” type approaches. We are collaborating with Washington Department of Fish and Wildlife, Northwest Indian Fisheries Commission, and others to collect hoof samples in four distinct geographic locations for her study.

We are receiving lots of hoof samples and have hired a scientific assistant, Liz Wheeler, to coordinate submission, processing, sampling, and cataloging of those hooves. Liz also conducts laboratory
analyses and will help with training elk and in conducting studies at the new research facility.

We welcomed two veterinary students to our lab for summer projects. One student, Dylan Conradson, a second year veterinary student, received a summer research grant from the College of Veterinary Medicine to map spatial distribution of the disease and investigate potential risk factors to elk for developing hoof disease. You will see some new maps that he created in our presentations and soon on our website. He also conducted sophisticated computer data analysis, but unfortunately, data currently available is not sufficient to draw definitive conclusions. However, the work identified data gaps that we could work toward filling to improve confidence in future outcomes.

Dylan is also starting a study to investigate elk antler conformation in Washington. Some stakeholders report seeing an increase in the number of elk with abnormal antlers. The objective of this study is to understand if hoof disease, or other factors, may be affecting elk antlers.

Clara Kappelman, a third year veterinary student, was hired part-time to hand-raise elk calves. Unfortunately, we were unable to obtain newborn calves this summer so a back-up plan was required. For cost effectiveness, Clara cut back on work hours and helped with processing hoof samples. We expect to obtain tame elk to introduce to the facility in place of the planned hand-raise calves.

We also plan to have another graduate student join our team in the coming year. That student will focus on conducting initial trials with transmission of hoof disease in the captive research facility.

An extraordinary benefit of being within the WSU Department of Veterinary Microbiology and Pathology is the in-house expertise that we have to draw on. This collaboration is critical to the cutting edge work needed to address hoof disease and it saves cost by not needing to employ additional scientists.

**Dr. Kyle Taylor**, a veterinary pathologist, examines the tissue samples. He makes the diagnosis of treponeme-associated hoof disease and also studies the disease process revealed by examining samples under the microscope. We are also fortunate to be associated with the Washington Animal Disease Diagnostic Laboratory here at WSU to support Dr. Taylor’s investigations.

**Dr. Devendra Shah** is a veterinary microbiologist with a well-established research microbiology laboratory. Dr. Shah’s lab supports our work by performing DNA extraction from tissues and analyzing data from genetic sequencing of bacteria.

**Charlie Powell**, a communications specialist, supports our outreach. Charlie is often your point of contact when reaching out to our WSU hoof disease research program.

Many other WSU and Washington Department of Fish and Wildlife staff contribute as well.

Additionally, the insights and observations that you all provide is particularly valuable to our research. I appreciate your willingness to share ideas and your support of our research.

*Margaret Wild, DVM, PhD*