During the past two years we’ve looked at a lot of elk feet at WSU to learn more about elk hoof disease. The reason we receive these hooves and how we process them varies with our objective. One thing is constant though, collaboration with the state and tribal wildlife managers and participation by hunters and landowners has been key.

In some cases, our objective, along with that of the wildlife managers, is disease surveillance. Surveillance is most important in areas where the disease has not previously been diagnosed. It is often accomplished when hunters report harvesting an elk with abnormal hooves to the state or tribal managers and those agencies coordinate hoof submission to WSU. Most of these cases have come from Washington, Idaho, Oregon, and California as reported in the last Research Update. Sampling and evaluation by a veterinary pathologist can determine whether or not the elk is affected with treponeme-associated hoof disease (TAHD).

This fall we are collaborating with Washington Department of Fish and Wildlife (WDFW) to conduct focused surveillance in several herds in central and eastern Washington. If you, or a hunter you know, receives a request to contribute hooves to our research, or if you harvest an elk with abnormal hooves in central or eastern Washington, we encourage you to participate by contacting WDFW to coordinate hoof submission as requested.

We also use surveillance to investigate hoof abnormalities in other wildlife species, primarily deer. To date, treponeme-associated hoof disease has not been diagnosed in those species.

Surveillance samples from elk are often also used in research. Additionally, we collaborate with wildlife managers to target collection of both normal and abnormal appearing hooves from harvested elk in an area of interest specifically for research purposes. The immediate use of these samples is to compare the bacteria present on abnormal hooves with those of normal hooves to identify differences that could point to disease-causing organisms. This may include the current treponeme suspects, but also other, yet to be identified bacteria that damage the hoof.

We don’t stop there though. We collect a number of samples from hooves of interest to archive for future investigation into the disease-causing organisms and into attributes of the elk that may render them more or less susceptible to disease.
These samples include multiple hoof biopsies, slices, and swabs, as well as hair and skin that are organized into vials and bags to be stored frozen or preserved in a formaldehyde mixture for future processing for microscopic examination. A skilled, professional technician documents and processes each set of hooves using clean, or aseptic, technique to avoid cross-contamination of samples that would bias results. We make the most of each hoof as is clear in the before and during sampling photos.

This fall we have an additional research objective for some collected hooves. As reported in the April Research Update, COVID pandemic-associated work and travel restrictions delayed our initial studies with the captive elk herd. These restrictions continue but in the coming months we will work safely to collect very fresh hooves from harvested affected elk that can be used to intentionally contaminate soil in the pens of captive elk. Soil, particularly certain types of wet soils, are thought to harbor bacteria that cause hoof disease. This study will allow us to investigate the potential for disease transmission via a contaminated environment.

As always, we will keep you posted as work progresses.