Improving Diagnostics:
Jessica continued her work of validating brucellosis tests on elk blood with varying degrees of hemolysis (hemolysis occurs in blood samples as red blood cells die and release hemoglobin). This project is important because 30-50% of the blood samples received from hunter-killed elk are considered untestable because of too much hemolysis (usually when the blood sample gets frozen). Jessica’s research will determine how consistent are the results of brucellosis serology tests when hemolysis ranges from 0 to 100%. This will better define which samples can be tested and which should be discarded. Hopefully this research will increase the number of “testable” samples each year by discarding fewer hemolyzed samples.

Hally spent much of the month working on diagnostic assays to improve our detection of respiratory pathogens in bighorn sheep. One new assay is a real-time PCR for *Pasteurella multocida* – an under recognized bacterial respiratory pathogen, but well known for causing avian cholera; hemorrhagic septicemia, and meningitis in humans. The real-time PCR will speed up our diagnostics, and hopefully increase our ability to detect this bug in diagnostic samples.

Hally also completed and submitted her manuscript “Development and validation of a real-time PCR specific for the leukotoxin gene of *Bibersteinia trehalosi*” This bacteria is also an under recognized cause of respiratory disease, and was not accurately identified until development of this assay. The manuscript was submitted to the Journal of Veterinary Diagnostic Investigation.
Annual Wildlife Capture Course
Our Introduction to Wildlife Capture and Chemical immobilization course was held in late May. We hold this course annually to provide hands on training for WGFD personnel in wildlife capture and chemical immobilization techniques. This training is mandatory for all game and fish personnel who utilize drugs to capture wildlife. The goal of the course is to train personnel in legal aspects of using controlled drugs for wildlife capture, the technical background on which drugs we use and why we use them, and in humane handling and care of wildlife during capture events. This is a huge effort for us to put on at Sybille and the whole crew pitches in to make it happen. Many thanks also go to co-instructors, Dan Thompson and Doug Brimeyer, who add their extensive experience and expertise to the course.

Sheep and Elk Sampling
This month we handled our elk and bighorn sheep for disease sampling and general management. We trimmed hooves, changed insecticide ear tags, and took respiratory samples from all of our Cody ewes. The very next day we took blood samples and put in new insecticide ear tags for the elk in our CWD Vaccine study. Management of research animals is a year round job, and simple care such as parasite treatment and tick control are important in the spring/summer.

Animal Care and Use Meeting
We had our spring meeting and facility inspection of our Institutional Animal Care & Use Committee (IACUC) this month. This committee is comprised of both wildlife professionals and members of the public and oversees our captive animal facilities. This is a federal requirement for us to maintain our registration as a research facility. All research proposals must be approved by the committee before studies can begin here at the TWRC.

Cheat Grass Control in the Canyon
Last fall we worked with Habitat Biologist, Ryan Amundsen to contract a helicopter to apply Plateau herbicide to one of our pastures overrun with cheat grass. This spring is really showing the effectiveness of the herbicide, but also how little perennial grasses are in this pasture.
**Disease of the Month: Ticks and tick-borne Diseases**

Summer is tick season and time to emphasize the importance of insect repellent, long sleeve shirts and full pants to prevent picking up these little parasites while enjoying Wyoming’s short summer.

**Tularemia:** In Wyoming, ticks are one of the vectors that can transmit Tularemia (along with mosquitoes, fleas and biting flies). Tularemia is a zoonotic bacterial disease frequently found in rabbits, beavers, muskrats and prairie dogs but can cause disease in many species of wildlife, pets and livestock. Human cases of tularemia are uncommon, with symptoms ranging from mild illness to pneumonia, meningitis, and even death. From 2001 to 2015, 21 human cases of tularemia were diagnosed in Wyoming.

**Rocky Mountain spotted fever (RMSF)** is another tick-borne disease of concern in Wyoming. This bacterial disease is spread by the Rocky Mountain Wood tick (*Dermacentor andersoni*). Rocky Mountain spotted fever is a serious human disease that can be fatal if not treated. Symptoms include a rash (sometimes), fever, headache, abdominal pain, vomiting, muscle pain. Dogs can also become infected with signs similar to those seen in humans. Despite its name, RMSF occurs more frequently in Arkansas, Oklahoma and Missouri than it does in Wyoming. Typically, one to two cases of RMSF are reported in Wyoming each year.

**Colorado tick fever virus (CTF)** is another disease transmitted by the Rocky Mountain wood tick in Wyoming. Ticks become infected with CTF virus when they feed on the blood of reservoir animals such as squirrels, chipmunks, and mice. The tick then passes the virus to other hosts while it feeds. The most common symptoms of CTF in humans are fever, chills, headache, body aches, and fatigue. Some patients have sore throat, vomiting, abdominal pain, or skin rash. Typically, fewer than 10 human cases of CTF are reported in Wyoming each year.

**Lyme disease:** Although Lyme disease doesn’t occur in Wyoming, it is something to be aware of when traveling in the upper Midwest and northeastern United States. More than 20,000 human cases of the tick-borne Lyme disease are reported in the United States each year. Symptoms in humans include fever, chills, headache, fatigue, muscle and joint pain, swollen lymph nodes, and usually a rash that starts at the tick bite and slowly expands with a dark center giving the rash a “bull’s eye” appearance. Untreated, Lyme disease can become a lifelong disease that can lead to short term memory loss, irregular heartbeat, facial palsy, arthritis, and severe joint pain.

**Spinose ear ticks (*Otoobius megnini)*:** Although this tick is not considered a vector of disease, it has an unnerving habit of living in the ear canal, where it can be tough to spot when checking your pets for ticks. This tick lives on a broad range of hosts from wildlife, pets, livestock, and humans. This soft-bodied species can live in the ear for several months as they develop through their life stages before leaving to become free-living adults. Engorged nymphs are pea-sized with bright yellow legs and often totally block the ear canal, and adults may be nearly 10 mm (½”) in size.