



ONA REPORT

Dr. Hance Ellington

UF IFAS
UNIVERSITY of FLORIDA

Building on Past Achievement and Looking Forward: A closer look at calf loss

Hance Ellington – Assistant Professor, Rangelands Wildlife Ecology

Published in *The Florida Cattleman and Livestock Journal*, May 2021

Rangelands are economically vital, culturally important, and ecologically essential components of grazinglands. At the Range Cattle REC, our mission is to provide science-based information to address the challenges affecting owners and managers of Florida’s grazinglands. While rangelands face various threats, perhaps the biggest threat is land conversion that results in a loss of cultural heritage, ecosystem services, and biodiversity. If we want to protect our rangelands, we need a unified approach that balances livestock production with biodiversity and minimizes negative wildlife-livestock interactions.

To help achieve these goals, the Range Cattle REC began a wildlife ecology program in 2014. This program was led by Dr. Raoul Boughton with the assistance of research biologist, Bethany Wight, and enhanced by the contributions of several graduate students, postdocs, and other researchers. This past year, I was excited to begin leading the wildlife ecology program at the Range Cattle REC and I am pleased that Bethany Wight has stayed on. During this time of transition, I think it is informative to look back on what the program has achieved and what we have learned to inform the program’s future goals and plans.

Florida’s cattle industry suffers significant economic harm every year due to calf loss which the USDA estimates at 4%, but some producers report significantly higher rates (with some reporting 20% calf loss). Florida producers reported to the USDA that predators were the cause of approximately 25% of calf mortalities. Due to the remote nature of many beef cattle operations, it can be difficult to closely monitor calf survival and cause of death. Kelly Koriakin, a master’s student under the guidance of Dr. Boughton and funding from the Florida Cattle Enhancement Board, used birthing sensors, radio telemetry ear tags, intensive field observations, and professional postmortem investigations to determine precise rates of calf loss and cause of death. On the ranches monitored, Koriakin found a calf loss rate of 13%. Major causes of death included dystocia, mineral imbalances, bacterial infections, and poor cow health. Often calf loss could be attributed to multiple issues. Surprisingly, predators were implicated in only 1 calf mortality event of 30 where the cause of calf loss was determined – this stands in contrast to higher rates of predation reported by both the USDA and ranchers. Clearly, the role of predators in calf loss needs additional investigation.

I am excited for my program to build on Dr. Boughton and Kelly Koriakin’s work. The 13% calf loss rate detected by Koriakin is more than double the national average and about three times higher than the average for Florida reported by the USDA. This level of loss has a big financial

impact and cannot be ignored. So, what are the next steps to learn more about these causes of calf mortality and develop strategies to reduce their impact?

- 1) **Bacterial infections:** Koriakin detected two major bacteria in connection with calf loss: *Trueperella* and *E. coli* (both common in cattle herds). The hot and humid conditions of Florida could result in higher concentrations of these bacteria in the herds and the environment. Thus, it is important to identify bacterial loads in different sources, such as water troughs (where *E. coli* can persist), soil (*Trueperella* is commonly transmitted via feces), and even in bred cows. We could then test methods for reducing the exposure of bred cows and young calves to high densities of these bacteria, such as more frequent emptying and cleaning of water troughs or more frequent pasture rotation during calving season.
- 2) **Mineral imbalances:** Trace minerals are important for calf health and can be supplied naturally from the environment or from supplemental feed. Can deficiencies in trace minerals in calves be linked to range management actions? For example, can prescribed fire and chopping regimes alter trace mineral availability in forages? Mineral imbalances can also occur due to an overabundance of certain minerals (which can arise due to over supplementation) – so could more controlled access to mineral supplements lead to more balanced mineral concentration in calves? Finally, Koriakin also noted potential lead exposure in calves – lead poisoning can lead to increased rates of stillborn calves. When lead is detected in herds, the source of the lead should be investigated.
- 3) **Poor cow health:** Poor cow health is likely connected to mineral imbalances and bacterial infections. For example, much like humans, cattle that are experiencing high levels of stress are more likely to become sick (from bacteria, virus, or parasites). Another potential source of stress, and thus poor cow health, is interactions with wildlife. Predators can have direct impacts on calf loss (when they catch and kill a calf). But predators can also have indirect impacts on cattle through increased stress and altered behavior – these indirect impacts can occur when predators attempt but fail to kill a calf or even when no predation attempt occurs but cattle detect the presence of predators. Could predators (coyotes, panthers, vultures, or others) have an indirect impact on cow health? Are there other environmental conditions, such as heat stress or stocking rates, that can lead to poor cow health?
- 4) **Dystocia:** Beef cattle production in Florida is not conducive to the intensive intervention necessary to save calves from difficult births. But, given the interconnected nature of factors influencing calf loss, it is possible that addressing and reducing rates of bacterial infections, mineral imbalances, and poor cow health will reduce rates of dystocia.

I look forward to working with you to explore these questions and issues as we continue to strive for more productive rangelands for cattle and wildlife.

Upcoming Events

Visit our calendar online to view all our upcoming events and their registration links:

May 11, 11:00 – 11:45 a.m., Ona Rangeland Wildlife Program Highlight with Dr. Hance Ellington. He will present, “Identifying predators involved in livestock loss.”

May 15, 1:00 – 2:00 PM, Become a Bluebird Watcher! Virtual Series, Session 6 (webinar)

June 29, 9:00 a.m. – 12:00 p.m., 12th Annual Youth Field Day. This event will be held at the Center for kids ages 8 to 18, their parents, and youth leaders. A virtual option will be offered on 7/6.

UF/IFAS Range Cattle REC - 3401 Experiment Station Rd., Ona - <http://rcrec-ona.ifas.ufl.edu/>