Musk ox deaths at Fairbanks facility linked to mineral deficiency

FAIRBANKS — The death toll for musk oxen at the University of Alaska Fairbanks Large Animal Research Station rose to nine after a school veterinarian euthanized two older bulls that never recovered from a suspected trace mineral deficiency that caused the deaths of seven other animals in September and October.

The latest death occurred Nov. 29, when UAF veterinarian John Blake euthanized an older steer named Carter.

“He wasn’t in good condition to begin with and he had problems with the freezing rain followed by the cold temperatures,” Blake said. “He wasn’t doing well so I euthanized him.”

The other animal, an old bull named Zane, was killed on Nov. 11 after he went into liver failure, Blake said.

“He went off his food and his liver started to fail,” the veterinarian said. "Once they go off their food, it’s hard to keep them going.”

The seven musk oxen that died or were euthanized from mid-September to mid-October demonstrated similar symptoms, which Blake believes were the result of a mineral deficiency. All the animals were underweight and lacking in cobalt, copper and selenium, all of which are integral to the animals’ metabolism.

The deaths of nine of the school’s 36 musk oxen represent the biggest die-off since the herd was established at LARS in 1979.

Two other animals whose conditions deteriorated because of the freezing rain event Nov. 22-24 are being kept inside in an effort to improve their condition and help get them through the winter, said Blake, who is optimistic the two musk ox will survive.

“They don’t have lot of reserves but they’re eating well,” Blake said. “As long as we keep them stable and keep a little weight on them ... if we can get them through the winter to spring I think they’ll turn around.”

The condition of the remaining 25 animals in the herd is improving from what it was, the veterinarian said. The musk ox are receiving mineral supplements and injections of Vitamin B12 and Vitamin B Complex every other week, Blake said.

“The rest of the animals are all eating well and seemed to respond well to the supplements,” he said. “They’re gaining weight.”

Blake performed necropsies on the animals that died and sent tissue samples to the Washington Animal Disease Diagnostic Laboratory at Washington State University. Analysis has not turned up any sign of disease, he said.

“We’re pretty confident this was a trace element deficiency problem and we’re in the phase now...
of trying to figure out exactly how that developed and how it occurred," Blake said.

There are signs that the same problem might be tied to musk oxen reproductive problems the LARS observed last year. That might mean the animals' health could have been declining for several months before researchers noticed, Blake said.

The die-off prompted UAF to hire a private consultant from the Lower 48 to do a full review of the school's animal care program.

"We're going to cover all our animal facilities, the whole program top down," Blake said.

The school had been considering a similar evaluation before the musk ox deaths to gain accreditation with the Association for Assessment and Accreditation of Laboratory Animal Care, a private, international organization that has close ties with the federally regulated system that sets standards for animal research facilities, Blake said.

"It's something we've been looking at for awhile," he said.

Accreditation from the AAALAC is the "gold standard" for animal research facilities and should help UAF pursue more federal funding, Blake said.

"It demonstrates to reviewers who look at our research proposals that we have the facilities and infrastructure to fulfill requirements in grants and proposals," he said. "It adds to our credibility."

A consultant who has been on the AAALAC council for 12 years will be doing the inspection later this month, Blake said. The consultant will inform school officials whether or not UAF is ready to apply for an official inspection by the AAALAC or what areas it needs to improve on before doing so.

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