

Alaskan wild sheep and goats threatened by “Movi”

by Dom Watts



More than 30% of the Bighorn sheep population in Gardiner, Montana, died from pneumonia caused by *Mycoplasma ovipneumoniae* (credit: Deby Dixon).

Mycoplasma ovipneumoniae isn't a commonly used name in Alaska but this little pathogen has been a topic of considerable discussion and debate recently. First off, *Mycoplasma ovipneumoniae* isn't very fun to spell, so let's just call it “Movi.”

Second, you're probably wondering just what Movi is and why it's important. It's a bacterium that commonly lives in the upper respiratory tracts of domestic sheep and goats, often causing mild respiratory disease. Infections in adults are typically not severe but young individuals, those in poor physical condition, or those under stress may develop acute or fatal pneumonia.

Although Movi infection doesn't always directly

cause significant respiratory disease in domestic animals, it may predispose individuals to more serious illness. This is often caused by concurrent infections of Movi and other equally difficult-to-spell bacterial flora, such as *Mannheimia haemolytica* and *Pasteurella multocida*, species that naturally occur in the upper respiratory tracts of sheep and goats.

In healthy animals, these bacteria are typically held in check by the body's normal immune defenses as antibodies destroy and slow the replication of these bacteria. Movi infection, however, can suppress normal defense mechanisms and increase demands on an animal's immune system. Ultimately, this diminishes the animal's resistance to *Mannheimia* and *Pasteurella*

bacteria, facilitating the invasion of lung tissues and increasing the potential of fatal pneumonia.

So *Movi* can make domestic sheep and goats sick, but infected adults are often able to survive infections and can appear healthy. So what's the big deal? Sounds like an agricultural issue rather than a wildlife issue anyway, right? Well, *Movi* becomes a bigger topic when it's put in the context of wild sheep and mountain goat populations. Wild sheep and goats have little resistance to these bacteria that occur in healthy domestic sheep and goats.

Since *Movi* has not been documented in wild populations in Alaska, much of what we know about the effects of this bacterium comes from the Lower 48 and Canada. *Movi* has frequently been implicated in dramatic and large-scale die offs in Bighorn sheep populations throughout the western states, with some populations experiencing declines of 75% or more due to pneumonia outbreaks. Significantly reduced lamb survival is often commonly reported for years following outbreaks. Although we don't know much about the effects of *Movi* on Dall sheep or mountain goat populations, it seems reasonable to expect similar outcomes if *Movi* is introduced into Alaskan populations.

Like most bacteria that thrive in respiratory tracts, *Movi* is transmitted via aerosol and direct contact with infected individuals, the same way people transmit colds to each other. The end result is that *Movi* can easily be transmitted between infected domestic animals and wild populations if they come in contact. Although infected domestic stock may appear healthy, they can still spread the bacteria to wild populations. In some cases, Bighorn sheep die-offs have occurred following interactions with domestic stock, further suggesting that *Movi* can be transmitted from domes-

tic stock to wild populations.

In Alaska, the risk of transmission between domestic stock and wild populations is much lower than in the western states where domestic grazing commonly occurs in wild habitats. One potential route for transmission of these diseases into wild populations is via hunters using pack goats while hunting in alpine habitats, which is why this activity is not allowed in Alaska. The risk of transmission between livestock near residences and wild populations in Alaska is currently unknown but interactions do occur. Given the potentially devastating impacts that might result from introductions, however, monitoring the prevalence and distribution of *Movi* in both domestic and wild populations throughout Alaska is certainly warranted.

As part of continued state-wide monitoring, mountain goats captured and fitted with radio-collars on the Kenai Peninsula during 2017 were tested for *Movi*. All goats tested were negative for *Movi* but continued monitoring is necessary, particularly on the Kenai Peninsula where the risk of introduction is greater than in many other parts of Alaska.

The bottom line? Prevention is key. So interest groups from the agricultural community, private owners, state and federal agencies, and other stakeholders are currently working to develop a plan to monitor *Movi* in domestic stock, with the goal of preventing the transmission of this and other harmful micro-organisms to wild sheep and goat populations in Alaska.

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