

British Columbia's Mountain Goat and Wild Sheep Natal App - Incorporating Citizen Science into the Conservation of Wildlife & Wildlife Habitats – November 2021 Update

The Provincial Wild Sheep and Mountain Goat Program partnered with conservation minded organizations and individuals in developing an observation-based dataset of wild sheep and mountain goat natal range use and timing. The web-based and smartphone supported survey platform was developed in-house by Forests, Lands, Natural Resource Operations & Rural Development staff and rolled out in April 2020. The app has allowed all conservationists to participate and add their current and past observations of wild sheep and mountain goat parturition (lambing and kidding) areas, natal range use and important trails used by mountain goats and sheep during migrations between seasonal habitats. This collection of data informs and supports BC's Regional Biologists when making important decisions, as they consider the effects of changing climates and other environmental and human pressures that influence wild sheep and goat populations.

We are now predominantly through 2 field seasons since the app's implementation, and the data we are receiving has expanded well beyond our original scope and what we thought we might be able to learn from citizen observations and contributions associated with our wild sheep and mountain goats. Of course we are learning about new natal ranges and the timing of lambing and kidding events, but we are also learning about wildlife health and neonate (lamb and kid) survival in some areas where we have repeated observation data uploaded. Never has this proved more important than this past year when some field projects had to be delayed, curtailed and/or cancelled due to wildfires in the south, so we thought we'd share a project spotlight to show app users and other sheep and mountain goat enthusiast, just how incredibly important participation and data entries can be.

Project Spotlight: Fraser River Bighorn Sheep Recovery Project

Bighorn sheep are an iconic wildlife species in British Columbia and respiratory disease, caused by the bacterium *Mycoplasma ovipneumoniae* (M.ovi), is currently affecting several bighorn sheep herds in the province, including the bighorn sheep along BC's Fraser River. M.ovi¹ is considered the single most important pathogen in pneumonia related die-offs of wild sheep in North America.

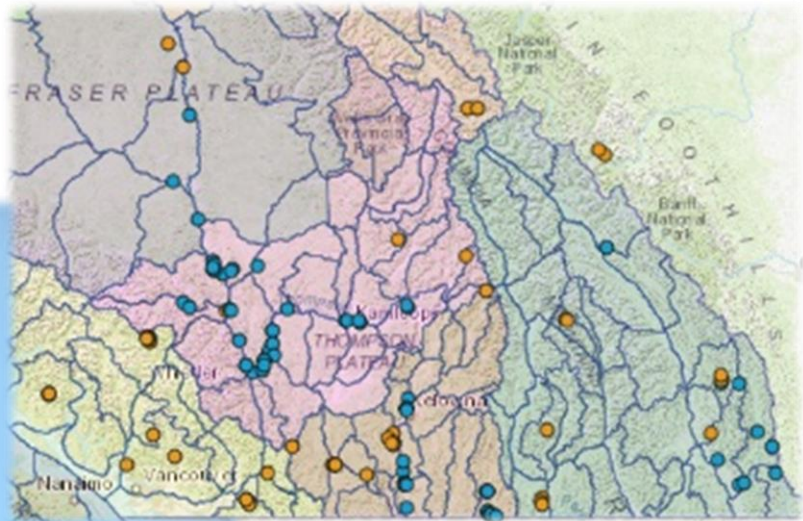
The impacts of M.ovi infection often leads to population declines with low to nil lamb recruitment for many years; some herds appear to never recover. This was the challenge facing our Fraser River Bighorn Sheep metapopulation, so a cooperative test & remove based project was initiated as the first of its kind in BC. At the outset, several pre-treatment herds were documented with no annual lamb survival. Following the first two years of capture, sampling and removal of infected individuals, lambs are once again surviving and recruiting into those sub-populations! These positive outcomes have supported a continued effort that is now part

¹ <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/wildlife/wildlife-health/wildlife-health-matters/wild-sheep-health>
<https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/animal-production/sheep-and-goats/mycoplasma-ovipneumoniae>

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of a multi-year plan to restore the health across all the bighorn sheep herds who make up the Fraser River metapopulation... But the project needs more support, and this is where citizens can help by uploading their observations into the Mountain Goat & Wild Sheep Survey app.

Despite the challenges the wildfire season created for project biologists and volunteers along the Fraser River, some members of the public were still able to get out and upload some data points from both the spring and fall. As you can see in this snapshot, there are more than a few observation records:



As we drill down into the submissions and date-stamped observations, the photos and data are also helping identify where lambs have survived through to the fall, and other areas where herds may not yet have been impacted by M.ovi. This is incredibly helpful

information to project biologists when considering how to prioritize capture and sampling work for this coming winter and year ahead.

Providing multiple records for groups of animals, contributed throughout the year, or even those provided at critical times of the year can provide important monitoring and survival information (see next page); in this case it can also help support an evaluation of the success of the project's effort to restore wild sheep health and lamb survival along the Fraser River metapopulation.

If you haven't yet downloaded the survey app, you can access both the mobile app and desktop versions here:

<https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/wildlife/wildlife-health/wildlife-health-matters/wild-sheep-health/bc-goat-sheep-natal-app>

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