



BRITISH COLUMBIA MOUNTAIN GOAT SOCIETY

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An Island in the Snow – Mountain Goat Winter Habitat

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Most mountain goats spend their entire lives on the mountain where they are born. In summer, the herd travels back and forth across their home mountain to feed on grasses, forbs and sedges but the herd does not utilize the entire mountain. They are confined to a series of narrow ridges chosen by the goat herd for water, feed, and protection from predators and flying insects.

Water and Forage

In summer, goats stay close to a source of drinking water. They avoid dry alpine with neither streams nor melting snow banks. Mountain goats also stay as low as possible in the alpine where the best forage grows. High alpine ridges are rocky and have less feed, lower quality feed and often no water as well. The only time goats need to travel high on mountain ridges and peaks is to travel across the mountain to a different area or to move to a high windy spot to escape flying insects. There is better forage at low elevation amongst sub-alpine trees but goats avoid moving down into the trees where a predator can launch a surprise ambush. Instead, goats prefer to stay in the alpine where they can easily see any predator approaching from the cover of trees below.

Predators

Mountain goats escape from predators such as bears, wolves and wolverines by moving onto near-vertical rock cliffs. They seldom stray more than 200 meters from the nearest steep cliffs. Mountain goats cannot run as fast as a wolf or bear so they risk ambush if they feed in large open alpine meadows more than 200 meters from steep escape terrain. If goats spot a predator approaching, they climb onto steep cliffs where the predator cannot follow. The goats wait an hour or two until the predator leaves the area and then climb off the cliffs to return to feeding. The home mountain may include large plateaus and gently sloping meadows but mountain goats only utilize a small fraction of the total alpine area, namely ridges close to escape terrain and located low in the alpine where the best forage grows.

Winter Habitat

In summer, mountain goats range up to 15 km across their home mountain but, in winter, snow conditions often force a goat herd to stay on a ridge less than one kilometre in length with an total area of less than 10 hectares (20 acres). A mountain goat herd will stay in their small winter habitat from mid-October until April, roughly half the calendar year. For nutrition, they depend on dry grasses, brush and lichens under the snow, and their body fat accumulated in summer and fall. They can lose up to 27% of their body weight over the winter.

Snow Depth

Snow on the mountain varies in depth. Snow can be ten feet deep or more on downwind slopes. But on ridge tops, wind can scour snow down to bare ground. Mountain goats have short legs and can easily become high-centered and floundering when travelling through deep soft snow so they must stay on ridges with shallow or no snow all winter.

Winter Foraging

Mountain goats paw through snow to feed on alpine plants that grow on the ground. They are unable to paw through snow that is more than belly deep (24 inches) so they spend the winter on ridges where strong winds keep the ground mostly clear of snow. In winter, goats no longer need access to running water but eat snow instead. Kids born the previous spring may be too small to paw and depend on their mothers to paw for them. Even then, kid survival may only be 50% in the first year largely due to starvation and exposure.

Orientation

Mountain goats favour a winter ridge facing the sun to the south or southwest for warmth. Exposure of the ridge to direct sun also helps keep the ridge clear of snow. Winter habitat for mountain goats is an island in a sea of deep soft snow, and strong winds are vital for survival.

Spring

In early spring, deep soft snow hardens from wind and sun exposure enough that mountain goats can walk on top of the snow. The hard snow makes pawing for feed difficult so even though the herd can travel away from their winter habitat, they only stop to feed on bare windswept ridges.

Winter Soil

Mountain goats spend a lot of time in the small confines of their winter home. They urinate and defecate and all that waste material provides nutrients for the grasses and forbs during the next growing season. In turn, that rich plant growth in summer provides more feed for the goats under the snow the following winter. The soil in goat winter habitat is richer, deeper and holds more moisture than other soils nearby. A good example of positive feedback, mountain goats create their own winter pasture and their chosen winter ridge is especially fertile and suited to keep the herd well-fed and healthy all winter.

Displacement

Mountain goats return to the same ridge every winter year after year. Predators may cause the goats to move into nearby escape terrain for an hour or two but any sustained displacement of the goat herd away from their winter ridge may force them to abandon the best winter habitat in favour of a ridge of lower quality with more snow and less feed. If displaced, the herd can suffer exhaustion from travelling through deep snow to new habitat or they may starve if there is not enough feed available at the alternate site. For all these reasons, it is essential that mountain goats are not displaced from their chosen winter habitat. As examples, permanent displacement in winter can occur as a result of mining, forestry or disturbance from snowmobile or skier recreation.

In spring, snow melts first on south-facing slopes and on steep rock. The goat herd can at last travel away from their winter ridge from one bare spot to the next to feed. By June the herd is moving back and forth across the entire mountain. Their winter habitat is abandoned until the first snowfall in October when the herd moves back to their favourite ridge to survive winter.

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