



# BRITISH COLUMBIA MOUNTAIN GOAT SOCIETY

SMITHERS BC CANADA

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Newsletter #11

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Greetings to all members

## The four seasons of alpine winter

Winters in the alpine in central British Columbia are much more than just snow and cold. We recognize four seasons within winter, especially when thinking about mountain goats.

Winter season	Dates	Snow depth in alpine	Mt goat travel	Comments
Start	October 15 to December 15	<24 inches and possible rain	Easy travel across the alpine	Rut is from Nov 21 to Dec 7
Soft and deep	December 16 to March 31	Snow increases to 6 feet of soft powder snow	Snow is soft and goats are restricted to winter home	Predators are normally restricted to valley bottom
Concrete	April 1 to May 1	4 feet to 6 feet deep and strong enough to support predators	Snow melts around rocks and opens small bare ground leads. Very little travel.	Snow crust melts in sun during day, freezes at night. Possible predators
End	May 1 to June 15	2 feet to 4 feet deep and slush in large snowfields	More bare ground than snow. Herd moves across alpine	Strong sun melts snow. Predators are free to travel

## **Start of winter**

At the Start of winter, the most important event is the rut. Nanny herds are moving closer to their winter homes and wandering less but billies must be able to travel across an entire mountain range to reach nannies in all the winter herds. Deep snow at this time may result in fewer kids in the spring.

## **Soft and Deep**

Mountain goats are not well adapted to deep snow. Their hooves are small for their weight and the clearance under their chest when standing is small – about 18 inches. In deep soft snow, goats bound instead of walking. To take a step, they jump out of the snow – a very exhausting way to travel.

In the open alpine, wind and sun may harden the snow enough to support the weight of a predator such as the wolf. But the soft and deep snow in the forest below alpine seldom hardens. Mountain goats are the only large prey in the alpine in winter and it is simply too much work for a predator to push uphill through soft snow in the forest to reach the goats. Mountain goats are relatively safe from predators in the Soft and Deep part of winter.



In this photo taken on June 7, you can see that the forest is free of snow. Large snowfields persist on north-facing slopes and at high elevations.

## **Concrete**

Mountain goats cannot depend on the hard snow surface during the Concrete phase of winter. By afternoon the sun melts and weakens the surface. Goats may break through the surface into deep snow before they can get back to their winter home. If wolves can get to alpine, they can stay on top thanks to their large paws and light weight.

## **End**

In the End phase of winter, deep slush in large snowfields may still restrict some mountain goat travel. Snow is gone from the forest and predators are free to wander the alpine.

## **The human factor**

Mountain goats are free of predators for three months of winter – the Soft and Deep phase. But it only takes one ski, snowshoe or snowmobile track from the valley bottom to the alpine and predators such as the wolf and cougar can walk that track to prey on goats. A single track may be covered with new snow but numerous ski or snowmobile tracks create a highway for predators.

## **Relatives**

The two closest relatives to our mountain goats are the Serow and Goral from eastern Asia.



Closely related species from eastern Asia, Serow on left and Goral on the right



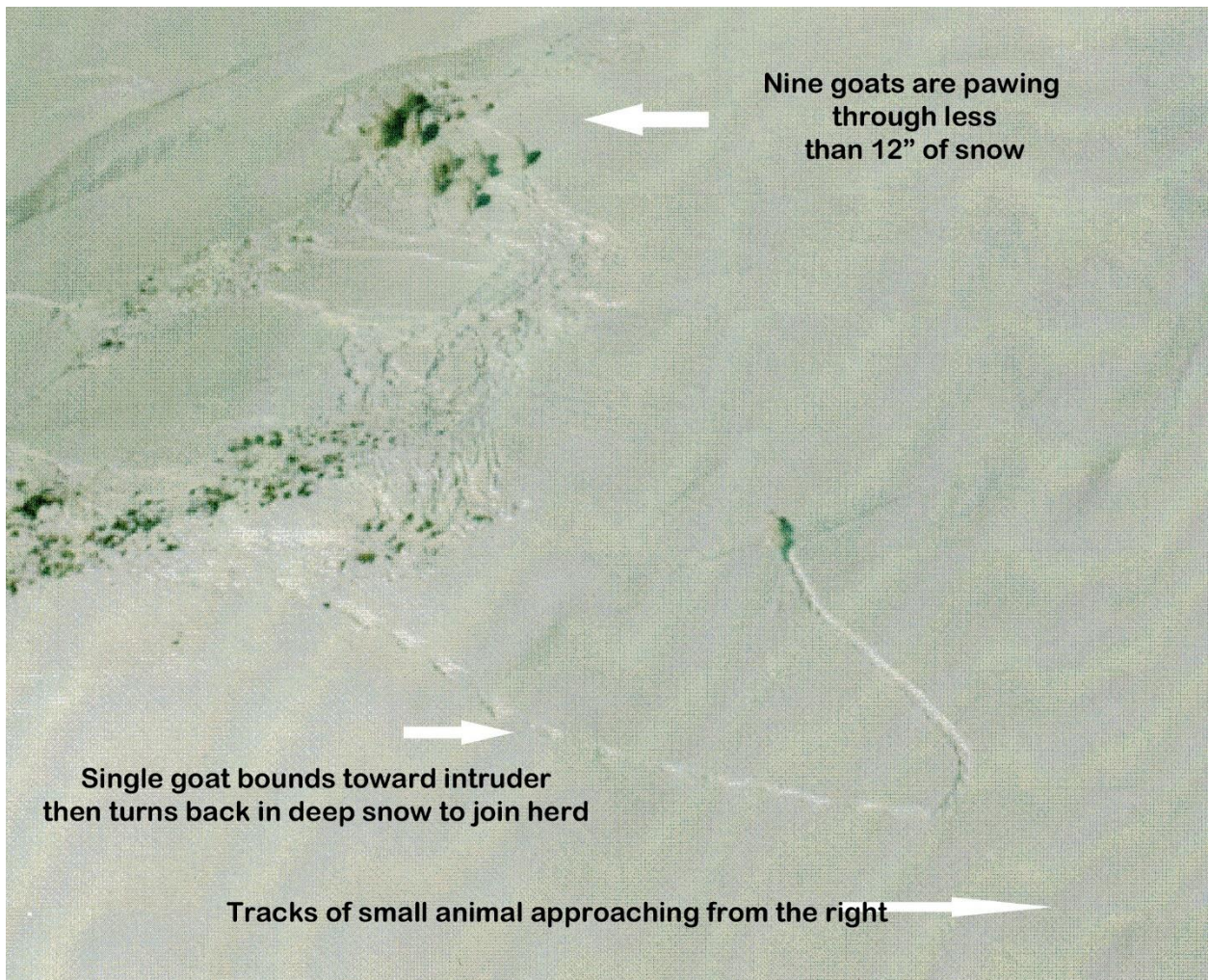
<https://www.youtube.com/watch?v=cU6QRQHYYTQ> - Chinese Goral – one of four subspecies

<https://www.youtube.com/watch?v=DKhO4-i5IsY> – Serow – good video – very curious

You can see the resemblance of the Serow to our mountain goats. But the Serow are forest ungulates and lack the massive shoulder muscles and short cannon bones in the lower legs of our goats. Our mountain goats have a long nose to warm air going to the lungs, and their ears are smaller and better suited to extreme cold and wind.

### **An encounter**

The following photo is very poor quality but it tells an interesting story. The small herd of nine goats are busy pawing through snow to uncover grasses. A small animal approaches from the lower right. The tracks are difficult to see. It could be a fox or wolverine. One goat turns away from the herd and bounds through deep snow straight at the intruder. You can see the spaces between that goat's bounds. The intruder flees and the goat wades through deep snow back to the herd.



Thanks to local Fish and Wildlife staff for providing the photo. This is the only photo we have that shows an aggressive encounter between goats and another animal.

### **Your stories**

If you have a personal tale you wish to share about an encounter with mountain goats, send it for publication in the newsletter. Your story should reveal something unique about mountain goat behaviour. Photos can help tell the story.

Until the next time.

Jim

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