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Mountain Goat Learned Behaviours

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And the Importance of Mature Adults

Summary

Mountain goats have a lot to learn. Genetic traits such as physical strength, balance and coordination serve them well in steep and hazardous terrain, but much of their basic survival comes from what they are taught by other mountain goats. Mature females demonstrate behaviour to their kids. Mature males model behaviour for younger males. The following is a list of learned behaviours that are essential for a healthy and sustainable mountain goat herd.

Routes in local escape terrain

To escape a predator, mountain goats must choose one of many possible routes through steep cliffs. They must know where to enter steep terrain and what route is best to hide from a predator. Mountain goats must be able to travel extremely steep terrain but also do it on a run. To travel so quickly, they should have a mental map of their escape terrain, gained by following their nanny when young, and later by following other goats or exploring on their own.

Smooth cliffs avoidance

Mountain goats are extremely talented at climbing near-vertical rock cliffs where a ledge may only be inches wide. But there are specific rock faces of smooth rock where a mountain goat cannot go. Every goat must know where those smooth cliffs are located so they can avoid getting stuck by running out of ledges. This is especially critical when the goat must travel downward into escape terrain. Often a goat will not be able to see the cliff face from the top, due to the slope. Every goat must know the exact entry point to good escape terrain at both ends of smooth rock cliffs in case they are attacked by a predator above smooth cliffs. We have observed this in the field.

Predator evasion

Mountain goats are expert at “disappearing” into their escape terrain. Sometimes they will go down or up into steep rock, then double back toward the predator and stand still. Meanwhile the predator

continues to look ahead in the direction the goat fled without knowing that the goat is standing hidden, immediately beneath or above the predator.

Predator identity

We have observed that the same predators return repeatedly to a goat herd. This may allow mountain goats to recognize individual predators and learn how each predator behaves. Some predators may strike panic while others may be ignored. Learning about an individual predator would be extremely valuable and worthy of passing on to a new generation.

Predator schedule

We have observed that predators such as wolves may return to the same goat herd on a regular schedule. In one case, it was every two weeks. Learning predators' schedules may help the herd to relax between visits.

Mineral licks

Mineral licks are a life requisite for many mountain goat herds. Mineral licks may be located close to the herd's home habitat or may be found at the end of trails that wind through kilometers of forest. Herd members must learn where the trail starts and how to find and use the mineral lick at the end of the trail. Mature males are usually the first to wade through the last snow of spring to open the trail to a lick for the summer. So we have to give them credit for passing knowledge of the trail to the next generation.

Dominance

Dominance within a herd is extremely important. From the oldest female down to the newest kid, each goat learns their role in the herd. Dominance will also show in a superherd where small herds unite for a few days in August. Dominance will change over years and all members of the herd must keep up with those changes.

Water sources

Mountain goats eat snow in winter and drink from creeks and rivers in summer when available. Much of their required water may come from the grasses, sedges and forbs they feed on. When plants do not provide enough water, the adult mountain goats must remember where the next water source is located.

Best feed at various times of year

Adult goats in the herd must remember where the best feed is located. Nutrient-rich meadows may alternate with extensive rocky slopes with no feed. We have observed mountain goats travel over 4 km to reach a good patch of grasses and sedges.

Safe places to rest in day

Mountain goats seldom close their eyes while resting during the day on easy or moderate slopes, where they can be surprised by a predator. To truly relax, they will seek a secure resting spot on a near-vertical cliff face where no predator may follow.

Safe places to sleep at night

Mountain goats seek out extremely steep terrain at night to assure protection from a predator ambush.

Places to cool off in hot weather

Mountain goats do not tolerate hot sunny weather (>25 C) well. They seek shade under trees or shade near a creek. They will also lay down on snowfields to keep cool. In all cases, the adults know the best location to minimize attack by a predator.

Lightning behaviour

Lightning can travel through rock far from a lightning strike. We have never been close enough to goats to observe how they behave during lightning, but any avoidance behaviour would be valuable to pass on to the next generation.

Avalanche behaviour

Douglas Chadwick in his book, *A Beast the Color of Winter*, writes that mountain goats press up against a cliff if they sense a snow avalanche nearby. If they can get under an overhang, the avalanche may slide over without harm. Pressing tight against the cliff would likely be a learned behaviour.

Rockfall behaviour

We have observed that mountain goats pay close attention to rockfalls nearby but do not move unless necessary. We have to assume that they can tell whether the rockfall is a threat by listening to the first sound of the rockfall to determine the location of the rockfall and whether it will miss them.

Superherd behaviour

Mountain goats can see other herds on neighbouring slopes in the same mountain range. In August, various small herds will join for a couple days to form a superherd. We have observed no territorial strife within a superherd. We have to assume that many or all superherd participants know each other from past superherds, with the exception of new kids.

Human disturbance

Mountain goat herds that are regularly hunted behave differently than mountain goats that have not been hunted. Hunted goats flee at the first sight of a human. Goats that are not hunted often are

curious and will simply watch humans approach. If the same goats are high above humans, they may feel safe enough to ignore the human visitors and resume feeding. The memory of being hunted carries over from one year to the next.

Avoidance of plants

Mountain goat kids nibble at plants eaten by their nanny. We assume that kids learn what plants are good, or less than good, in this manner. On one mountain, we observed that a mountain goat recently browsed a patch of Indian Hellibore. This same plant species is listed as extremely poisonous to humans. We are not aware of any plant species that is actually poisonous to mountain goats but there are tree species that mountain goats avoid eating.

Conclusion

As you can see from the list, many learned behaviours are critical to the basic health of mountain goats. Mature mountain goats are the resource for learned behaviours. Management of mountain goats should recognize the importance of mature adults to the herd. A herd that loses senior members may suffer losses due to a lack of knowledge passed down from one generation to the next. The cause of losses due to a lack of learned behaviours may not be obvious, but may result in an unexplained loss of population.

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