

# Commentary: Can the Sierra Nevada bighorn dodge extinction? It may mean reining in another wild animal

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Credit: Trace Hudson from Pexels

The high peaks of the southern and central Sierra Nevada are home to a unique and endangered animal, the Sierra Nevada bighorn sheep. John

Muir called them "the bravest of all the Sierra mountaineers," and indeed they have weathered both ancient and modern climate extremes, human-introduced disease and other existential threats across the centuries. But the greatest danger they face today may be from another native species.

Having been involved in research and conservation of these [sheep](#) for half a century, I've found that the Sierra Nevada bighorn—a subspecies related to desert and Rocky Mountain bighorn—have survived six ice ages. But these rugged icons of the wilderness narrowly escaped extinction from disease after their mountains were flooded with domestic sheep every summer starting around 1860. Their native 180-mile-long range was reduced to three surviving populations in the southern Owens Valley.

Fortunately, pneumonia from [domestic sheep](#) has not been seen in the Sierra bighorn during the past 50 years. Populations wiped out by this disease have been undergoing restoration in the West for decades. The efforts have depended largely on catching wild sheep from surviving populations and releasing them in vacant historical habitat, known as translocation.

I worked closely with government agencies to initiate such a program for the Sierra bighorn in the late 1970s. By 1985, the number of Sierra bighorn had grown from 250 to 300. By 2016, they numbered close to 700 and looked like an endangered species success story. But the story has since turned out to be considerably more complex.

Domestic sheep diseases aren't the only modern threat to the Sierra bighorn. Another has been avalanches and starvation during extreme winters, particularly among populations that can't descend to lower elevations with less snow and more vegetation.

While a lot of Sierra bighorn died during the unusually snowy winters of

2016-17 and 2018-19, their numbers increased during the milder intervening winters. It seemed as if these remarkably tough animals might be able to survive anything thrown at them.

Last winter shattered that picture along with snowfall records. Not only did we lose considerably more sheep than in previous extreme winters, but five of the 14 populations became local extinctions, with no surviving females. It in effect set the recovery program back to 2010.

Despite this catastrophe, extreme winters aren't the top killer of the Sierra bighorn. That distinction belongs to a fellow wild animal: the [mountain lion](#).

While severe winters occur about once every six years on average, lion predation happens every year. During the snowy winter of 2016-17, one large Sierra bighorn population lost about half its members, mostly to lions. This predation largely occurs in lower-elevation winter ranges where the sheep can nibble on nutritious early forage, but where they also overlap with winter concentrations of mule deer that attract [mountain lions](#).

Mountain lions have also been shown to significantly depress bighorn sheep populations beyond the Sierra Nevada, from New Mexico and Texas to southern Alberta province in Canada. What these otherwise varied ecosystems have in common is an absence of wolves.

Wolves aren't good bighorn sheep hunters, but they compete with mountain lions for prey and steal and eat what they kill. Lion populations shrink substantially in the presence of wolves, which greatly benefits bighorn sheep.

In my earliest years of research, there was no evident lion predation of Sierra bighorn for a simple reason: mountain lions had not yet recovered

from a decades-long campaign to eliminate them from the state, with bounties offered for them starting in 1906.

A recent analysis found a steady decline in lion numbers under relentless persecution until about 1,000 remained in 1963, when bounties ended. The state's mountain lion population was recently estimated to be between 3,200 and 4,500, probably more than when wolves were present.

During rapidly accelerating lion predation in the 1980s, Sierra bighorn began avoiding lower-elevation [winter](#) ranges full of nutritious forage, a behavioral shift ultimately associated with substantial population declines, especially in extreme winters.

By the mid-1990s, the population barely exceeded 100, about a third of what it had been a decade earlier, and the effort to repopulate vacant habitat entered a quarter-century hiatus. Mountain lions had all but defeated our efforts to restore Sierra bighorn.

After a 1990 voter initiative made mountain lions specially protected mammals in California despite their substantial recovery, taking away wildlife officials' authority to kill them to protect Sierra bighorn, I and others worked to obtain federal endangered status for the sheep to supersede state law.

The resulting recovery plan emphasized the need to protect them from excessive losses to lions while ensuring the viability of the lion population. The plan was approved by an array of interests, including the Mountain Lion Foundation, all of which accepted that some lions would have to be killed to save bighorn.

Aided by declines in the local deer and consequently the [mountain lion](#) population along with federal protection and focused removal of

predators, Sierra bighorn populations grew rapidly at the beginning of this century. By 2013, we finally had four large populations that could be tapped for translocation, a goal set nearly three decades earlier.

In recent years, however, the California Department of Fish and Wildlife adopted a policy under which lions must be moved rather than killed to protect Sierra bighorn. That means getting permission to relocate lions and then spending time catching and moving them. This can take months, during which the lions continue to kill sheep. This has led to substantial declines in the bighorn populations used for translocation and thereby crippled the recovery program.

With this policy, California has in effect permitted an animal-rights agenda to override science-based conservation, which focuses on the health of populations and ecosystems, not the fate of individuals.

The lives of a small number of mountain lions are being saved at the cost of many Sierra bighorn, favoring an animal with wide distribution and a large [population](#) over one that—at least so far—has barely escaped extinction.

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