

**Pests, keystone species, and hungry ghosts:
The Gesar epic and human-pika relations on the Tibetan Plateau**

Emily T. Yeh and Gaerrang

Abstract

For over half a century, the Chinese government has carried out large-scale poisoning campaigns on the Tibetan Plateau in an effort to exterminate the plateau pika, which is viewed as a pest that competes with livestock and causes grassland degradation. Since the 1990s, an ecological counternarrative has emerged in which pikas are keystone species rather than pests, and indicators rather than prime causes of grassland degradation. Virtually ignored in this debate are the ways in which Tibetan pastoralists understand and relate to pikas. We investigate Tibetan analytics of what pikas are, and what draws them to specific sites, based on interviews and observations in two pastoral communities, as well as readings of the *Epic of King Gesar*. Performed by bards since the twelfth century, the epic is grounded in the cultural milieu of Tibetan nomadic society and continues to be an important part of everyday life. As such, it shapes Tibetan analytics, a term we use to refer to forms of reason that cannot be reduced to “cultural belief.” Because large numbers of pikas, as hungry ghosts, are drawn to places where the essence or fertility of the earth has been depleted, causing irritation to territorial deities, Tibetan practices include rituals to feed hungry ghosts, appease territorial deities, and return treasures to restore the fertility of the earth. Bringing Tibetan analytics together with proposals for political ontology, the article examines the ways in which these different ontologies, or practices of worlding, cooperate and conflict in a context of asymmetric power relations and non-liberal recognition of difference. This approach takes seriously both the agency of the nonhuman as well as human difference, while highlighting rejecting notions of rigidly bounded ontologies.

Introduction

Plateau pikas are ubiquitous across the Tibetan Plateau. Like the much-maligned native black-tailed prairie dog of North America, they too are routinely blamed for grassland degradation and have been subject to decades of mass extermination campaigns. More recently, ecologists have come to consider *Ochotona curzoniae* to be a keystone species, deserving of protection and restoration rather than elimination.¹ Policy formation and the expansive scientific literature on pika biology and grassland degradation on the Tibetan Plateau both ignore the ways in which Tibetan pastoralists understand and engage with pikas and efforts toward their

elimination. However, like scientific accounts of the co-evolution of pikas with livestock and pastoralism on the plateau, Tibetan oral history suggests that pikas have occupied Tibet since primordial times.² This very long history of Tibetan-pika entanglement produced specific forms of reason about pikas and their attendant world-making practices.

In this article, we investigate Tibetan-pika relationships by drawing on interviews conducted by the first author with herders and community leaders in Dzorge County, Sichuan, in 2019, and interviews conducted by the second author with herders in Zhenqin township, Yushu, Qinghai in 2012. We also draw on observations and interviews from both authors' extensive research with pastoral communities over the past two decades, as well as on readings in Tibetan and English of the Gesar epic. Bringing together these diverse sources, we examine Tibetan understandings of what kinds of beings pikas are and what the fundamental causes of rangeland degradation are, in relation to enactments of pikas as pests and as keystone species. In doing so, we demonstrate the need to take multiple ontologies into account in explorations of multispecies entanglements and environmental politics.

Tibetan analytics

Our inquiry is grounded in insights from recent debates about the “ontological turn” in geography and anthropology. Broadly drawing on actor network theory and Science and Technology Studies, one strand of this ontological turn has centered around a serious effort to grapple with the agency of the non-human and to dismantle human exceptionalism. Though varied, this posthumanist work coalesces around the argument that rather than simply being in the world as ourselves, we humans are instead always in the process of *becoming with* non-human others. Multispecies ethnography and more-than-human geographies in particular have

stressed the need to understand how humans are in a constant state of becoming with other species.³ Other strands of posthumanist scholarship have emphasized that non-human others also include energies and objects.⁴ The key point is that non-humans are constitutive of politics, and are inseparable from social, political, economic and environmental history.

Geographer Juanita Sundberg and other postcolonial critics have, however, noted that in this post-humanist turn, the dominant mode of writing presumes its authors and audiences alike to be, in Jane Bennett's words, "modern, secular, well-educated humans."⁵ Such accounts unintentionally "reproduce colonial ways of knowing and being by enacting universalizing claims [thus] further subordinating other ontologies."⁶ At the same time, indigenous scholars have argued that many of the insights in contemporary posthumanist work on the more-than-human have in fact long been made by indigenous scholars, who are never acknowledged. Thus, some argue, ontology has become "just another word for colonialism."⁷

In contrast, recent writings in what Eduardo Kohn calls the "narrow ontological turn" take human alterity seriously.⁸ This is perhaps best represented by the highly influential work of Brazilian anthropologist Eduardo Viveiros de Castro, who contrasts the multiculturalist ontology of the social and natural sciences, in which there is one single, underlying universal nature and many cultural perspectives on it, and an Amerindian "multi-natural" ontology of one "culture" or viewpoint, and many "natures."⁹ This disrupts the modernist nature-culture binary and can help us reimagine the taken-for-granted assumption that different "cultures" simply interpret one underlying, real, universal nature in different ways. Instead, Amerindian perspectivism allows us to imagine multiple ontologies.

However, the focus on radical alterity or incommensurable otherness in this particular brand of ontological anthropology can reproduce colonial assumptions of the primitive. Not only

are questions of resource extraction, economic marginalization, and political oppression typically obscured, but critics argue, critique of these conditions is also deferred.¹⁰ Presenting a bounded, incommensurate alterity requires sometimes “misrepresenting[ing] Indigenous actualities and eras[ing] the vital tensions negotiated by actual Native people” – such as, in our case, the fact that Tibetans do not have one singular way of being with pikas, though some are certainly more dominant than others.

Rather than being the results of rigidly bounded and diametrically opposed ontologies, we conceptualize poisoning, protection of habitats and pikas, and ritual means of interacting with pikas as different processes of “worlding,” or enactments of “always-emergent heterogeneous assemblages of humans and more-than-humans.”¹¹ In other words, the performative becoming-together of particular assemblages of humans and others are practices of “worlding,” where different “worlds” or ontologies necessarily interact as they strive or struggle to maintain themselves through continued enactments.¹² Such multiple worldings thus do not produce radically bounded and pure ontologies.

Neither are they the product of “cultural beliefs,” a framing that tends to sort certain people as being those more intrinsically prone to an occluded view of the underlying reality behind their cultural lenses. As Marisol de la Cadena writes about the runakana of the Peruvian Andes, it is not cultural belief that mediates their relationships with earth beings; rather, earth beings simply *are* in relation to community; their being-ness is enacted through everyday practices.¹³ Similarly, Elizabeth Povinelli writes with respect to Aboriginal peoples living in Australia, “the demand on Indigenous people to couch their analytics of existence in the form of a cultural belief...is a crucial longstanding tactic wherein settler late liberalism attempts to absorb Indigenous analytics in geontopower,” her term for “a set of discourse, affects and tactics

used in late liberalism to maintain or shape the coming relationship between the distinction of Life and Nonlife.”¹⁴ It is, in other words, a mode of governance in which an insistence by Indigenous people that certain rocks can listen and perceive, can only result in their recognition as particular types of humans with “cultural beliefs.”

China is far from a late liberal setting, and its practices of recognition are quite distinct from those of neoliberal multiculturalism. However, the conventional interpretation of Tibetan ritual and religious practices as cultural belief is the manifestation of a similar type of power. Within this frame, contemporary Tibetan analytics of existence – of what exists -- are translated into traditional “cultural beliefs” which are judged “not on the potential truth of the analysis” but only on how they conform to the presumed past.¹⁵ Thus, rather than “cultural beliefs,” we consider the forms of reason that shape Tibetan-pika relationships to be what Povinelli calls an “analytics of entities,” that is, “detailed examination(s) of existences... to determine their nature, structure, or essential features, and by extension, the features of the world in which they emerge as such.”¹⁶ We bring Povinelli’s concept of analytics together with Mario Blaser’s proposal for “political ontology,” a modality of analysis in which worlds are not hermetically sealed off from each other, but rather are asymmetrically connected, always interacting and intermingling, and sometimes but not always in conflict.¹⁷ We turn first to the competing ontologies of pikas as pests and as keystone species before a more in-depth examination of Tibetan ways of being-with pikas.



Photo 1

The plateau pika: pest, keystone species, hungry ghost

Photo by Andrew T. Smith

Pests vs. keystone species

Often referred to as a “rat,” the plateau pika is in fact a lagomorph, a close cousin of the rabbit, which creates burrows at relatively high densities on open alpine meadows (Photo 1). Together with zokors (*Myospalax baileyi*), which are burrowing rodents, pikas have been labeled as pests that cause grassland degradation and compete with livestock for forage. The Chinese state began large-scale poisoning in 1962. Between 1964-1995, 208,000 km² of grassland were poisoned, and by 2006, poison had been applied to more than 357,000 km² of grassland in Qinghai Province alone.¹⁸ With the declaration of the Sanjiangyuan Nature Reserve in 2000 to protect the sources of the Yellow, Yangtze and Mekong Rivers, more funding still was provided for pika extermination; 25.5 million USD (157 million yuan) was dedicated to poisoning over 78,500 km² of grassland through 2013.¹⁹ Over six decades, poisoning has been justified first as a

way to remove an impediment to livestock productivity and more recently because grassland degradation is now framed as a threat to national ecological security.

These campaigns have been carried out widely in the distributional range of the plateau pika, using more than 10 different types of poisoning agents.²⁰ The Chinese-language scientific literature routinely uses the term “rodent infestation” to describe pikas’ putative competition with domestic livestock for forage, soil erosion from pika burrowing, and consequent downstream effects. Guo et al (2009) claim, for example, that pikas caused more than 80% of grassland degradation in the Dzorge (Ruoergai) area of northern Sichuan province.²¹

However, since the 1990s, as ecologists and biologists began to conduct more in-depth studies and as rangeland scientists simultaneously began to challenge long-standing narratives of degradation based on Clementsian, equilibrium assumptions, a counternarrative emerged about the crucial roles that plateau pikas play in the alpine meadow ecosystems to which they are endemic. In a landmark paper, Smith and Foggin (1999) argued that pikas are a keystone species, given their role in making burrows that provide homes to small birds and lizards; creating microhabitat disturbances that increase plant species; serving as prey for predator species including raptors, brown bears, wolves, snow leopards, and foxes; and improving other ecosystem functions such as aeration and mixing of soils, water infiltration, and local primary productivity.²² A growing body of research has confirmed and deepened these findings.²³ For example, Badingqiuying et al (2016) show that pika poisoning decreases populations of both mammalian and avian carnivore communities.²⁴ In addition to its negative impacts on biodiversity and ecosystem processes, poisoning has also been demonstrated to be ineffective for increasing forage production.²⁵ Other studies have demonstrated that pika burrowing increases

water infiltration rate, minimizing the potential for down-slope water erosion – the opposite of the official narrative of pikas leading to flooding.²⁶

Rather than being initiated by pikas, recent ecological work has also demonstrated that degradation is initiated by other factors, including global climate change and decreased mobility due to rangeland use rights privatization.²⁷ That is, rather than being a prime cause of grassland degradation, high densities of pikas and zokors are better understood as indicators of ongoing degradation. Though they concentrate on different foods at low densities, pikas and livestock can compete for vegetation at high densities.²⁸ Moreover, their presence can exacerbate conditions such as “black beach” - severely degraded bare patches in alpine meadow. Where pikas and zokors are found in high densities, they can perpetuate sparse and short vegetation, given their preference for short vegetation that allows them to more easily see predators.²⁹

Recognition of the impacts of rodenticides such as zinc phosphate and compound 1080 (sodium fluoroacetate) on non-target species led to a switch to botulin toxins C and D, which are believed to be safer for non-target species, though pastoralists have observed poisoning of predator species after their use.³⁰ In the mid-2000s as well, a strategy of integrated pest management was introduced to complement (though not replace) extermination efforts. In particular, government programs began to build landing posts for raptors, and to call for the protection of mammalian predators. This strategy takes into account ecological critiques of poisoning, but still recognizes pikas as “pests” first and foremost.³¹

Tibetan herders’ ways of being-with pikas have been ignored by policy and scientific debates alike. Unlike the majority of ranchers in the US vis-à-vis prairie dogs, Tibetan herders are not generally supportive of poisoning. They most commonly explain their refusal to participate in such campaigns with the widely held Buddhist precept against the taking of life.

Well-known conservationist George Schaller reported about a massive state poisoning campaign in the upper Yangtze River area of Dridu in 2006:³²

Gama, the village leader of Cuochi, told us of the immense pressure on his village to use poison, but he had refused to comply because he thought killing pikas was unnecessary. Households throughout the region had been ordered by the government to spread poison or be fined...Some households...buried the sacks of poison instead of scattering them.

Yet, Tibetan views of pikas hardly align with the positive connotations of keystone species. Zhang and Wang (2000) report on a field survey in Kardze, Sichuan in 1999 that of 44 Tibetans interviewed, 98% described themselves as hating pikas.³³ Like scientists, Tibetan pastoralists report that when pika numbers are high, they compete with livestock for forage and cause grassland degradation. Indeed, despite noting that most Tibetans refuse to take part in poisoning, Schaller observes that members of some Tibetan communities do participate in poisoning efforts, and that he and his conservationist colleagues “sometimes wondered what one could do to change the strong and unwarranted antipathy of many Tibetans toward pikas.”³⁴ However, as we will see, this antipathy is not generated by an understanding pikas as pests.

Hungry ghosts: Pikas in the Gesar epic and beyond

An unexpected source for understanding Tibetan-pika relations is the *Epic of King Gesar*, often called the *Iliad* or *Odyssey* of Central Asia.³⁵ Epics reflect more than human-centered generalities. Metcalf argues with regard to bears as “companion species,” that from human-bear mythology we can glimpse “concrete specificities of human-bear entanglements... [t]he roles that bears take in these stories cannot be understood as strictly metaphorical, but rather indicate

an ancient intimacy with bears that is key to our naturalcultural history.”³⁶ The Gesar epic similarly reveals the historical importance of Tibetan relationships with pikas.

With 120 volumes compiled in recent years, containing 20 million words and 1.5 million lines of poetry, the Gesar epic is reputed to be the longest in the world.³⁷ It has been sung by bards since the twelfth century, with versions stretching from Mongolia through Persia, China, India, Nepal, Sikkim and Bhutan. However, it is centered on Tibet. Gesar is understood in Tibet as a historical figure who lived roughly from 1038-1125, and who was born in the eastern Tibetan regions of Kham or Golog (in present-day Sichuan and Qinghai).³⁸ The earliest textual mentions of Gesar rarely referred to him as a Buddhist protector or deity, but by the eighteenth century, Gesar had become identified as an emanation of Padmasambhava, the eighth century Buddhist master from the Swat Valley in present-day Pakistan, who is widely revered for having brought Buddhism to Tibet. Around this time, the entire epic became a Buddhist tale and Gesar conceived of as an embodiment of a bodhisattva, someone who has achieved enlightenment but who postpones their departure from samsara (the wheel of existence) in order to work for the liberation (from samsara) of all sentient beings.³⁹ At the same time, the narrative remained centered on the cultural milieu of eastern Tibetan nomadic society.⁴⁰ The epic is grounded in the materiality of pastoral life on the Tibetan plateau, which includes the activities of pikas.

Across contemporary Tibet, the Gesar epic continues to be part of everyday life. Until televisions became widely available in the 1980s, listening to the epic, whether orally recited or read from books by parents, grandparents, or other relatives, was the primary form of evening entertainment for children. Parental discipline and praise is often made through comparisons to Gesar. Gesar bards (Tib: *sgrung mkhan*), almost always from pastoral areas, are often illiterate and begin to recite the epic spontaneously after falling asleep for several days while herding, or

suffering life-threatening illnesses involving a loss of consciousness. They recite the epic at public gatherings such as ubiquitous annual horse-racing festivals, as well as in teahouses known as *sgrung khang* (literally, story-house). After cassette recorders appeared in the 1980s, many Tibetans recorded their recitations to play while herding or at home. Despite state repression of most aspects of Tibetan worlding practices, Gesar bards have been recognized and supported, with some now also invited to recite the epic on radio or television. The social media app Wechat has also contributed to the popularity of the epic, which continues to play a significant role in shaping Tibetan analytics.

In the second volume of the epic, Joru, as King Gesar was known as a child, fulfills a dream-prophecy from Padmasambhava in which he is banished to the faraway Ma Valley. Joru and his mother survive there by eating wild yams and pikas that he kills with his slingshot. Their arrival into Lower Ma is described as follows:

Here the pika demons controlled the lands, the black earth of the mountain peaks had been turned over, the long grasses of the mountain slopes had been gnawed down, and all the herbs of the great plains had been devoured down to their roots. The people who had gone there were enveloped by dust storms; their livestock had died of famine. Joru realized that the time had come to liberate the pika demons, and he put three eye-kidney-shaped god-demon life stones into his slingshot called Wazi Bitra. Preparing to empty their mountain hideouts, he sang this song called Swirling Melody of the North:

....

Please help guide these pika demons to liberation.

Now, you who are embodied as demon pikas
Have completely turned over the earth of the great grassy plains,
Scattered the flowers and leaves of the marshlands,
Filled the air with the dust of the black earth of the mountain peaks,

And mowed down all the fragrant grasses and trees that grow.
As it is said in the proverbs of the ancient people of Tibet:

*It's a pika that turns the earth to black and
It's a thief that turns the district black,
And a deceitful woman who blackens the reputation of a man.*

These are the three harms.

Without them, then this land will be filled with goodness
With them the land will be known as an evil nest.
You have been embodied as pika demons.
Look, this is because, in times gone by, your negative karma produced this rebirth
And now, once again your intentions are evil!
First you delight in eliminating this great province,
Ravaging the grass and foliage that sustain the inhabitants
And destroying the herbs and flowers that are offered to the Three Jewels
You've stolen the happiness of these people and their green grassy meadows...

....

...Then, having made his prayers, he tossed his slingshot with the roaring sound of a thousand dragons, and the stone struck and killed all three: the pika king Big Mouth, Many-Eared Pika and the pika minister Green Ears. By the power of his prayers and compassion, all the other pikas' eardrums burst with the piercing thunderous sound of the slingshot, and they died instantly, were sent to the higher realms and their minds were placed in the state of liberation.⁴¹

These passages stabilize Gesar's status as a hero: later in the epic, he introduces himself as "the terror of the pika of Lower Ma" in his youth. In this sense, the pikas are constitutive of Gesar's specific personhood. These passages also demonstrate that the idea that pikas gnaw down grasses and create "black beach" and ultimately starvation, is not a twentieth century invention. Rather, even at times in the distant past, severe localized degradation has appeared in

association with pikas that compete with livestock for forage. However, the solution presented here to the problem is not to wantonly kill the demon pikas, but rather to liberate them so that they can reincarnate to higher realms of existence.

Demons are, of course, malevolent -- this is a far cry from pikas as keystone species. But demons are also not pests. The Tibetan term translated by Kornmann et al (2012) as “pika demons” is *bdud bse rag*, which can also be translated as “demon ghosts of poverty.” A *bse rag* is a spirit that consumes the potent essences of food and wealth, and personifies envy and miserliness. Literary sources tend to define *bse rag* as a specific type of *yi dwags* or preta,⁴² a Sanskrit term translated into English as “hungry ghost.” Hungry ghosts are denizens of one of the six realms of existence, which in Buddhist cosmology consists of the three higher realms (god, demi-god, and human) and the three lower realms (animal, hungry ghost, and hell). *Yi dwags* are often depicted as having huge, bloated bellies but extremely narrow necks and tiny mouths, representing the impossibility of satiating their extreme thirst and hunger.⁴³ Such beings suffer greatly until their accumulated demerits run out, allowing them to be born in another realm, and making them more pitiful than fearsome or terrifying.

Killing is considered one of the ten non-virtues in Tibetan Buddhism; this is the fundamental reason that most contemporary herders do not engage in poisoning campaigns. The bodhisattva vow to liberate all sentient beings from suffering is aligned with this precept of avoiding killing. Yet there are exceptions, such as found here in Gesar’s killing of pikas. These are grounded in the consideration in Tibetan Buddhism that the moral valence of killing can only be understood through intentionality and the mental state of the actor. The concept of compassionate violence, or liberation-killing, has its roots in early Buddhism, where the fact of killing is less important than the intention that accompanies the act.⁴⁴ As Dalton explains, “Pure

of intention and concerned solely with the welfare of all beings, the bodhisattva could even kill to reduce suffering in the world.”⁴⁵ These early teachings provided the doctrinal foundations for the development in the Tibetan tantric tradition of “liberation killing”; in some texts, this is addressed solely from the perspective of the liberation of the victim into more favorable realms of existence, and eventually, Buddhahood.⁴⁶ Throughout the epic, Gesar’s liberation-killings of demonic and non-Buddhist tribal enemies are understood as righteous, enlightened activities.⁴⁷

Contemporary Tibetan pastoralists also frequently relate to pikas as *bse rag* or *yi dwags*; many use the two interchangeably or conflate them as *bse rag yi dwags*. Unlike Gesar, however, they ask monks to feed them through rituals in order to reduce their numbers, rather than performing liberation-killing. In Dzorge, a community leader explained:

It’s like this, the container and the contents- if things are to be good, then everyone must get together and accumulate fortune (*sonam*). If we all accumulate *sonam* together, then that is beneficial to the place/territory (*yul*) and everything and everyone. For this to be the result, though, we must address the debts of the hungry ghosts. It’s said they have many debts. If there are many pikas, that’s like a disease. Thinking religiously, this is a debt. To get rid of the debt, we must do religious rituals. If there are too many pikas, it is said they are hungry ghosts. If there is just a normal number, then they are just regular animals. Sometimes they are hungry ghosts and sometimes they are animals. For example, in some places there is nothing left to eat – all the grasses and roots are gone – this is the result of all of the demerits, the bad things that people have done.

But we ask monks to do the *gsur* ritual [a method of propitiation through the burning of a mixture of barley flour and butter]. Hungry ghosts eat the scent. They eat smells.

So if we perform the rituals then the smell of the (burning) barley flour becomes a food they can eat.

In this Tibetan pastoral community, then, herders interact with pikas as having ontologically different statuses. When they appear in normal numbers, they interact with them as animals. When they appear in excessive numbers and bring damage to the grassland, they interact with them as ravenous ghosts that devastate the grass, turning it to black earth. Contemporary Tibetan analytics thus calls for their ability to properly discern when a pika is an animal and when it is a hungry ghost, and how to act properly in each circumstance. When pikas are hungry ghosts, *gsur* rituals that feed them scents of barley flour can help satisfy their hunger, encouraging them to leave and thus mitigating their excessive numbers⁴⁸ (see Photo 2).



Photo 2 Monks performing the *gsur* ritual
Photo by K.

Depleting the essence of the earth

What, however, drives a place to have an excessive number of pikas in the first place? The statist assemblage of pika-as-pest does not concern itself with this question. Its underlying assumption is that pikas are, in their essence, destructive and thus the proper way of relating to them is to kill them. Ecological research that characterizes pikas as keystone species, on the other hand, posits that pikas prefer low grass heights and thus appear in large numbers as a result of degradation due to other processes such as overgrazing, climate change, and policy-induced reduced livestock mobility. While acknowledging that excessive pika numbers can exacerbate grassland degradation, it recommends conserving predator habitats and restoration of pikas where they have been eliminated.

For Tibetan herders, by contrast, pikas are attracted to particular places due to the depletion of the essence, or nutrition (*bcud*) of the earth (*sa*) – that is, its fertility. The Tibetan term *bcud* is richly multivalent. It refers, on the one hand, to beings or inhabitants, as found in the ubiquitous Buddhist phrase, “the world of the external vessel and the inner contents of sentient beings” (*phyi snod kyi 'jig rten dang nang bcud kyi sems can*), which is often used to denote the entire universe. It can also mean a vital essence, potency, essential nutrient, or nourishing part of the soil or earth. In English, the term is also commonly translated as an elixir, nectar, quintessence, useful power, and distillation. Substances that constitute the essence, or fertility, of the earth, are most commonly understood as minerals but can also include the lucrative caterpillar fungus (*Ophiocordyceps sinensis*, or *yartsa gunbu*) and other medicinal herbs. Removal of such substances leads to a loss of grassland productivity, pika infestations, natural disasters such as earthquakes, as well as more generalized conditions of degradation.⁴⁹

Herders from the village in Zhenqin who were coping with an overabundance of pikas in 2012, articulated these analytics in various ways. In response to a question about the source of the pika problems, one herder explained:

The earth has its *bcud* (essence/fertility). If people are disrespectful to the guardian mountain deities, or dig the ground, or do improper things, the fertility will be exhausted. Without this fertility, groups of hungry ghosts are attracted. The mass reproduction of pikas is a manifestation of the depletion of this essence. Land is like human skin. If the flesh of the skin rots, it will attract flies, because flies are also hungry. What should be done? People should perform good deeds and cease doing destructive things like digging the earth, killing wild animals, and such. The minerals in the earth should not be mined, because this is where the essence is stored, and is the foundation for the rejuvenation for all living things.

The depletion of the earth's vital essence is thus caused directly by the material removal of substances within the earth (i.e. minerals) and on its surface (medicinal herbs and caterpillar fungus). It is, simultaneously, caused indirectly through the offense that such material practices cause to territorial deities, the *yul lha* ("deity of the place"), *sa bdag* ("earth lord"), or *gzhi bdag* ("owner of the base" or "foundation lord"), which abide within mountains. These masculine mountain deities, linked to particular communities and territories, mediate access to worldly fortune and wealth.⁵⁰ This includes the condition of the grassland, as articulated by another Zhenqin herder:

If the water is polluted and the land is destroyed, then the mountain deities will be unhappy. This is just like human beings: bathing and washing make one feel refreshed.

The same applies to a piece of land. If there is garbage everywhere, people will get sick and so will the land. ...I think the earth's fertility has started to wither. We live in a degenerate time; all kinds of minerals have been dug out of various Tibetan places. This and the digging of caterpillar fungus have led to the loss of the essence of the earth. Some people might say this is superstition, but this is what I say, and I have seen no reason to think otherwise.

This herder also articulates a reflexive knowledge that Tibetan analytics are routinely relegated to the category not of harmless "culture" but of "superstition," which is defined against "normal religion" and classified as dangerous and illegal.⁵¹ In contrast to the politics of recognition in late liberal regimes, in which deservingness is predicated in large part on a judgement of "authentic difference," the non-liberal recognition of culture and ethnicity within contemporary China has sharp limitations in which a smaller range of difference is tolerated while others are understood not as harmless cultural difference, but as threats to the nation-state itself. This reflexivity, which frequently show up in Tibetan narratives about how their own "culture" is not "superstition,"⁵² reminds us that ontologies are not like billiard balls colliding with each other, but rather are partially connected. At the same time, the one-sidedness of the reflexivity is a potent testament to the hierarchical relations of power amongst Tibetan herders, scientists, and the state.

Like the herder quoted above, an elderly herder also connected the excessive number of pikas to the irritation of territorial deities and the removal of the earth's minerals. However, he also discussed the relevance of the past burial of a material treasure that has since disappeared:

[the reasons] are mainly digging the earth through mining and removal of

caterpillar fungus...this irritates the territorial deities, which destroys the land and reduces the bearing capacity of the land and the grassland is degraded...As far as this place is concerned, there used to be a sacred mountain, but it was mined by a businessman. Don't we Tibetans have many legends about King Gesar? It is said that a *thangka* [religious painting] was buried within this sacred mountain by King Gesar and this was a treasure. It is gone now, and the bearing capacity of the land has been reduced....

Here we see that both minerals and buried treasures such as religious paintings are essences that contribute to the maintenance of fertility. Conversely, their removal can lead over time to grassland degradation and pika infestations.

Treasure vases and the restoration of the earth's essence

In fact, the Tibetan word for mineral (*gter kha*) is etymologically connected to the term for Treasure (*gter ma*), a link that underlies another key ritual that is used to address the degradation caused by excessive pika numbers: the burial of sacred treasure vases. The Tibetan tradition of Treasure revelation, which is particularly associated with the Nyingma school of Tibetan Buddhism, holds that Padmasambhava hid two types of treasures to benefit future generations: earth Treasures (*sa gter*), material artifacts concealed in physical places in the landscape (often sacred mountains), and mind Treasures (*dgongs ster*), such as teachings and rituals. Buried by Padmasambhava and guarded by previously antagonistic deities subjugated by Buddhism into roles as protectors, the treasures are then discovered by Treasure revealers when karmic interconnections have ripened.⁵³

Of particular relevance here is the practice of Treasure replacement: the burial of an equally sacred object at the site where a material earth treasure has been revealed and extracted. This is done by preparing a vase of precious substances that is consecrated and then inserted at the site of extraction, after which the opening is re-sealed.⁵⁴ This appeases the local protective deity that was guarding the Treasure and replenishes the essence that was removed. As Terrone argues, this practice materializes “understandings of [their] landscape as a locus of human exchange with the divinities that inhabit it for both this-world material gain...and transcendental purposes.”⁵⁵ Networks of relationality and exchange are thus central to the relationship between humans and non-humans in practices of Treasure extraction and replacement.

The burial of consecrated treasure vases (*gter bum*), containing mixtures of precious minerals, medicinal herbs, and grains and nourishing foods, is also an indispensable part of the *sa chog* (earth/soil) ritual, which is performed whenever there is a need to construct a temple, monastery, castle, etc. as well as a standard component of ritual cycles within Tibetan monasteries.⁵⁶ *Sa chog* consists of two main parts: the propitiation of the Earth Goddess and her retinue, and the subjugation, or taming (*‘dul ba*) of the local serpentine deity (naga, or in Tibetan, *klu*).⁵⁷ A key component of this ritual is the burial of “earth essence/fertility” vases after the supplication of deities, subjugation of the underground serpentine deity, and the testing of the soil’s fertility. If the soil is found to be defective, the ritual specialist adds to the site “soil that is soft and fertile, that does not have the defects.”⁵⁸ After this, the treasure vase is buried.

The burial of *sa bcud bum pa*, or earth essence/fertility vases, is also performed at sacred lakes and cairns marking the abode of territorial mountain deities. Prior to Tibet’s incorporation into the People’s Republic of China, the Tibetan government in Lhasa performed an annual earth essence ritual during which “thousands of mud vases were made and filled with different types

of five precious metal, trees, grains, incense, water, milk, cloth, and medicinal herbs....after completing the ritual, the vases were taken to be put in different mountains and lakes ...” around central Tibet.⁵⁹

Though we know of no specifically prescribed rituals aimed at “grassland degradation” or pika infestations as such, contemporary monks frequently bury treasure vases and perform earth essence rituals to restore the vitality of the grassland. If it is the removal of the soil’s fertility through mining and harvesting that has attracted the pikas, then these rituals are meant to replace some of what was lost, returning to the earth precious substances that belong within it and to the territorial deities guarding it. By addressing human greed (which motivates actions such as the removal of minerals), territorial deities are appeased, and the presence of greedy, hungry ghosts or ghosts of poverty can be mitigated. In Dzorge, monks consecrate small cloth bags filled with mixtures of precious minerals, food, and medicine and then bury them in particularly sacred and auspicious places or throw them into sacred lakes. Villagers also point to a saying that “if the underground is full of treasure, the people on the ground will have an abundance of wealth.” Similarly, in Zhenqin, villagers asked a lama in the local monastery to conduct rituals, including burial of treasures, to reverse the grassland degradation caused by large numbers of pikas turning the soil black.

Many herders in Zhenqin stated that because of the rituals conducted over a period of five years, the number of pikas had decreased and the extent of bare soil had shrunk. As one explained, “As long as the mountain deity is happy, the fertility of the land will improve, and the problem will gradually be solved. Ever since the monastery began to conduct rituals, the number of pikas and black worms have noticeably decreased,” here referring to a type of grassland

caterpillar (*Gynephora*) that along with pikas and zokors can cause grassland degradation when they appear in large numbers. Another stated:

I feel that the number of pikas this year is significantly less than before. A few years ago, the monastery buried treasures in the sacred mountain. Last year and the year before the winters were very cold, and there was also heavy snow at the beginning of spring. After the snow melted there appeared large springs causing torrents of water to flow down the slopes, carrying away many pikas. In addition, the cold winters have also affected the ability of pikas to reproduce.

He thus connected the decline in pika numbers specifically to changing weather conditions, much as ecologists do, but concluded that ultimately, “the most important thing is our faith. Since the monastery conducted the rituals and chanting, the situation has changed.”

Not all herders in the village agreed that the monastery’s rituals had decreased pika numbers. Those whose pastures are at higher altitudes and thus colder temperatures observed more reductions compared to those whose pastures are at lower altitudes. However, those who claimed to observe no change also stated that poisoning campaigns were equally useless, in addition to being objectionable. Their explanations for why rituals such as the burial of treasures had not had an effect were generally related to an understanding of the present time as an age of degeneration in Buddhist terms, a time when moral decline and greed are so strong that accumulated demerits were not overcome through the rituals, or that the positive karma generated by the rituals had not yet had the time to ripen into benefits for the fertility of the earth.

Partial connections

In his discussion of political ontology, Blaser emphasizes the “*conflicts* that ensue when

different worlds or ontologies strive to sustain their own existence as they interact and mingle with each other [emphasis added].”⁶⁰ In the struggle to sustain Tibetan analytics in China’s non-liberal regime of highly limited recognition of difference, however, Tibetans often seek out not conflict but cooperation, as a matter for the survival of their world-making practices. Prominent Tibetan environmentalists, for example, deliberately position Tibetan practices as being in alignment with conservation science in order to deflect accusations of anti-state superstition.⁶¹ As the term “environmental protection” is translated and taken up by Tibetan herders, it has come to encompass *both* activities such as cleaning up litter and avoiding plastic (in line with state plastic bans) *and* propitiating territorial deities.

Deliberate connections between different world-making projects are also central to an innovative community-based grassland restoration project implemented in Dzorge. The project is the initiative of K., who grew up in a herding household but eventually left for higher education. After several years as a Tibetan language teacher, he secured a position at an international non-governmental organization working on sustainable development projects. He leveraged the position to return to his home area, which has been severely affected by desertification and grassland degradation. Though hegemonic discourses blame overgrazing, local herders – and increasingly, western and Chinese scientists – understand the roots of the current problems with both expanding sand dunes and increasing “black beach” to be the fruits of deliberate state projects in the 1960s to drain the area’s extensive wetlands to create more pasture (though more proximately, they do see voles and pikas as causing black beach). K. worked with a regional agricultural research station that provided the community with grass (*Elymus nutan*) seeds. Herders perform the labor of spreading the seeds by hand. When they first tried this, the wind blew their seeds into rows. However, K. overheard two elderly women

commenting to each other that they should use yaks to trample the seeds into the ground – and thus simultaneously fertilize the soil. Elevating this whispered gem of experiential knowledge by the two elderly women who were embarrassed to speak up in public, K. led the entire community to begin to do just that. Once the grasses begin to grow, they again let the livestock graze in the enclosed areas for a month, providing fertilization.

The community has had better results restoring land affected by black beach than state restoration efforts. Struggling against the dismissal of herders' knowledge and the dominant state narrative that blames herders for degradation, K. invited ecologists from the prestigious Chinese Academy of Sciences to conduct their own studies comparing community forms of restoration (which involve grazing by yaks) and state efforts (which rely on complete enclosure). They too came to the conclusion that the community-invented methods are more successful for restoring vegetation, as well as improving the soil and chemical properties of degraded grassland.⁶² In scientific publications, however, the community is written out of the narrative, which focuses only on comparison of the effects of “two restoration methods.”

Even as K. seeks to connect locally generated methods of grass seeding and fertilization with state-sanctioned science to legitimate their practices, these are not the only elements that he and the community attribute to their success. They also invite monks from the local monastery to perform the *gsur* ritual to feed the pikas-as-hungry ghosts, for two to three days after each grass-planting. As K. explained, “of course [the non-governmental organization and other organizations] don't agree with this, but we say that pikas are a kind of hungry ghost...that's why they come here. We do religious rituals... It really helps the nomads' state of mind (*sems*).”

On another occasion, he explained, “Other people think, ‘who knows if this is beneficial or not?’” adding that he does not write about the rituals in project reports because to do so would

invite trouble. The development NGO, like the state, cannot accept their enactments of a world in which pikas are hungry ghosts, and would instead accuse them of involving religion in what should be purely environmental work. Still later, he explained regarding the *gsur* ritual, “One day, perhaps it will be found scientifically to work. But whether it can or not from a scientific perspective, that is not my main objective. My goal is to make the pastoralists feel, to believe: I can, and I will take care of the grasslands.” Through a worlding practice in which pikas are recognized as hungry ghosts and fed the scent of high-quality *tsampa* (roasted barley flour), pastoralists are able to more confidently engage precisely with long-standing statist efforts to devalue and ignore their analytics.

Conclusion

Pikas as pests, pikas as keystone species, and pikas as hungry ghosts require different kinds of relationships with humans: efforts to poison them, efforts to protect them, and efforts to ritually feed them and appease the protector deities that mediate their presence. Unlike a biological way of being with pikas as pests, or an ecological way of being with pikas as a keystone species, Tibetan analytics connect pikas with what might be considered the agency of the geological (mountain deities and minerals). As such, they reject what Povinelli calls geontopower’s “biontological enclosure of existence,” its biological distinction between Life and Nonlife.⁶³

Differences between world-making practices do not fall neatly along the binary of “modernity” and “tradition.” Indeed, enactments of a reality in which pikas are pests, and one in which pikas are keystone species both arise from analytics that travel under the banner of modern science. Newer government projects have blurred the two by including both poisoning

and the building of raptor poles, though if the pika is a keystone species, the continuation of poisoning is unacceptable. The divergent understandings of pikas as a fundamental cause, or instead a symptom, of grassland degradation also remain unreconciled. Tibetan world-making practices are distinct from, but partially connected to both. They share with pikas-as-pests what looks from the perspective of pikas-as-keystone-species, like a “strong and unwarranted antipathy” for pikas.⁶⁴ On the other hand, in both keystone species- and hungry-ghost reality-making practices, an overabundance of pikas is not a problem of the pika per se (as is the case if they are pests), but rather an underlying condition that should be addressed through the mediation of other processes and beings, humans and otherwise.

Central to Tibetan relationships with pikas are forms of reciprocity: burying treasure where it has been taken out, restoring fertility where it has been depleted, and treating mountain deities as humans would like to be treated, in return for a favorable disposition towards land and territory. The resonances between principles of exchange and reciprocity in rituals and in ecological science allow for cooperation, rather than conflict, to be a means by which contemporary Tibetans agentively seek to sustain the existence of Tibetan world-making practices.

However, the two are not the same. Earth fertility vase rituals, as Buddhist studies scholar Cathy Cantwell pointedly remarks, “lack any actual – or at least empirical (!) – positive environmental impact, they fail to conform to the image of an attitude engendering ‘harmony’ with the natural world...”⁶⁵ Indeed, some contemporary Tibetan environmentalists are now recommending limitations on the increasing number of treasure vases being thrown into sacred lakes, especially because vases are now being mass produced with non-biodegradable substances. Like K.’s work to try to bring together ecological principles with Tibetan analytics,

this demonstrates that distinct reality-making practices are neither radically bounded and separate, nor strictly commensurate. In Annemarie Mol's felicitous term, we might think of them as making "more than one, but less than many" worlds.⁶⁶ Connected through highly asymmetric relationships of power, Tibetan analytics survive through a careful positioning of cooperation but not conflation.

To conclude, we have explored how pikas as animals that can also be hungry ghosts constitute Tibetans as distinct humans through concrete entanglements. This view of human difference is often obscured in the literature on multispecies entanglements, which is more commonly grounded in discussions of (Euro-American) domestic pets and livestock, or technoscientific studies of other species.⁶⁷ Scholarship on vital materialism would explain the agency of mountains in terms of geological processes, reproducing a form of biontological enclosure that we write against. At the same time, we urge against viewing world-making practices in which pikas are hungry ghosts as existing in a vacuum. Ontological politics matter, but so too do the politics of environmental discourses – about grassland degradation and the role that pikas and Tibetan herders do or do not play in it. Critiques of state resource control are not merely "polite criticisms" compared to the matter of ontology.⁶⁸ Instead, they are inextricably interlinked, with each working methodologically to illuminate the other.

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