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Songs, Settings, Sociality: Human and Ecological Well-being in Western Mongolia

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Abstract. In rural Mongolia, local ecosystems support many of the daily life needs of both human and nonhuman populations. Kazakh pastoralists in the westernmost province of Bayan-Ölgii, in Mongolia, have established complex relationships with the land. They not only rely on resources for their subsistence but, as ecosystem stewards, they maintain ecological knowledge that is tied to local and regional biodiversity. This study explores how Kazakh pastoralists use locally created songs to express both relationships with the land and a sense of well-being. The social settings for singing and the images in song lyrics that reinforce a sense of place and relationships with resources provide pathways for social transmission of knowledge. This is especially important during this period of ecological, economic, and social change in the region that has ruptured ecosystems and families. Kazakh pastoralists' musical practices linked to pasture resources and activities, resource diversity, and social-ecological resilience are also associated with social learning and coping with transformations that take place in social-ecological systems. The songs provide access to local ecological knowledge that may offer new approaches to understanding notions of more-than-human well-being for scholars working in collaboration with research partners in local and regional settings.

Keywords: Mongolian Kazakhs, pastoralism, song, well-being, social-ecological resilience

Introduction

In rural regions of the westernmost Mongolian province of Bayan-Ölgii, Kazakh mobile pastoralists share songs that bond families and communities together (Plueckhahn 2014; Post 2007). Some of their songs recount Kazakh history in the province, express the value of family and place, and exchange knowledge and values underpinning their relationships with local natural resources. This study explores how Kazakh pastoralists engage in adaptive, supportive, and sustaining actions at their seasonal sites and use these locally created songs to share connections to human and ecological well-being. As the herders are challenged to implement strategies for addressing environmental decline and economic hardship (Lkhagvadorj et al. 2013a), the same songs may play a critical role in contributing to the effort to address such issues. The social settings for singing and images of place in song lyrics provide pathways for creative exchange and potentially for positive change. Songs are linked to ecological practice and the inevitable transformations that take place in social-ecological systems (Fernández-Giménez 2015; Galafassi et al. 2018; Yusoff and Gabrys 2011).

Recent efforts to develop interdisciplinary and transdisciplinary approaches to well-being study were inspired by the publication of the Millennium Ecosystem Assessment (MEA 2005), a project that focused on sustainable use of ecosystem services and the impact on human well-being. Since that time, studies concentrating on social-ecological resilience have grown exponentially, engaging disciplines across the natural and social sciences. Discussions about well-being not only identify the complex determinants of well-being and measure subjective happiness (Diener 2009; Dodge et al. 2012; Mathews 2012), they also consider the multiple ways in which well-being

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can be conceived, expressed, and experienced, often in diverse cultural and social-ecological contexts (Mathews and Izquierdo 2009; Smith and Reid 2017; White and Blackmore 2016). Social anthropologists Ferraro and Sarmiento Barletti (2016:3) suggest that "there is no single way of understanding or even pursuing wellbeing," rather, there is "a multiplicity of 'wellbeings.'"

The growing body of research that addresses well-being in connection to environmental change, social-ecological resilience, and adaptive capacity contributes to transdisciplinary studies combining theories and methods from both the natural and social sciences (Fernández-Giménez et al. 2015; Hopping et al. 2016; Kofinas and Chapin 2009). The multispecies turn that engages with more-than-human approaches in ethnographic study (Kirksey and Helmreich 2010; Locke and Muenster 2015; Schneider 2013) also encourages transdisciplinary research in this area. Chao (2018:623) proposes we move away from focus on the agency of humans to consider "the phenomenological lifeworld of their other-than-human counterparts." Tsing (2010:201) expresses this as "building democratic science and publicly inclusive well-being."

In turn, ethnobiologists argue that place-based cultural perspectives considering values, beliefs, and needs in the context of an ecosystem can be used effectively to strategically address the well-being of human and nonhuman actors in declining ecosystems. This is accomplished by identifying resilience indicators and patterns and by evaluating feedbacks (McCarter et al. 2018; Sterling et al. 2017). Such work also underscores the importance of recognizing social realms that sustain human and ecological well-being as resulting from "dynamic interactions between local knowledge, practices, and ontologies" (Caillon et al. 2017).

Efforts to embrace cultural practices in the context of human and ecological health and well-being recognize and reinforce cultural production in social contexts, but few studies consider the significance of artistic forms, including songs. Such practices carry sensory, social, ecological, and other significant knowledge in local settings that contribute to a sense of well-being with outcomes beneficial for human and nonhuman actors (Roseman 1998; Simonett 2014). For example, cultural geographer Sakakibara (2017) engages with local Iñupiaq residents in Alaska to address social and environmental well-being expressed through music to explore the exchange between bowhead whales (*Balaena mysticetus*) and the Iñupiaq people who rely on whale skin for drums used ceremonially. Similarly, arguing for the use of poetic inquiry to humanize scientific research and give voice to those impacted by environmental events, Fernández-Giménez (2015) suggests that an arts-based research (ABR) model in ecological research builds interdisciplinary, collaborative connections and can aid scientists' understanding of relationships among cultural production, local identity, and changes in ecosystems.

This study combines ethnomusicological and ethnobiological approaches to embrace musical, ethnographic, and biocultural knowledge as sources of critical information for understanding well-being in pastoral communities in Mongolia. It considers Kazakh mobile pastoralists' songs as artistic forms that engage with both musical and social modes of communication. Songs reveal local cultural beliefs, their lyrics can be read as social texts articulating shared values with power to influence individuals and communities over time, and they are sources of biocultural knowledge. Performances of songs in local social settings contribute to herders' collective sense of place and reinforce the importance of ecosystem knowledge transmission. Furthermore, recognizing the multi-species relationships supported in these songs opens the potential for new associations across the disciplines, as natu-

ral and social scientists, in partnership with local pastoralists, seek new knowledge to address difficulties facing local communities.

Study Area

This study uses data from rural sites in Mongolia's Bayan Ölgii province, located primarily in an Altai Mountain region from the Tavan Bogd Mountains in the north to the southernmost Bulghyn district (Figure 1). The herders move seasonally between alpine-subalpine and mountain steppe as they settle in support of their livestock (Laurie 2008; Laurie et al. 2010). Interviews and discussions took place at 18 different spring or summer settlement sites. Six of the sites are in the Altai Tavan Bogd National Park, a formally designated protected area managed by the Mongolian government. The entire province of Bayan-Ölgii is also situated in the Altai-Sayan Ecoregion, an area spanning across Russia, Mongolia, Kazakhstan, and China, that is of special conservation importance due to the rarity of its natural resources (Badenkov et al. 2012; Mandych 2006; UNDP 2006). The region offers water resources, significant levels of plant diversity, and habitats for different species, including the locally rare snow leopard (*Uncia uncia*), Altai argali (*Ovis ammon*), and Siberian ibex (*Capra sibirica*).

Jointly managed and monitored programs for supporting research and maintaining conservation areas were established in the new millennium with support from national and international organizations, including the World Wildlife Fund (WWF 2012) and the United Nations Development Programme (UNDP 2006), as well as organizations such as the Snow Leopard Conservancy (Munkhtsog et al. 2016; Paltsyn et al. 2017; Uluqpan and Knapp 2012). Initially, projects promoted European scientific knowledge to address local biodiversity concerns but, increasingly, research teams have shown interest in supporting local knowledge and developing collaborative actions to maintain local communities and resources (Maroney 2006; Murray et al. 2009; WWF 2012). In fact, the Kazakhs and other ethnic groups in the region have been recognized in international Altai-Sayan Ecoregion literature for their lifeways and stewardship contributions (Paltsyn 2015; Paltsyn et al. 2017).

People

The Kazakh mobile pastoralists in Mongolia are just one of 20 ethnic groups in that country. While the Khalkha, comprising 86% of the ethnic population, are dominant nationally, the Kazakhs comprise nearly 90% of the population in Bayan-Ölgii. Most Kazakhs arrived from China in the nineteenth and early twentieth centuries (Rossabi 1975). Russian expansion between the seventeenth and nineteenth centuries displaced Kazakhs in Central Asia, who fled to pastureland in the Tien Shan mountains in today's Xinjiang Uyghur Autonomous Region in China (Finke 1999). Qing dynasty unrest in the region led to their movement north into Mongolia over the Altai Mountains in the mid-nineteenth century (Atwood 2004; Olcott 1995). A much smaller group of Kazakhs arrived from Russian Altai and Eastern Kazakhstan at the time of the October revolution and civil war between 1917 and the 1920s (Soni 2015). In 1940, the Mongolian government established Bayan-Ölgii district (*aimag*) as a separate administrative unit for the Kazakhs (Olcott 1995; Rossabi 1975).

The rural Kazakh residents in the province today continue many traditional practices that are adapted as environments change. Many of the rural Kazakhs rely on their livestock to sustain livelihoods and, thus, move between four and six times each year to support their animals' needs. Kazakh extended family groups form residential communities (*auyl*) that provide mutual support during activities such as herding, milking, attending to health needs of animals, and threshing. The benefits of

Figure 1. Map of Bayan-Ölgii, Mongolia.

such support in herding communities is noted in other regions of Mongolia as well (Baival and Fernández-Giménez 2012; Fernández-Giménez et al. 2019). The Kazakhs also maintain active ties to tribe (*taipa*) and clan (*ru*) that can extend these support systems beyond the family unit. Poverty, insufficient government support during periods of drought, bitter cold, snow, and ice, and animal disease (i.e., foot and mouth disease) can make daily life in rural regions difficult, but their tightly-knit, social-ecological systems have allowed them to continue to maintain their way of life.

The Kazakhs in western Mongolia struggle not only with the effects of climate change, they are also increasingly impacted by Mongolian nationalism that privileges the dominant Khalkha social and

cultural values. At the same time, because of their geographically complex social history, the Kazakhs continue relationships with other Kazakh communities outside the country. In 1991, the government of Kazakhstan invited Kazakhs in Mongolia to resettle in the country, which has created a new wave of educational, economic, and emotional opportunities for them (Diener 2009; Post 2014). The Turkish government has also offered educational support for Kazakhs, and Russia continues to provide educational opportunities for all Mongolians, including Kazakhs. The Bayan-Ölgii residents' historical, political, social, and ecological ties are thus maintained well beyond Mongolia's borders.

Songs

In the small city of Ölgii, popular songs that express pan-Kazakh and pan-Mongolian identities are the dominant vocal forms. This music came into the region first with support from the twentieth-century Soviet-built cultural center and, more recently, through media from Ulaanbaatar, Kazakhstan, Kazakh China, and Russia. Countryside residents generally have access to this music and engage with it selectively, but many also maintain older song genres that are at times didactic, reflective, and descriptive of some of the traditional lifeways and lands they continue to maintain.

Among the older song forms are genres that evolved from old Turkic bardic traditions of traveling poets and singers, *zhyr, terme*, and *tolghau*, along with the lyrical *qara öleng* (Kendirbaeva 1994; Kunanbaeva 2016; Muhambetova 1995). Lyrics for these songs are kept in herder-musicians' memories or in notebooks tucked away in an old suitcase or in the rafters of a yurt, the portable felt structures that are their homes in seasonal settlements. A small number of older songs are preserved in printed collections available primarily in district centers or Ölgii city. Some of the musicians are considered *aqyns*, respected poets and singers, who are frequently asked to perform at local celebrations (*toi*), accompanying their songs with the two-string, long-necked lute *dombyra*. Melodies for songs today do not have the same status as the lyrics; melodies range in style from recitative to lyrical tunes closely related to folk songs (*qalyq än*). In fact, while melodies for genres, such as *terme,* were historically maintained in families, by the middle of the twentieth century, tunes began to be adopted from songs heard on the radio. Today, the borrowed tunes are embraced as fully as family melodies. The rural songs are maintained primarily, but not exclusively, by male singers. In the countryside, women do sing, but may have less time to write and share songs because their workload in the family is heavy. Local communities identify with personal stories about place because they share lifeways, lands, and histories, including loyalty to tribe, clan, and residential community. They share experiences of movement from China into Mongolia, struggles to manage land under difficult weather conditions, and also respect for resources (Post 2007, 2019a, 2019b).

Methodology

The present study builds on 15 years of ethnomusicological fieldwork carried out in Bayan-Ölgii province. The 18 songs referenced in this study are drawn from interviews with rural musicians during my nearly annual one- to three-month research stays in the province between 2005 and 2018. My research on both instrumental and vocal forms over the years has focused on sense of place (Post 2007), mobility (Post 2014), ecological knowledge (Post 2017), song mapping (Post 2019b), sounds and soundscapes (Guyette and Post 2015; Post and Pijanowski 2018), and climate change (Post 2019a). To date, few scholars have conducted research on musical practices in Bayan-Ölgii (Pegg 2001; Soni 2015). Some of the data on ethnobiological content in

songs were first gathered during my travel with Beket Uluqpan, a Kazakh Mongolian biologist and my travel guide for three spring/summer seasons from 2006–2008. Ethnobiological information gathered in the field has been supplemented by published research by Uluqpan (2009; Uluqpan and Knapp 2012; Uluqpan et al. 2015), as well as other Mongolian-based research teams (Lkhakvadorj 2013a, 2013b; Ykhanbai et al. 2004).

Qualitative research methods were prioritized in this research, including semi-structured interviews with open-ended questions to encourage discussions about musical and lyrical content in songs and information on how individual performers and other local residents use and value musical production. Songs and instrumental tunes were frequently recorded in conjunction with interviews. In addition, participant observation in many of the communities represented in this study involved staying with local families to observe and take part in family life. These stays included engaging in daily activities, involvement in discussions about music and musical performance, and attending family and community events and celebrations where songs and instrumental tunes were shared. Many of the research partners represented in the study were in spring or summer encampments they occupy between May and August each year. Qualitative research of this kind applied to wellbeing study "highlights the complexity of people's lives, incentives, and aspirations, which are both shaped by and shape their natural environment" (Woodhouse and McCabe 2018:43). It encourages movement away from static data to consider a broad understanding of local conceptions of the health of the land and its resources.

All my work in Mongolia followed strict and rigorous ethical guidelines established in ethnomusicology and promoted by the Society for Ethnomusicology (SEM Ethics Committee 2018). Free, prior, and informed consent was obtained for all interviews, images of people, and recordings of performances. All performers represented in this article agreed to the use of their songs and interview material for educational and scholarly purposes.

Results

Pasture Resources

Kazakh herders express through daily and seasonal activities that maintaining their livelihoods and lifeways is their primary concern. In fact, attending to the basic needs in their more-than-human realm contributes to the well-being of all. Their needs include a sufficient number and diversity of livestock (sheep, goats, horses, yaks or cows, and camels), ready access to healthy grasses for their animals, and availability of clean water for all (Fernández-Giménez 2000). Their core animals are sheep and goats and, in recent years, a swelling of herds in response to the market economics has caused land degradation due to overgrazing (Khishigbayar et al. 2015; Chuluun et al. 2017). Herders throughout Mongolia have increased the number of goats in their herds to sell cashmere for clothing industries around the world. This has a direct effect on the grasslands because, unlike other livestock in Mongolia, goats eat roots and flowers, impacting the regenerative capacity of a pasture (Dorj et al. 2013). All pastoralists in Mongolia, regardless of their pasture use, are vulnerable to climate-related events, including the increasingly frequent severe winter weather and the devastating *dzud*, a period of cold, ice, and/or snow that kills thousands of animals (Goodland et al. 2009).

In a song, an image of five kinds of livestock scattered on the side of a steep hill or across a wide grassland represents the quantity and diversity herders need for their survival and sense of well-being. Bilimkhan Boqtaqyn (interview, June 2007), settled near Qara köl (Black Lake) in Bulghyn district, offered lyrics in which he described livestock spread across grazing fields near local landforms (Dürgin, Tashu, and Eki Buyra). His *zhyr* also reflects seasonal use of space, noting that the hills are used for

winter places (*qystau*), whereas the grasslands are needed for summer settlements (*zhaylau*).

Qara köl, Dürgin, Täshu, Eki Buyra	Qara köl, Dürgin, Tashu, and Eki Buyra
Myngghyrghan bes tülik mal oymen qyrda	Five kinds of livestock are all over the valleys
Qasietin mekenimning öleng etip	I will sing about the features of my homeland
Qosayyn shamam kelse öleng zhyrgha	If I am able, I will put them into my *zhyr*
Bulghynnyng oyy qystau qyry zhaylau	Bulghyn's hills are for *qystau*, its steppes are for *zhaylau*
Zhaylauda bir ghanibet bie baylau	It is a pleasure to milk mares in the *zhaylau*
Elimning dästürine aynalypty	Of holding *toi* throughout the summer
Zhas boyy cauyq quryp toyyn toylau	My people have made a tradition

Pastoralists use grasslands rich in nutrients for fattening their livestock. They also maintain hayfields for winter fodder that they harvest in late summer (Figure 2), then spend the winter at sites where their families and smaller herds are protected from the wind and snow. Suyenish Zhensikhbai (interview, June 2014), at his summer settlement in Ulaankhuus district, shared a song in which he names the grassy ravines (*sai*) used for grazing,

Aqbastysay, Kökadyrmen Zholsayym	Aqbastysai, Kökadyr and Zholsky
Ärbir shöbing zharalghanba mal sayyn	Have you grasses growing for every animal?

Herders have intimate knowledge of the optimal forage grasses and herbs at each elevation and some plants, such as feather grass (*rang*; *Stipa krilovii*) and brown bentgrass (*qarabas*; *Agrostis mongolica*), are visually embraced in song. Zhapar Qapish (interview, June 2014), in Ölgii city, shared a song written by poet-singer Takhir. The poet referenced feather grass (*rang*) and hay at a place called Qaq.

Rang otty shöbing bal	It is lush with *rang*; your grasses are like honey

Zhapar also sang about water in a song by local poet Imashkhan Baibatyr (1938–2000). A running stream offers the residents clean and clear water.

Figure 2. August threshing near Dayan Lake, Bayan-Ölgii, Mongolia (Photo, J. Post, 2006).

Syngghyrlaghan bulaghy	Its running stream
Balday tatyp turady	Tastes like honey
Balyq toly kölderi	The lakes full of fish
Baylyq bolyp tunady	Are treasures of the land

Identifying the sweet (or honey) grasses and water sources for livestock refers to their high quality for the animals. Länkhan Äbidän (interview, June 2014) at his spring settlement near Syrghaly in Tsengel district, sang one of his songs in which he names specific places at nearby Aqsu mineral spring, stating simply:

Shöbing sheker, suying bal	Your grass is fertile, your water is like honey

Zhangabyl Doldash (interview, June 2007), who had settled with his family at Tövshin köl in Deluun district, began his *terme* by referencing thousands of livestock grazing in lands with a "honey brook."

Balausa bal bulaqty dalam syndy	My steppe with meadow and honey brook
Qaptatyp bes tüligin kalqym myngdy	Filled with thousands of the five kinds of livestock
Äyteubir ömir keship zhatushy edi	My people use to survive
Meken qylyp tirlik üshin taumen shyngdy	They make the high mountains their home

Many of these songs refer to both humans and animals in a location being "comfortable" (*zhayly*), meaning the environment is just right for its intended use, i.e., for the well-being of all inhabitants (Figure 3). This concept appears in songs when referring to herding practices and decisions that require healthy grasses, accessible and adequate water, with winds and other weather events that are manageable and relatively predictable (Post 2017). Suyenish (interview, 2014) referenced grazing land in nearby Tsengel in a song:

Zhazda zhayly köktem tügil qystada	The summer, winter, and spring are comfortable

Leskhan Altaikhan (interview, August 2013), at Qos Qatu in Tolbo district, sang about his summer encampment:

Kelisken zhaylauym bar zhasyl quraq	My *zhaylau* is comfortable and green

Zhapar (interview, 2014 2014) sang in Takhir's song:

Malgha zhayly qonysy ay	Your pasture is comfortable for livestock

They echo lines about homeland written by Imashkhan, referenced earlier, that Zhapar (interview, 2014) also sang:

Malgha zhayly qonysym	It is comfortable for my livestock
Sayran salyp sol üshin	That is why I am happy
Bes tülik mal ösedi	Five kinds of livestock grow here
Zherimning zhep chöbisin	Eating the grasses of my land
Küzep özen boylaryn	In autumn we are along the river shore
Qystap taudyng qoynauyn	In winter in the hollow of a mountain
Kötere almay quyryghyn	My sheep are so fat
Tengseltedi qoylarym	They can barely lift their tails

Biocultural Diversity

Kazakh herders embrace the rich biodiversity of the Altai Mountain region in their songs. As stewards of the land, the herders address practical matters, yet they also explore sensory and emotional responses to the environment. Their songs reflect the important links between biological diversity and cultural production expressed in human beliefs, values, and worldviews (Pretty et al. 2009). Kazakhs in Bayan-Ölgii, who blend pre-Islamic beliefs with Islam (Brede et al. 2015), seldom openly express spiritual ties in the same way other Mongolians link shamanism and Buddhism (Upton 2010). Yet, Kazakh songs offer knowledge about resources and provide glimpses of the syncretic local beliefs and other information passed down from relatives over many generations.

Figure 3. Leskhan's summer settlement near Dalaköl (Photo, J. Post, 2018).

Kazakh herders' tools for evaluating and communicating about ecosystem services are multisensory, drawing especially from sight and hearing, but also smell, taste, and touch. The sensory, ecological, and social information connects directly to maintaining lifeways and practices that engage with regional biodiversity. Kazakhs vocalize while managing livestock to communicate with their animals and they listen to sounds produced by domestic and wild animals, plants, birds, and other entities as they evaluate land and weather patterns (Chuluunbaatar 2012; Fijn 2011; Pegg 2001). Asked about the sounds of healthy land, Länkhan (interview, 2014) referenced the "hiss" of higher grasses and the heavy breathing of livestock in summer grazing land. Comfort can also be linked to stimulation that comes from specific scents. Wormwood (*zhusai*; *Artemisia absinthium*) is valued as autumn and winter fodder for livestock and its smell is widely enjoyed. The rare wild Altai onion (*zhua*; *Allium altaicum*) is also seasonally gathered for health, as well as a garnish for food. Äsidolda Zaqan (interview, June 2007), at his summer settlement in Bulghyn district, sang about these resources in a song about leaving the province.

Zhusan zhua zhalbyz isi angqyghan	The smell of mint, wild onion, and wormwood
Qosh iske boyyng erip balqyghan	The wonderful scent will make you melt
Saghynarmyn ushqat arsha qorymyn	I will miss the rocky slopes with honeysuckle and juniper
Qaraqatpen toshalasy au samsyghan	Black currant and gooseberry stand in a row

In nearly every conversation about resources in summer and autumn locations, herders talk about *qaraqat* (literally blackberry). The name generally refers to all wild berries, especially black currant (*qaraqat*; *Ribes altissimum*), gooseberry

(*toshala*; *Ribes aciculare*), and wild strawberry (*Fragaria orientalis*) (Lkhagvadorj et al. 2013a). Berries are valued for both medicinal and culinary purposes. Erbolat Köshegen (interview, July 2006), at his summer settlement near Dayan lake, sang this verse about the berries that grow near two landforms (Zhol tumba and Tas ötkel),

Zhol tumba Tas ötkelding aralary	Between Zhol tumba, and Tas ötkel
Zhamylghan zhasyl kilem zhaghalary	The shores wear a green carpet
Zhas bolsa zhidek pisip zhangarady	In summer, berries grow anew
Zhemisin terer auyl balalary	*Auyl* children will gather the fruit

Zhapar Qapish (interview, June 2005), in Shegirtay, Deluun district, also sang about berries and other valued plants near landforms (Figure 4), including honeysuckle (*ushqat*; *Lonicera* sp.) and rhubarb (*raugash*; *Rheum* sp.).

Ush tepseng, Qos shibil men Zhaltyrtasyng	Ush tepseng, Qos shibil, and Zhaltyr tas
Teresing qaraqat pen toshalasyn	The nice smelling *qaraqat* and *toshala*
Qamshygha ush ayyryp sap isteysing	Cut them into three pieces to make a whip handle
Ushqat pen raughash, tobylghasy	Honeysuckle and rhubarb are nearby

Addressing species richness, Länkhan (interview, 2014) describes Besbogda mountain (Tavan Bogd in Mongolian), located near his *zhaylau* at Aqsu (Figure 5) in the Tsengel district, and where high alpine flora and fauna are preserved in the Altai Tavan Bogd National Park. He sings, referencing the Golden Eagle (*qyran*; *Aquila chrysaetos kamtschatica*).

Altay tau basy qarly baury orman	The Altai Mountain peaks and forests are covered with snow
Ang zhortyp qyran ushqan baurayynda	Wild animals run and *qyran* fly along its slope

Figure 4. Shimangdara pass where the family picked berries near Zhapar's zhaylau at Shegirtay (Photo, J. Post, 2018).

Figure 5. Aqsu arasan region with wild onions in the foreground (Photo, J. Post, 2018).

In his song, he names its most revered animal species, including argali (*arqar*), ibex (*taueshki* or *tau-teke*), possibly musk deer ([*muskus*] *bughy*; *Moschus moschiferus*), and red deer (*maral*; *Cervus elaphus*). He also references the Aqsu mineral spring (*arasan*), widely known throughout the province for its healing waters, the clover (*zhonyshqasy* or *bede*; *Trifollium* sp.) for wild (and domestic) animals, and the fruits (berries) enjoyed by both humans and wildlife.

Ay aymüyzdi arqaryn-ay	Its *arqar* with horns like the moon
Taueshki örgen äri sayynd-ay	*Taueshki* live in every valley
Zhaz zhaylaudyng samalyn-ay	The breeze blows in summer in the *zhaylau*
Bughy men maralyn-ay	It has *bughy* and *maral*
Ay arasany zhanggha shipa	Its mineral spring heals the soul
Balausasy malgha shipa	Its pasture heals livestock
Ay zhemisteri elge shipa	Its fruits heal the people
Zhonyshqasy anggha shipa	Clover heals its wild animals

Queried about wildlife sounds, many herders say they hear these animals less often. While rural residents have been challenged for their hunting practices and customary uses of wildlife, Qozhaqapan (interview, August 2013), at Qos Qatu in Tolbo district, said about argali and ibex, "They are special animals, we don't hunt them." Äsidolda (interview, 2007) offered his own commentary on the argali, deer, mountain goat, and snow leopard (*ilbis*) in Bulghyn district in another verse from his song about

leaving the region. Shared socially, such songs generate discussions about the value of these resources, as well as decisions about abandoning the land.

Saghynarmyn aryndy özen aghysyn	I will miss the rushing river,
Arqar bughy tauteke ilbis taghysyn	*Arqar*, *bughy*, *tau-teke*, *ilbis* and more
Shynymenen ketting be dep turghanday	The snow peak I used to climb
Basyna özim shyghyp zhürgen qarly shyng	Seems to be asking, 'Are you really leaving me?'

Kazakh herders sustain health and well-being for themselves with local plants, animals, and birds. One bird, widely used for health, that has been overhunted by Mongolian and Kazakh pastoralists is the Altai Snowcock (*ular*; *Tetraogallus altaicus*). Used to treat illnesses and injuries from Tibet to Mongolia, the skin is applied to burns, sores, and other wounds, and the meat is valued to aid digestion. When queried about the *ular*, herders first reference its "pik pik pik pik" and crying sounds heard seasonally. They express respect for the birds, referencing their medicinal role. Traveling with herders to discuss significant Kazakh sites, they often identify where snowcock live—or once lived. Oktyabr (interview, June 2007), near his summer place at Zhalghyz Aghash in Deluun district, sang about longing for the *ular*, referencing both their sound (*qiqu*) and behavior at a specific location.

Qyrqyndap Örteng caygha men keleyin	When I arrive at Örteng sai
Qaptaldap Kök tuiyyqty kenerleyin	I will go along the edge to Kök tuiyyq
Ushatyn ular qonyp Cary teriske	*Ular* land and fly from Sari teris
Ularyn qiqu salghan bir köreyin	Let me hear your *ular* say *qïqu* once more

Herders make both practical and spiritual connections with the land and its resources. Many images created in song lyrics show this self-identification with landforms. In one song, Zardykhan Mubarah (interview, July 2006), in Deluun district, referred to the mountains near his homeland as his relatives. Images of the land in Oktyabr's song also show a conception of self that is linked to the resources he values. He sings about life as a high rocky cliff that one must "rush about and flap your wings to climb [*Shyghugha qanat qaghyp bolasyng zar*]," and about traveling back from a place called Qasqa Qum where "my Mykhtybai lies on its side in front of me [*Aldymda sulap zhatyr Myqtybayym*]," referencing a mountain he values.

Disturbances and Periods of Change

Concerns about climate change and the unpredictability of weather events cause local herders to worry about the future. Devastating ecological, economic, and social changes have occurred in many communities in recent years, rupturing families and threatening efforts to sustain their mobile pastoral lifeways (Post 2014, 2019a). In fact, while not always expressed directly, this is often on pastoralists' minds, as land degradation and habitat loss for animals, along with weather unpredictability and extreme weather events, impinge negatively on a community's ability to adapt (Fernández-Giménez 2000; Reid et al. 2014).

The songs Kazakh herders share contribute substantially to mobilizing communities to address adaptive needs of the system, especially when a respected singer raises local conservation concerns (Post 2019a, 2019b). Zhangabyl (interview, July 2006), at a neighborhood celebration on the border between the Bulghyn and Deluun districts, sat in the center of a yurt to offer a *terme* to the community. Concerned about the diminishing snow cover on the nearby slopes he sang:

Qalady au qary ketse shölirkenip	If the snow disappears, it will be thirsty

and, about the quality of grazing land:

Zhayqalyp burynghyday köktey almay	You don't turn green and sway as before
Arshyndap bara zhatsyng zhyl zhyl sayyn	You are getting worse year by year

Aqylbek Qapchan (interview, June 2008), sitting by the Bulghyn River in Bulghyn district (Figure 6), reflected this in a verse of his song about the land.

Oyymda talay närse tolyp zhatyr	I think about many things
Bul kezde aqshalynyng bäri batyr	These days those with money are the heroes
Zher quaryp zhyldan zhylgha öngi ketip	Year by year the land is losing its color
Zhyl sayyn quangshylyq bolyp zhatyr	Every year a drought takes place

At a crowded social gathering, where women, men, and children are packed in a yurt to celebrate and share sentiments, such lines in songs are often followed by other expressions of concern among the neighbors.

Discussions about distinct types of wind (*zhel*) and their impact on well-being raises both comfort and security issues. Herders monitor resources and listen for indications of livestock health and safety. *Samal zhel* is a soft wind identified as calming; Aqerke Gagarin (interview, June 2007), at her family's summer settlement near Dayan Lake, sang:

Saghsaydying samal zhuttym dalacynan	I breathe the soft winds from Saghsai steppe

as she described her homeland and her heritage. On the other hand, *quyun zhel* is a swirling wind that some describe as accompanied by a terrifying sound; that wind can be dangerous to both livestock and people. Herders at Dayan, where there is also forested land, say when they hear the *quyun zhel*, they immediately gather their herds and head for the forest for protection.

Figure 6. Aqylbek Qapchan singing near the Bulghyn River (Photo, J. Post, 2008).

Livestock and wildlife often act as biocultural indicators for pastoralists, e.g., offering signals and signs of weather change. They identify the sounds and activities of animals and birds as sources for critical information about moving their livestock to safer ground, for example, signaled by groups of blackbirds flying high and chattering loudly. They also rely on bird calls as biocultural markers of seasonal change, meaning it is time for them to begin the complex process of gathering their animals and material goods to move to another location. Seasonal water birds (e.g., cranes, ducks, and geese) mark seasonal changes for many herders. Prominent among them is the Ruddy Shelduck (*sara ala qaz*; *Tadorna ferruginea*) and the Bar-headed Goose (*qongyr qaz*; *Anser indicus*). Zhangabyl (interview, 2007) sang about two geese (*qaz*) returning to his winter settlement (*qystau*). Noting their shared sentiments about home, he references Burghyst, his own homeland (*tughan zher*), as a homeland (*turghysy*) for the geese as well.

Eki qazym keldingbe esen aman	Did you come back safely my two geese?
Yntyzar bop zhür edim mende saghan	I am longing for you also
Sälemdesip turghanday körinesing	You seem to be greeting us
Shyqtyngba dep bizderge qystan aman	And asking if we stayed safe during the winter
Kelgende quanamyn zhyl qusym-ay	I am happy when you come, my traveling bird
Qus aynalar degen shyn turghysyn-ay	It is true that birds return to their own homeland
Uya salghay kelding-au balapandap	To make a nest for their goslings
Altyn besik mekening burghystynga-ay	You come to Burghyst your golden cradle, your homeland

Social-ecological Resilience

For Kazakh pastoralists in Bayan-Ölgii, resource management includes careful consideration of the health and well-being of resources they share in a more-than-human environment. Kazakh herders actually seldom reference well-being directly in their daily engagement with communities of people, domestic and wild animals, birds, and plants. Yet, embedded in their conversations and reflected in their songs about place, they acknowledge the role of well-being in the local grassland, social community, province, country, and ecoregion. Their increasing concern about changes in the general health of their basic resources, such as livestock, grasses, and water, are not included in their songs as often as their praise of resources and place. Social-ecological resilience is part of Kazakh herders' social learning and ecological knowledge.

In spring and summer of 2018, Bayan-Ölgii residents experienced high winds that stripped away vegetation and soil from the steppes, drought that created dangerously low water levels, insect infestation that rendered some grazing land nearly useless, and flooding that destroyed homes and limited access to sites. Yet at a neighborhood gathering that year near Aqsu *arasan*, a *dombyra* was passed around a yurt so neighbors could share songs and tunes that depict images of healthy landscapes. Such scenes in social life and song, even during a period of environmental devastation, remind listeners of the values that contribute to human and ecological well-being and promotes actions that support ecosystem health. Singers, especially *aqyns* who are respected for the knowledge expressed in their songs, remind Kazakh herders of their social-ecological resilience. In fact, songs of praise for the land that offer ideals mirror local herders' discussions about what they expect from grasses, the timing of seasonal moves, and the presence of wildlife.

Their songs representing daily and seasonal activities play a critical role in reinforcing support for their lifeways and contributing to social-ecological resilience.

Since relationships between humans and other entities they share the land with is seamless for many pastoralists, well-being expressed in song in this way refers to the comfort, the successful adaptability, and the shared sociality that characterizes lifestyle and lifeways in their more-than-human communities. In a song, the identity of an individual may even be entangled with that of the eagle (*bürkit* or *qyran*). A singer can be an eagle for a moment in the midst of a song, spreading wings to indicate strength and good health, as Oktyabr (interview, 2007) sang about himself:

Bürkit tau tülep ösip asqar shyngdy	I was raised and then molted on high peaked Bürkit Mountain
Qiyngha qanat qaghu arman etip	I stretched my wings to meet difficulties

Discussion

The lyrics of rural Kazakh songs in western Mongolia contain images of sites and settings, metaphors revealing cultural understandings of relationships with places and resources, and emotional responses to the land and its inhabitants. The melodies, performative gestures, and contextual information, offered before and after singing, are significant sources for a greater understanding of how resources in the region are valued and used (Pretty 2011). Altogether, the songs and the rural settings represented offer evidence of the coupling of human and ecological well-being, as singers reference elements that support individual, community, and ecological health (Galafassi et al. 2018). Identifying how songs connect the perception, expression, and maintenance of well-being can reveal how Kazakh mobile pastoralists, whose livelihood and lifestyle are so closely tied to the land, engage socially in adaptive, supportive, and sustaining actions in relation to resources they rely on and care for at each seasonal site.

Kazakh herders rely on resources for economic success; they maintain their practices based on expectations about weather and the behaviors of plants, soils, and animals experienced over time. The ecological knowledge they use is gained through daily and seasonal experiences that contribute to their knowledge of regional biodiversity and socially shared practices, as well as beliefs and values that promote their sense of local well-being (Balvanera et al. 2016; Post 2017; Soma and Schlecht 2018). A view of the environment that local herders express in song, as well as sound-making and listening practices, supports their belief that humans are part of a larger whole.

Beach and Stammler (2006:12), reviewing human-animal relations among reindeer herders across the circumpolar North, refer to "symbiotic domestication" as a form of human-nonhuman socialization. They suggest that, in such relationships, "human and animal 'persons' are conceived as equals in reciprocal, symbiotic relationship, not only for their movements in the landscape, but also for their very sustenance and reproduction, their life." Addressing human-animal assemblages in the same region, Cassidy (2012:27) describes a "respectful reciprocity" found in such relationships. She says, "Sustainable reindeer management depends on movement within a landscape that includes animals, weather, rivers, plants, and other geographical features, any of which may be animated or personified." The herders in these northern environments exhibit what Anderson (2000) and Ingold (2000) refer to as sentient ecology; they are part of a complex social network that builds over time, or a social-ecological system that is "a fabric of customs habitually and deliberately experienced and enacted by human and nonhuman animals" (Hiedanpää et al. 2012:17).

Similarly, for Kazakh pastoralists in Mongolia, both domestic and wild animals play roles in the social lives at each settlement site; herders are part of a fully linked

system rather than separate from nature (Berkes and Folke 2000). Discussing sound and its use in daily life, Kazakh herders in Mongolia consistently refer to sound and other sensory behaviors in nature as shared, noting that, because humans and animals are part of a whole, one cannot exist without the other. In Bayan-Ölgii's Tsengel district, Länkhan (interview, June 2017), near Syrghaly in Tsengel district, expressed his belief that "the connection between nature and people means that neither feels anything by itself." In the Tolbo district, at the end of a conversation about using sound to communicate with animals and understand nature, Qoshaqapan (interview, 2018), at his summer encampment at Dalaköl, simply said, "Everything belongs together, human and nature."

Like the sounds, the older song forms Kazakh herders maintain in western Mongolia offer reflections about biodiversity and ecosystem services that contribute to their well-being and to the well-being of the resources around them (MEA 2005). A healthy ecosystem exhibits biophysical and social productivity, diversity, and social-ecological resilience (Costanza 2012; Costanza et al. 1992; Rapport 2007). Bayan-Ölgii herders are well aware of these relationships and express them in their discussions, activities, and multi-verse lyrical songs that serve multiple social and ecological purposes. Many songs carry biocultural knowledge about resource management, a crucial part of pastoralists' work, reflected in their herding practices and maintained through shared customs, beliefs, and in the vitality of the products of the land. Their songs embrace the shared roles of people, livestock, wildlife, and plant life, reflecting pastoralists' holistic view of their diverse and well-organized social-ecological systems. Singing about place offers information about characteristics and health of individual species, as well as the land as a whole, sometimes identifying disturbances and often celebrating resilience of resources and lifeways.

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