

Nature-Culture Mapping in the Trans-Himalayas



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Abstract

Tso Moriri-Korzok (Ladakh-India), located in the Ladakh Trans-Himalayas, is a unique bio-diverse wetland 4650m above sea-level (asl). It is locally protected and an international Ramsar site. The Changpa, nomadic pastoralists, who have inhabited this landscape for several centuries display a complex yet eloquent interface with nature that is evident in their way of life. However, the region is highly vulnerable due to climate change, geopolitical conflicts, and irregular policies affecting both ecosystems and breaking the socio-cultural fabric of the Changpa nomads. The project proposed aims to spatially map the Changpa land-use, their movement, and the wetland ecosystem. Documenting cultural, historical, environmental, and other practical data that showcase interdependencies, interactions, and overlaps between nature and cultural systems. The mapping project could support future landscape management and conservation plans.

KEY WORDS: Trans-Himalayas, Nature-culture linkages, Nomadic communities, Community mapping, Traditional knowledge, Climate change, Cold-desert

1. Introduction

Tso Moriri is located in the southernmost part of the Changthang plains and the western edge of the Tibetan Plateau in Ladakh-India. This high-altitude brackish lake, at 4650masl, is an extensive, complex wetland ecosystem that spreads over an area of 120 km² (Chandan et al. 2007). Characterized by an arid, cold, desert climate, the summer temperature ranges from 0° to 30°C and falls to -10° and -40°C in winter, freezing the lake in the winter months (Mishra et al. 1998).

wild-ass as well as endangered migratory birds, like the black-necked crane and bar-headed goose, and several species of plants, all together creating a unique assemblage of flora and fauna (Namgail et al. 2010).



Figure 2: Black-necked crane (*Grus nigricollis*) (© Kirti Chavan)

2. Significance of the heritage place

2.1 Natural and cultural values

Despite the harshest conditions, the landscape represents one of the important bio-geographic and eco-regions province within the trans-Himalayas, with several rare species of mammals, including the Snow leopard, Tibetan gazelle, and the Tibetan

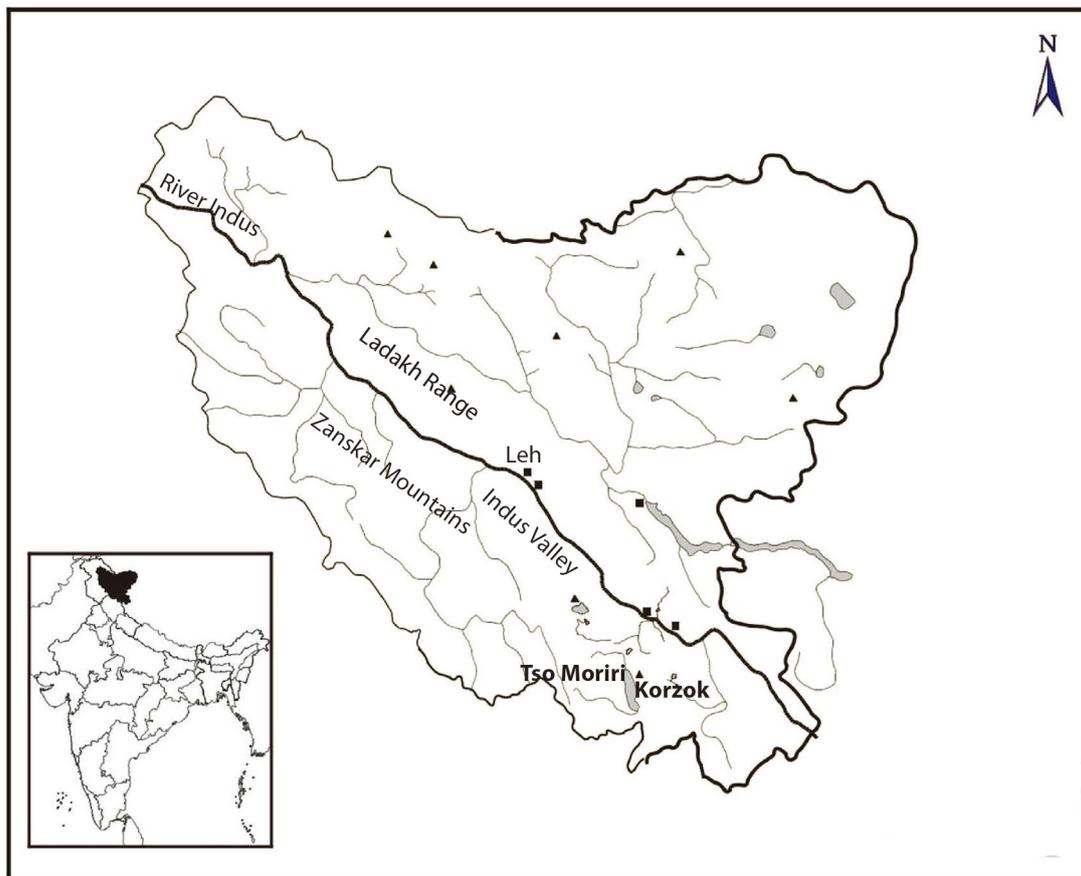


Figure 1: Map of the Tso Moriri-Korzok Wetlands. (Adapted from Management Planning Tso Moriri-Tsokar, a framework 2007; Department of Wildlife Protection, Government of Jammu and Kashmir)

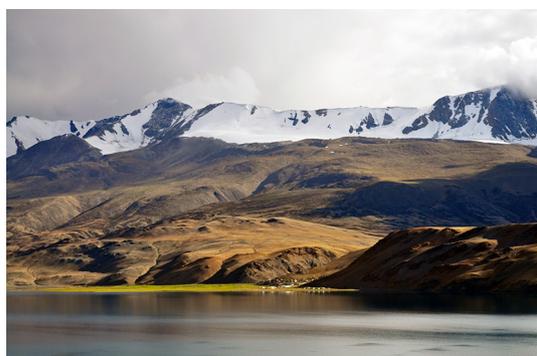


Figure 3: Village of Korzok on the shores of Tso Moriri (© Radhika Kothari)

Known for its rich biodiversity and geological formations, the area is protected under the Changthang Cold Desert Sanctuary. It is also locally protected as the Tso Moriri Wetland Conservation Reserve and is an international Ramsar Site (Gujja et al. 2003).

Like much of Changthang, the Changpa, known to have arrived from Tibet in the eighth century CE, populate the site (Jina 1995). The Changpa are mainly nomadic pastoralists, who rear the pashmina goats, sheep, and yaks, move at altitudes ranging between 4000m to 5500m asl across the Changthang plains with yak wool tents called 'rebos' (Chaudhari 2000). While less

than 1% of the geographical area in Changthang is cultivated, most of the vegetated zone is used by the Changpa nomads as grazing grounds (Rawat and Adhikari 2002). A small number of the Changpa, known as 'yulpas' (literally translated as village settlers), live in the village of Korzok, located at the northern end of the lake.

2.2 Sacred landscape

Tso Moriri holds immense cultural and ecological significance in Changthang. In 2000, the World Wide Fund for Nature (WWF-India), along with the Buddhist Monastery at Korzok and the local community, pledged Tso Moriri as a Sacred Gift to the Earth (WWF 2001). Following which, the local monastery regularly conducts religious ceremonies at the banks of the lake for the well-being of all living creatures and for the sanctity of its waters. It is also considered a gesture of gratitude for the lake and its life-supporting qualities.

The Changpa also revere wildlife as a matter of religious belief and custom; for example, the arrival of the endangered black-necked crane is considered highly auspicious and is seen as a very good omen for the year. These evident, eloquent interfaces between the cold desert ecology and the

Changpa have always defined this scared landscape (Bhasin 2012).



Figure 4: Changpa in traditional attire (© Radhika Kothari)



Figure 5: Stone balance and prayer flags at a mountain pass (© Radhika Kothari)

2.3 Outstanding universal value for World Heritage nomination and present limitations

In early 2000, there were plans to nominate Tso Moriri as a World Heritage site (Gujja et al. 2003). While the local community wasn't involved in the process, given the paucity of data and administrative processes, the idea was dropped. Later, in 2015, the entire region of Ladakh was included on India's Tentative List for World Heritage. Named as the 'Cold Desert Cultural Landscape of India,' the proposal highlights the Buddhist roots and Tibetan affiliations of Ladakh.

Nonetheless, given the exceptional natural and cultural values of Tso Moriri, it could well qualify

as a Mixed Cultural and Natural Heritage site under the following criteria:

Criteria (iii), (v) and (vi): The Changpa, who have inhabited the harsh landscape for several centuries, display a complex interface with nature that resonates in their customs, land use, local knowledge, and spiritual beliefs, and are currently threatened by changing socio-economic and anthropogenic climate threats.

Criteria(vii), (viii), and (x): The Trans-Himalayan region represents an important biogeographic zone that, despite its sparse vegetation, supports a number of endangered and threatened species. Apart from climate threats, the lack of calculated strategies and burgeoning tourism could further degrade this fragile ecosystem.

3. Management, State of Conservation, Threats, and Vulnerabilities

3.1 Management

Tso Moriri is administratively governed under the Nyoma Block in the Leh district of Ladakh. Moreover, being a wetland reserve within the Changthang Cold Desert Sanctuary, the site comes directly under the jurisdiction of the Department of Wildlife Protection, Government of Jammu and Kashmir, India. The Department is responsible for the overall management of the lake and a dedicated ranger officer is present in the village of Korzok. In addition, the local community, along with WWF-India, formed the Tso Moriri Conservation Trust that was envisioned to supervise, conserve, regulate camping, and vehicle movement around the lake. However, there is much left to do in terms of ground-work in the lake catchment areas and in the village of Korzok, which is constantly under threat due to tourism, unplanned development, and the constant onslaught of climate variability with each passing year given the lack of local action.

3.2 State of Conservation, threats, and vulnerabilities

Ecological and climate change

Despite representing a unique ecosystem in terms of biotic resources (Rawat et al. 2002), there has been little effort to understand the rich biodiversity (Namgail et al. 2005), the impact of climate change, and the associated vulnerabilities in Changthang.

The studies from the Tibetan side of the Changthang Plateau indicates the thinning of

glaciers, erratic precipitation patterns, and the increase in the minimum temperature during winter has been affecting the vegetation and grasslands (Yang et al. 2012; Liu et al. 2000; Wilkes 2008). For Ladakh as a whole, which shares a similar geography and altitude, the impacts of global climate change have been prominent in the form of extreme heat, cold waves, flash floods, and pest invasions. Meteorological data, recorded by the Indian Air Force, shows that the temperature in the region rose by 1o C over the last 35 years (Kumar 2009).

Observations and community perspectives from Changthang also corroborate a substantial decrease in snowfall over the last 20 years, which is directly affecting changes in species composition and the decreasing productivity of grasslands. In the recent past, there have been unprecedented extreme events in Changthang, like the 2013 snowstorm that submerged the region in heavy snow for months, resulting in a loss of uncountable wildlife, particularly the Tibetan wild-asses, Blue sheep, Tibetan wolves, and more than 60,000 pashmina goats – rendering a huge economic loss for the Changpa nomads. Likewise, the shrinkage of smaller islands within the lake area is evidence of the changing climatic conditions and habitat degradation which is directly affecting and impacting the breeding grounds for the Bar-headed geese and other waders (Chandan et al. 2007). Other factors, like increasing tourism and a large number of vehicles moving outside the designated road or tracks, are also causing massive disturbance to the wildlife. Additionally, most tourist campsites around Tso Moriri do not have solid waste disposal and sanitation facilities, further damaging the fragile ecosystem (Chandan et al. 2007).

Socio-economic changes

Even for the Changpa nomads, who have co-existed for centuries in relative harmony with nature and wildlife, have experienced massive changes due to geopolitical conflicts. The shifting borders have led to a loss of winter pastures, salt trades, changes in livestock holdings, and local governance patterns. Additionally, despite the rich resources, the potential for improving the quality of life for the Changpa has remained largely untapped, forcing younger generations to forsake the traditional way of life to find newer economic opportunities in the city (Bhasin 1999 & 2012; Goodall 2004). The Changpa, who have been known to develop a diverse range of strategies, institutions, and networks to minimize unpredictability and risks, are now amidst times when it may or may not be sufficient (Bhasin 2012).

For example, the rotational traditional pasture management system, wherein certain pastures are left untouched for natural regeneration, could also be under threat due to degradation. More so, the exact impact of climatic change in the region is yet to be fully understood; therefore, it is not easy to evaluate the impact of the rapidly changing conditions on the Changpa pastoralist lifestyle.

Additionally, the local people, who have always revered the natural elements, such as the lakes, mountains, and birds, along with their Buddhist worldviews, are facing cultural incursions with unregulated tourism. Unplanned development activities, the lack of dialogue among development agencies, and inconsistent policies are reducing their adaptive capacity and thereby increasing the overall vulnerability of the Changpa nomads and their natural setting (Chandan et al. 2007; Namgail et al. 2007).

In the face of the increasing accounts of threats to nature, people, and the vast expanse and remoteness of the Changthang, there is a pressing need for appropriate disaster preparedness, aligning strategies, and the convergence of experts, local government authorities, state, and central administrative services.

■ 4. Mapping Nature-Culture Linkages

There is a growing concurrence for the obvious evidence of a co-relationship between biodiversity and human diversity, with some of Earth's last areas of highest biological diversity inhabited by various indigenous people (Posey 1999) additionally, the Declaration of Belem (1988) that calls an 'inextricable link' between biological and cultural diversity. However, there is little in way of policy, practice, action, or evidence that showcases nature and culture linkages within conservation organization, stakeholders, and other dialogues (Maffi et al. 2010).

In the case of India, there is an urgent need to integrate systems, which are inherently interrelated and interdependent, into policies and well within the purview of natural and cultural heritage conservation. Using this premise, the Jungwa Foundation's one-year pilot project re-examines the Ladakh's Tso Moriri-Korzok landscape in Changthang to showcase the interaction of natural-cultural elements. We will be mapping and documenting specific nature-culture elements, such as nomadic migratory routes, summer/winter settlements, tangible cultural sites, sacred sites in

tandem with significant habitats of endangered wildlife and migratory birds, and landscape features, such as lakes, glaciers, mountains, wetland boundaries, rivers, and streams. Thereby, creating a detailed map to create 'hotspots' that showcase interdependencies, interactions, or overlaps between cultural and natural systems.

The mapping exercise is meant to act as a visual element that supports this co-relation between local communities, socio-cultural, and natural ecosystems. Herein, it is a mechanism to demonstrate the movement or interactions of the Changpa nomads in tandem with the natural or biophysical elements in the landscape. It will also establish the mutual co-dependence or influence the landscape has had on the Changpa nomads and their way of life. Given the complexity of overlaps due to the altitudinal gradients, a cartographic map can enable a true representation and forge a better understanding of the nature-culture linkages. As pointed out by Stepp et al. (2004) such maps can serve as an invaluable tool for stakeholders, educators, policy analysts, and decision-makers so that they can adopt appropriate land management policies that can protect and conserve the nature-cultural diversity in different landscapes.

The creation of this cartographic map, which clearly depicts cultural, historical, environmental, and practical data from the Changpa, can be used for planning, management, and other zonation plans around the wetland ecosystem. While this is only a pilot project, the map is not an end in itself (Stewart 2007), but rather an instrument to strengthen management and conservation efforts within the traditional communities that have been previously understated or overlooked for practical application and management. To further support their relationship with the land, the project is also documenting folklores that represent or are in appreciation of the natural beauty of the landscape. For example, the local mythological stories that praise the migratory birds, the lake formation, or the Changpa worldview of harmony of the three realms of life, wherein Gods (*lha-yul*) are at the top, the underworld spirits/deities (*yog-lhu*) below, and Earth, inhabited by humans and animals (*bar-tsan*), is in between.

Additionally, the project includes the development of a comprehensive program designed around the well-being factors, with a specific focus on a livelihood project aimed at bolstering the traditional woolen weaves of the Changpa nomads. This reemphasizes the sheer wisdom of the Changpa

nomads, who have interacted with this harsh landscape for over centuries and are indispensable to the socio-ecological crisis in Changthang. Thus, by combining their traditional knowledge practices and worldly wisdom with modern science, as a means to enhance the adaptive capacity, this will eventually promote resilience of both the people, cultural systems, and their natural surroundings. Ultimately, the project's goal is to develop a model of nature-culture heritage commonality that is more sustainable, resilient, and replicable in other mountain regions, especially in the light of climate change.

■ 5. Conclusion

Tso Moriri is one of the most important wetland ecosystems in the Trans-Himalayas. Scientific studies have repetitively highlighted the importance of the breeding grounds near the lake for several species of birds. However, there is much to learn from the Changpa worldviews and their interactions with the landscape. The engagement of the Changpa and their traditional systems, especially in regard to the use of landscape, knowledge of species, and perspectives of belongingness, could greatly add to the present scientific understanding and conservation efforts, thereby giving it a more holistic approach. This mapping project is one such tool to showcase the overlaps and the interactions as well as the movement of the Changpa nomads across the landscape. The map offers planners the opportunity to inculcate the Changpa use of the landscape, their historical considerations, and cultural reverence while developing key zoning or management plans. Furthermore, the management plan for the Tso Moriri wetlands, which calls out for the greater community's participation and multi-stakeholder engagement, could be initiated through such a mapping exercise.

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