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Reindeer herding in a changing world – a comparative analysis

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Introduction

Imagine for a moment that you wake up one morning: Getting out of bed, you look out of your window and discover that a lot of snow has accrued during the night. You start to panic: how will your livestock do in this weather? The snow is too deep for them to dig through to find fodder and they are therefore at risk of starving to death. Luckily, you can move your herd to another pasture that you have saved just for such an emergency: To get there, you need to move through pastures that have been used by your neighbours and collaborators for many years. On the way you discover a newly erected fence that stops you dead in your tracks. At the same time one of your former collaborators, quite angry, tells you to turn around. He says that you cannot move on because this is now his 'private' pasture area not open for anyone else.

While a somewhat caricatured story, strangely enough it is a description that fits the situation currently facing herders on the Qinghai-Tibetan Plateau¹ and might as well be the future for reindeer herders in the Arctic parts of Norway. On the Qinghai-Tibetan Plateau, re-allocation of grazing areas and fencing has been going on since the early 1980s² and has already resulted in war-like conditions. A dispute relating to grazing rights resulted in the deaths of at least 29 Tibetans between 1997 and 1999: starting small, the dispute soon escalated into periodic armed fighting, involving some 2,000 fighters using automatic and semi-automatic weapons.³ In the Arctic, the Norwegian government is

currently in the process of privatising previously semi-common winter pastures as this is assumed to be an important prerequisite for developing a sustainable reindeer husbandry.

As privatisation is currently happening in Norway, we do not really know how, if at all, it will affect reindeer herders. Nevertheless, a substantial amount of comparative evidence exists that can be used to critically investigate the current policy and its possible effect on reindeer herding, that is, developing scenarios for reindeer herding. Pertinently, the Qinghai-Tibetan Plateau has a cold climate and is covered by cold grasslands that are similar to the cold grasslands of dry-tundra regions of the Arctic,⁴ making it a useful comparison. Scenarios are a way to envision possible futures and while they are sometimes understood as being a prognosis for the future, here scenarios are better conceptualised as storylines about how the future might unfold.⁵

Comparative aspects of land tenure privatisation

In general terms, nomadic pastoralists have traditionally owned animals privately: rangelands have been owned – or at least regulated – informally by groups of herders. The underlying rationale for the privatisation of pastures is usually twofold: on the one hand it is driven by a desire to develop pastoral societies. In this light privatisation makes perfect sense because it renders pastoralists less mobile and thus enhances governmental objectives of providing basic social services such as education and health. Mobility has led governments to look at pastoralists as ‘backward’, lacking the technological level and skill to successfully exploit their existing adaptation. Thus, in many areas of the world large governmental sedentarisation programmes have been established to raise the technological level, and to enhance the profit of pastoral production.⁶ But it also provides a form of governmental control lacking when pastoralists were constantly on the move – not only within sovereign national states, but also across state borders.

On the other hand, there has been an interconnected concern of sustainability: it is assumed that pastoralists are trapped in social dilemmas where individuals act independently and seek to maximise short-term gain to the detriment of collective benefits.⁷ Hardin – with the introduction of the ‘Tragedy of the Commons’ (ToC) – provided a framework predicting that pastoralists would increase stocking rates to such a degree that overgrazing was inevitable; in other words pastoralists are ‘overstockers’.⁸ This implies that pastoralists are unable to establish

rules and norms that minimise, for example, overgrazing:⁹ it is a widely held belief that common ownership of land coupled with private ownership of livestock and the lack of a strong state provides incentives to degrade the environment.¹⁰ Consequently, nomadic pastoralists have been viewed as non-rational, and professionals and governments have seen problems, such as pasture degradation, as *inherent* in the nomadic pastoral adaptation.¹¹

Privatisation is thus occurring within an official debate pertaining to overgrazing and rangeland degradation. The debate in China is illuminating. There it is argued that increasing land degradation is caused by (1) increased livestock numbers (from approximately 29 million in 1949 to 90 million in the early 1990s) and (2) a decline in the area of available rangeland (around 6.5 million hectares were lost from 1949 to 1992¹²). Notwithstanding an apparent increase in livestock numbers, the evidence for degradation is somewhat tenuous: according to Harris,¹³ in 1999 the State Environmental Protection Agency estimated that one-third of China's grasslands were degraded, but in a very short time the figure that is often cited increased to 90 per cent without any obvious scientific reason (generally, estimates of degradation in China have been based on varying subjective measures and have been poorly documented – no systematic investigation has been undertaken¹⁴). Similarly, in Norway the official policy is based on the assumption that fixed grazing boundaries are a prerequisite for establishing an ecologically sustainable upper limit on the number of reindeer and will serve as a facilitator for rational resource use.¹⁵ In short, despite apparent differences in overall political systems, the decision to privatise pastures seems to be driven by a common ideology presupposing a ToC and overstocking in both Norway and China.

Land tenure

Land tenure can be defined as the relationship between people and the land, and the rules that regulate how the land can be used, possessed and redistributed;¹⁶ or as the mode by which land is held or owned; or by the set of relationships among people concerning use of the land and its product. Land tenure refers to the societal institutions (organisations, rules, rights and restrictions) that control the allocation and use of land and its associated resources.¹⁷ Generally, land tenure is often conceptualised as: (1) *commons* (common property) – land is treated as commons with no enforceable control over access to resources; (2) *reciprocal*

access (communal property) – there is reciprocal access between members of land owning groups; transfer of group membership (the foundation of property right) is easily negotiated; (3) *territoriality* (local group ownership) – strong control on local group membership and a reduction in reciprocal access; and (4) *private ownership* – ownership devolved to well-defined subsets of local groups (e.g. kin groups or individuals).¹⁸

A chronology of land tenure changes in Tibet and Norway

For both Tibetan herders in China (*drokba*) and Saami reindeer herders in Norway, the basic unit of social organisation is the household, a nucleus or stem family. Traditionally, households often combined together and formed small cooperative groups that shared nearby pastures, called *ru skor* in Tibet¹⁹ and *siida* in Norway.²⁰ In some parts of Tibet, *ru skors* were aggregated into higher order groups called *tsowa*.²¹ The *tsowa* has been predominantly described for the east and was organised around a lineage of a particular founding patrilineal clan that controlled bounded tracts of land.²² While the land rights of *tsowa* were fixed – unless and until other tribes took them by force – the rights of individual *ru skor* were fluid.²³

In contrast, nomads in the central and western parts were all under direct state control.²⁴ In principle, all of the land in Tibet was owned by the central government in Lhasa, which distributed the land among the aristocratic families, great incarnate lamas and monasteries for their upkeep and support. The nomads had to pay taxes and provide labour services to the institutions; in return the lord had to maintain law and order.²⁵ Pastures were re-allocated at three-year intervals based on the herd size of individual households. Additional pastures were allocated to households whose herds had increased, and pastures were taken away from those whose herds had decreased.²⁶

In Norway, the *siida* seems to have been the highest social aggregate, but following the Reindeer Law for Finnmark, from 1854 reindeer herding was formally (and physically) separated into different summer districts.²⁷ Winter pastures on the interior constituted an overlapping quilt due to an absence of physical obstacles and because they were less formally governed.²⁸ While pastures were technically Crown land, the *siida* formed the basis for user rights both within districts during the summer and on the winter pastures. In other words, the customary tenure system was based on *siida* user rights (albeit informal). While winter

pastures were *informally* regulated according to *siida* membership – that is, Saami reindeer herders had a clear understanding of the fact that different winter pasture areas belonged to different *siidas* – when in need everybody had a right to access alternative pastures.²⁹

In Tibet, the traditional system was effectively dismantled during a period of collectivisation. The Cultural Revolution – a campaign to destroy the ‘four olds’, that is, the old ideas, old culture, old customs and old habits – arrived in Tibet in the 1970s and almost destroyed the nomads’ way of life.³⁰ While the pastoral technology stayed the same, ownership of livestock and decisions regarding production were transferred from the household to communes, the collective production units.³¹ Under the traditional system, only the distribution of pastures was controlled by the state; after the Cultural Revolution all aspects of economic and social life were fixed by state policies. Pastoralists were the subjects of commune leaders, and received work points, or ‘stars’, for their labour. The work points became the basis on which they got food, goods and cash.³²

The Saami herders in Norway never experienced anything as disruptive as the Cultural Revolution. Nevertheless, while both the *siida* and household retained their positions (the household in some sense became strengthened at the expense of the *siida*³³), the traditional tenure system was dismantled with the 1978 Act. This Act introduced a system whereby the Saami own their herds while the rangelands – owned by the Crown – are administered by the Ministry of Agriculture through the Reindeer Herding Administration which plans and regulates the distribution of herds and the grazing time schedule.³⁴ The most disruptive aspect of the Act redesignated the autumn/spring and winter pastures as ‘commons’. It has been argued that as the 1978 Act did not incorporate any system for managing the pastures, it effectively ‘led to the exclusion of the customary tenure system and, in the absence of a functional alternative regime, created *de facto* a situation of open access to resources’ (p. 215).³⁵

In the 1980s the communes were dissolved in China and the Household Responsibility System (HRS) was introduced.³⁶ In short, the HRS re-established the household as the basic unit of production and management decisions were largely devolved to households. For pastoralists, the HRS was implemented in two stages: first the privatisation of livestock and second the privatisation of rangelands.³⁷ Since the dissolution of the commune system, Chinese government policies have emphasised that individual household tenure is a necessary condition for sustainable rangeland management³⁸ as well as increased production.³⁹ By the end of 2003 around 70 per cent of China’s usable rangeland was

leased through long-term contracts, where 68 per cent was contracted to individual households and the rest to groups of households or to villages,⁴⁰ although estimates vary.⁴¹ Consequently, the *ru skor* seems to have been destroyed in the east,⁴² while cooperative herding still occurs and provides a necessary component of effective livestock management in the west.⁴³

In contrast, in Norway the traditional cooperative *siida* system is being formalised and used as a basis for re-distributing winter pastures. Reindeer herding is usually organised into summer and winter *siidas*. The summer *siida* was formally recognised by the Reindeer Management Act from 2007⁴⁴ and is a more formal institution than the winter *siida*; the summer *siida* is required to have a board that facilitates the practical implementation of collaborative activities. Currently, there are plans to formalise the winter *siida*, primarily through establishing fixed *siida* grazing boundaries and user rules.⁴⁵ The redistribution can thus be viewed as a step towards increased co-management, as well as an attempt to reinstate power to the traditional *siida* system by giving *siidas* exclusive user rights to geographically delineated winter areas.⁴⁶ The *legal* consolidation of *siida* user rights, however, can be seen as a step towards the privatisation of grazing areas.

In summary, while in China the overall aim seems to be to *re-distribute pastures to individual households* (although both group tenure and individual tenure seem to coexist), in Norway there is a *collective re-distribution* of previously common/semi-common winter pastures.

Fragmentation, privatisation and density dependence

Privatisation as a source of fragmentation

Four global trends in rangeland land tenure change have been described: (1) the maintenance or expansion of state ownership and pastoralist use of rangeland; (2) the quasi-privatisation of state land or devolution to local control; (3) the privatisation of commonly used (often state-owned) land; and (4) the maintenance of private ownership and use with some consolidation or collaborative management of private lands.⁴⁷ As described in the previous section, rangelands in both China and Norway were owned by the state (or the lineage or clan in eastern parts of Tibet) but where groups/individuals had some form of user rights to designated tracts of land (albeit informal) and where reciprocal access was prevalent, pasture use was flexible. In contrast,

the rangelands in both countries are now being quasi-privatised so that individual households or groups have exclusive user rights, thereby limiting flexible pasture use.

Changing land tenure from commons to private can be viewed as beneficial: it might provide nomadic pastoralists with more control over their own lives as well as provide them with a legal basis for claiming and enforcing rights vis-à-vis competing interests.⁴⁸ Privatisation, however, is often followed by *fragmentation*: the dissection of landscapes into spatially isolated parts,⁴⁹ often through fencing.

To understand the effect of fragmentation we have to consider how resources are distributed in time and space. In general, fragmentation is only a problem if key resources are distributed unevenly in space (or time). If not, all important resources are present in the fragmented patches (Figure 7.1A).

In contrast, if key resources are distributed unevenly – for example some areas have better quality grass than others, water holes utilised by livestock are only present at some places as in Africa, winter pastures differ from summer pastures as in Tibet and Norway – fragmentation represents a problem because it might destroy the connectivity between important resources. Fencing has the potential to break the connectivity between differentially distributed pasture areas. Due to the high altitude on the Tibetan Plateau, the growing season is short. It starts in late April or early May, and ends in mid-September. The winter pastures are thus especially sensitive: the amount of vegetation left by the end of summer must sustain the livestock until next year's growth begins. This results in a pattern where winter areas are 'saved' for grazing during seasons with no vegetation growth.⁵⁰ Fencing is a viable option for protecting these important grazing areas – and has in fact been supported by the Chinese Government through subsidies for the costs of buying and erecting them.⁵¹ The problems arise when everyone fences their 'private' summer and winter pastures: since they are located in different areas, moving between them becomes difficult (Figures 7.1B and 7.1C).

The fact that pastoralists have traditionally been mobile seems to indicate that resources are, in general, distributed unevenly in both time and space.⁵² It appears that this simple fact has not been considered in any process of privatising rangelands. Instead, the number of livestock per household has provided a guideline for calculating how much area that household would need as its own private grazing area. In other words, there has been no consideration of the quality or quantity of the different grazing land – and when it has, it has favoured the powerful herders, where they have secured access to the best and largest grazing areas through political influence, as seen in Inner Mongolia.⁵³

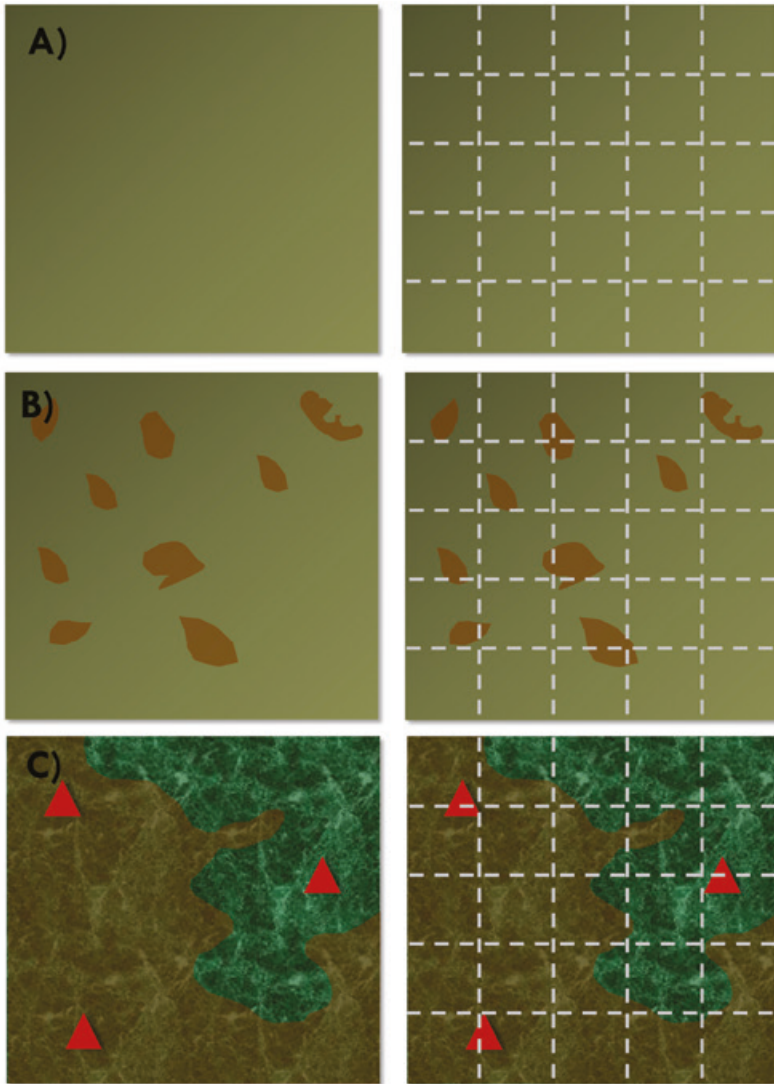


Fig. 7.1 (A) Even distribution of grazing resources – fragmentation by fencing would not be a severe problem as long as the quantity within each patch is sufficient (right panel). (B) Uneven distribution of grazing resources where darker patches represent poor grazing resources. Fragmentation by fencing would represent a problem depending on which patch you occupy (right panel). (C) Uneven distribution of grazing resources and water points (triangles) in time and space. Left corner with darker colour represents summer grazing while right corner with lighter colour represents winter. Fragmentation by fencing would represent a severe problem as herders would have to cross neighbouring patches – owned by other herders – to travel from winter to summer pastures as well as when accessing water points (right panel) (Source: author).

Density dependence and density independence

From an ecological point of view, it is often argued that populations are *regulated* by density-dependent factors (competition, predators, stress, parasites, etc.) and *limited* by density-independent factors (climate, temperature, light, latitude, etc.). The overstocking paradigm takes as its starting point the primacy of density dependence: livestock and pastures are regulated by grazing pressure alone. In contrast, in the early 1990s range ecologists and anthropologists started to argue that livestock and pastures are limited by external factors such as climate (density independence), especially in arid and semi-arid areas.⁵⁴

In systems characterised by density dependence, sustainable levels of grazing are relatively easy to calculate: it can be defined as a relationship between vegetation and livestock. Negative livestock or vegetation growth is seen as a symptom of overgrazing. This is usually conceptualised as carrying capacity: the basic idea being that as livestock numbers increase, available food decreases, which over time negatively affects livestock numbers. The trick is to keep livestock numbers at a stable level – through harvest – creating a balance between numbers and available food.

The problem, however, is that no system is as simple as this: climatic factors like snow or drought negatively affect vegetation irrespective of livestock numbers. In other words, carrying capacity might vary depending on climate. Pertinently, there are also indications that density-dependent and independent effects interact negatively: it has been shown that population growth rates or survival vary more at high density, for example density-independent effects can be stronger at high densities.⁵⁵

The form of density dependence of interest here relates to food availability: as the number of animals increases, competition for food also increases. In general, with more animals, less food is available per individual animal. With less food available, body mass decreases; this is important because there is a positive association between body mass, survival and reproduction.⁵⁶ Livestock with poor nutritional status are also more susceptible to disease.⁵⁷ Livestock usually gain body mass during the good season (e.g. summer) in order to survive the lean season (e.g. winter): in reindeer husbandry in Finnmark, Norway, for example, there has been a decreasing trend in reindeer body mass⁵⁸ and, in 2010, there was a news report that reindeer were starving to death on their way to winter pastures.⁵⁹ According to the report, large herds of reindeer moving to winter pastures trampled the vegetation, leaving little food available to subsequent migrating herds.⁶⁰ The obvious paradox is that

at this time the reindeer should be in good condition having gained body mass during summer. Previously, starvation was mainly seen during a harsh spring or early summer⁶¹ when the reindeer were in poor condition having lost body mass during the winter season.

This form of density dependence does not necessarily indicate increasing numbers of animals – it might also be caused by animals staying too long in a given grazing area, as this does not allow the pastures time to recuperate. Traditionally, both forms of ‘overuse’ have been offset by moving and changing grazing areas at regular intervals.

Discussion

Land privatisation creates a paradox for pastoralists: They need both flexible and secure access to land to ensure future grazing, but if they settle on that land to secure it, their lack of movement means poorer livestock production. Often settlement by one family denies other community members access to common resources and interferes with traditionally coordinated grazing systems, especially in times of scarcity (p. 226).⁶²

Reduced mobility, intensification and degradation

Mobility has been described as a rational response to seasonal environmental variation.⁶³ This is fairly obvious when considering large-scale phenomena such as the location of grazing areas. Consider, for example, the migratory pattern of reindeer herders in Norway where some herds move up to ~170 km from winter pastures on the interior to summer pastures along the coast.

Mobility can be classified according to the spatial extent of movement. The seasonal migratory patterns of reindeer and herders are influenced by both climate and geography: for reindeer, the most important diet during the winter is ground lichens which are commonly distributed in relatively dry continental areas.⁶⁴ Similarly, as indicated earlier in the chapter, Tibetan herders set aside grazing areas that are only utilised during winter. In other words, the migratory pattern between summer and winter pastures meets the different seasonal needs of livestock,⁶⁵ a form of mobility often termed *resource exploitation mobility*.⁶⁶

On a smaller scale, there is *escape- or micro-mobility*: movement in order to escape environmental hazards.⁶⁷ Tibetan nomads move their

herds quite frequently within different seasonal grazing areas, and sometimes even cross into another seasonal grazing area if necessary. Heavy snow during the summer, for example, causes problems: since sheep and goats are poor diggers, the nomads have to wait to bring the sheep and goats out to graze until after the snow has melted. Nevertheless, since it can snow continuously for days on end, it may be impossible to take the animals to the summer pasture. As a consequence, nomads often have to utilise areas reserved for winter grazing during the summer. These winter areas are further from the mountains and thus relatively free from snow during the summer. The ability to move is thus not only restricted to seasonal utilisation of different grazing areas, but also incorporates the ability to respond flexibly to day-to-day variation in climatic factors such as snow.⁶⁸

Mobility in the face of environmental risks has been argued to undergird the survival of most nomadic pastoralists⁶⁹ and for centuries pastoral mobility has provided herders with the flexibility needed to survive in patchy, unpredictable and low-productivity environments.⁷⁰ Little et al.⁷¹ argue that mobility is the key pastoral risk management strategy; pastoralists who migrate with their herds have considerably fewer livestock losses during climatic disasters than their sedentary counterparts. More to the point, mobility allows pastoralists to take advantage of resources found in different habitat types and thus supports more animals than would be possible if they were stationary.⁷²

Pastoral movement therefore seems to be a rational strategy aimed at dealing with the vagaries of the herding lifestyle. Nevertheless, the same strategy has been considered unsustainable and non-rational by national governments all over the world.⁷³ In fact, privatisation has been implemented as a countermeasure to what has been considered an unsustainable resource use: the assumption being that open access of privately owned livestock to common rangeland has led to severe rangeland degradation. In short, privatisation is assumed to be an efficient tool to combat rangeland degradation.

In contrast, it has been noted in Africa that areas with concentrated use are marked by severe and spreading degradation of vegetation and soils, leading to lower herd productivity and increased herd size requirements to meet household needs. In turn, this accelerates environmental degradation and the probability of poverty.⁷⁴ Crucially, privatisation and fragmentation have resulted in an increased concentration of both people and livestock in small areas leading to increased grazing intensification and consequent rangeland degradation.⁷⁵

In Maqu County (eastern part of the Qinghai-Tibetan Plateau) two grassland management patterns currently exist: (1) a traditional multi-household system where grassland is jointly managed by two or more households with no fences between individual households and (2) a single-household system where grassland is separately managed by one individual household and is fenced. A study comparing the respective benefits of the two management patterns found that multi-households were more mobile and that the single-household pattern was more likely to cause rangeland degradation.⁷⁶ A study looking at rangeland conditions over time found that while there was no significant difference in 2009, by 2011 multi-household grasslands had significantly higher biomass, vegetation cover and species richness than single-household grasslands.⁷⁷

One study in Inner Mongolia – an area experiencing high level of degradation since the 1980s – reported that ‘it is reasonable to assume that the property rights regime change [i.e. privatisation] might be one of the reasons for grassland degradation’ (p. 465)⁷⁸ and may in fact have accelerated degradation.⁷⁹ The same has also been argued for Kyrgyzstan where the ‘[p]rivatisation of livestock and decreased mobility of herders has in turn led to increased use of pastures immediately around villages, resulting in extensive pasture damage, proliferation of unpalatable woody plant species and large slope failures in these areas’ (p. 193).⁸⁰ A study comparing changes experienced by pastoral societies and their environments in Mongolia, Inner Mongolia, Xinjiang, Buryatia, Chita and Tuva, found that the highest levels of rangeland ‘degradation was reported in districts with the lowest livestock mobility; in general, mobility indices were a better guide to reported degradation levels than were densities of livestock’ (p. 1148).⁸¹ In short, due to fragmentation and subsequent reduced mobility, privatisation has been found to exacerbate the same effects it was introduced to counter; the underlying reason being that fragmentation increases density dependence.

The erosion of cooperative networks

The *siida* and *ru skor* systems were small cooperative networks, based on kinship, that flexibly formed and reformed according to both external (e.g. pasture) and internal (e.g. population growth) factors.⁸² The *siida* and *ru skor* were cooperative groups based on close kinship ties allowing members to: (1) maintain face to face communication; (2) monitor each other; and (3) punish individuals who broke the rules. These are all characteristics that to a large degree favour cooperation and deter

free riding tactics.⁸³ The *siida* and *ru skor* were fluid and dynamic, their composition could change as a result of expulsion, or alternatively some households left the group and changed partners because of a transgression of rules connected to, for example, the sharing and exchange of labour.⁸⁴ Moreover, they have been described as changing according to season: the *siidas*, for example, were smallest during spring calving and largest during the summer.⁸⁵

The inherent seasonality of cooperative group formation was also present among Tibetan herders: since environmental, demographic, political and social conditions vary during different seasons and at different locations, the *ru skor* also changed in size over the course of a year.⁸⁶ The importance of cooperative production has been demonstrated theoretically⁸⁷ as well as empirically among reindeer herders in Norway, indicating that pastoralists with extensive cooperative networks do better than pastoralists with less extensive networks.⁸⁸

Privatisation and fragmentation may not only break resource connectivity, but also *social connectivity* by dismantling the traditional cooperative networks. As indicated earlier, the *ru skor* seem to have been destroyed – or at least have diminished in importance – on the eastern parts of the Qinghai-Tibetan Plateau. In general it has been argued that privatisation may break up already existing group organisation and prevent ‘effective cooperation in herd and rangeland management within and among pastoral communities’ (pp. 141–2).⁸⁹

From a general point of view, mobility – specifically the movement of people – has been found to be an important prerequisite for cooperation. The logic is as follows: imagine that you work together in a group with other herders. Suddenly you discover that some of your fellow herders never contribute to common tasks, for example they stay in the tent rather than helping with herding or during shearing they gladly accept help with their own animals but never help out when other herders shear wool from their animals. Traditionally, you would have been able to change group – it is most likely that you would have had family in another group that you could move to. Not surprisingly, the ability to move or change groups is a deterrent for free-riders: the ability to move away allows would-be cooperators to assort positively as well as limit the rate at which cooperators are exposed to defectors. Known as the ‘walk-away’ hypothesis,⁹⁰ there are strong indications that simply providing the option to move allows cooperation to persist for a long period of time.⁹¹ It is difficult to see how such a flexible system of group formation can be upheld in a system with privatised and/or fenced grazing areas that cut across

former cooperative groups. Similarly, if group membership becomes consolidated through the legal system – as is the plan in Norway – transferring to another *siida* might become difficult for individual herders. In short, positive assortment, facilitating cooperation, might be limited with land tenure privatisation.

In addition, it has been claimed that privatisation has resulted in increasing levels of conflict and created the potential for new disputes, because fuzzy boundaries are open for negotiation while fencing in rangelands precludes negotiation.⁹² Moreover, privatisation seems to have changed the nature of conflicts: previously conflicts occurred primarily *between groups*, now conflicts occur between *individual (former) group members*⁹³ and also between family members (usually brothers) and neighbouring households.⁹⁴ In short, formerly cooperative relationships may have been transformed into competitive relationships.⁹⁵ Privatisation has also resulted in increasing differences between poor and rich herders: For example, in Inner Mongolia in the 1980s those with the means to enclose land did so – effectively a first-use principle for those with most power. This intensified economic exploitation and encouraged more irregular grazing practices.⁹⁶ Powerful and rich herders therefore enjoyed a tremendous advantage in the local competition for present and future grassland resources; some have enclosed far more than their allotted share.⁹⁷

Concluding remarks and future prospects

While discussing the significance of *place* in the construction of anthropological theory, Appadurai⁹⁸ makes a number of observations relevant for this volume's focus on Arcticness. Appadurai⁹⁹ notes that there is a tendency for places to become showcases for specific issues over time and thus might restrict theoretical discussions locally as well as exclude other relevant issues. Appadurai cautions us to ask:

whether these gatekeeping concepts, these theoretical metonyms, really reflect something significant about the place in question, or whether they reveal a relatively arbitrary imposition of the whims of [anthropological] fashion on particular places (p. 358).¹⁰⁰

Arcticness as a 'quality of being Arctic' – as Medby writes in the preface of this book – has the potential to become a theoretical construct linked to a specific place, that is, the Arctic, that excludes other lines of inquiry.

It also has an explicit *ontological* connotation: while anthropology has had a long tradition of documenting different ideas of what 'is' and how to 'be', it has always been firmly rooted in the idea of a common humanity shared by all people in all cultures.¹⁰¹ Currently, however, *the ontological turn* posits a move from different worldviews to different worlds altogether; from reality to realities; from variations of how to be human to emphasising incommensurable differences.¹⁰²

It is therefore important to critically investigate what exactly Arcticness denotes. Do we take it to mean ideas about being in the Arctic, for example Arctic worldviews? Or are we positing the Arctic as an ontological distinct lifeworld where the quality of being Arctic unfolds? If the former, then Arcticness becomes an unnecessary theoretical construct that we do not really need. If the latter, then we might reinstate the Arctic and the people who live there as the significant 'Other', fundamentally different. In other words, Arcticness might become a concept of exotification where we reify what it means to live and be in the Arctic. Because by adding '-ness' to the word Arctic, we seem to point to something qualitatively essential, immutable and unchanging with being (and living) in the Arctic, while in fact – as Medby points out in the preface – the Arctic is undergoing rapid changes on several fronts.

As shown here, a comparative approach is fruitful for understanding challenges facing reindeer herders in the Arctic parts of Norway. It might not tell us much about the 'quality of being Arctic' (or, in fact, it might not tell us anything about 'the quality of being a reindeer herder in the Arctic', which to me makes more sense, since it does not have the connotation of 'being a place'), but comparative evidence indicates that privatisation might result in a corollary of unintended consequences for reindeer herders: (1) reduced mobility and increased degradation; (2) increased conflicts and/or the development of social hierarchies; (3) a negative impact on efficient cooperation.

Concurrent with land tenure changes that reduce pastoralists' ability to respond to environmental variability by moving away from affected areas, environmental variability has increased during the last few decades and is predicted to increase further in the future due to climate change.¹⁰³ As for the Arctic and sub-Arctic, scenarios generated by most climate models predict that the climate is likely to become increasingly unstable during the next half century with concomitant increases in the frequency of extreme weather conditions.¹⁰⁴

A case has been made that pastoralists are in a unique position to tackle climate change due to extensive experience managing environmental variability in marginal areas¹⁰⁵ and it has been argued that the

ability to withstand environmental shocks is a *defining* feature of pastoralism.¹⁰⁶ Nevertheless, a case can be made that traditional pastoral risk management may be insufficient for dealing with climate change.¹⁰⁷

In theory – depending on the spatial scale of extreme weather events – mobility has the potential to provide pastoralists with recourse from the most detrimental effects of climate change because they may be able to move away from the affected areas (and thus increase the herds' recuperative potential). I have already discussed the relationship between survival and body mass: animals in good condition are better equipped to deal with harsh environmental conditions. They might survive for a longer period of time during a drought, for example, than those in poor conditions – basically they have a longer window of time to lose body mass before starving to death. In terms of climate change, where we expect – as well as have observed – that the frequency and duration of extreme events like drought, icing, snowstorms, etc., will increase, keeping animals in good condition seems to be an important strategy.

The apparent paradox is that privatisation and subsequent fragmentation has the exact opposite effect: it increases density-dependent food limitation for animals by either intensifying grazing in a limited area or circumscribing too many animals in a limited area, or both. With fencing restricting movement, pastoralists have inadequate opportunity to offset these effects: it is therefore expected that – on average – body mass and condition decrease, making livestock more susceptible to environmental hazards. It should come as no surprise, then, that it has been argued that it is not climate change by itself that is problematic for pastoralists but rather 'the limitations imposed on pastoral coping and development strategies, especially their ability to move and to access critical resources in different territories' (p. 3).¹⁰⁸ Consequently, it may not be mobility *per se* that fails, but rather mobility in increasingly fragmented landscapes.

Another traditional and efficient strategy utilised by pastoralists to buffer environmental variation is herd accumulation.¹⁰⁹ Among Saami reindeer herders in Norway it has been shown that herders with large herds have comparably larger herds from one year to the next¹¹⁰ as well as before and after crisis periods.¹¹¹ While herd accumulation seems to be an efficient strategy, it is predicated on periods of recuperation when herd growth is possible. In fact, a delay in recuperation after environmental-induced losses has been argued to be one of the main problems of pastoral production.¹¹² Herd accumulation can thus be expected to work less efficiently, if at all, when the frequency of extreme events increases. Pertinently, cooperation is an integral part of pastoral

production and has been found to be prerequisite for efficiently accumulating herd size: pastoralists with extensive cooperative networks seem to do better – measured in terms of herd size – than pastoralists with less extensive networks.¹¹³

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Climate change and globalisation are opening up the Arctic for exploitation by the world – or so we are told. But what about the views, interests and needs of the peoples who live in the region? This volume explores the opportunities and limitations in engaging with the Arctic under change, and the Arctic peoples experiencing the changes, socially and physically.

With essays by both academics and Arctic peoples, integrating multiple perspectives and multiple disciplines, the book covers social, legal, political, geographical, scientific and creative questions related to Arcticness, to address the challenges faced by the Arctic as a region and specifically by local communities. As well as academic essays, the contributions to the book include personal reflections, a graphic essay, and poetry, to ensure wide and varied coverage of the Arctic experience – what the contributions all have in common is the fundamental human perspective.

Topics covered in the essays include indigenous identity and livelihoods such as reindeer herding, and adapting to modern identities; a graphic essay on the experience of Arctic indigenous peoples in residential schools; the effects of climate change; energy in the Arctic; and extractive industries and their impacts on local communities.

The book includes reflections on the future of Arcticness, engaging with communities to ensure meaningful representation and as a counterpoint to the primacy of environmental, national and global issues.

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