SOCIAL PROBLEMS OF THE LIVELIHOOD STRATEGIES AND FOREST CONSERVATION OF INDIGENOUS PEOPLE IN THE RUSSIAN FAR EAST

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INTRODUCTION

The indigenous peoples' livelihoods in the Russian Far East (RFE) have been notably changing after the collapse of the Russian Soviet Federated Socialist Republic. Especially with recent changes, as the people are trying to find ways to survive as they shift to a capitalist market economy that allows free competition the people are now at a turning point. It can be said that it is an adventure. The future of Russian vast forest resources is also strongly connected to social and economic changes.

As Russia encompasses a vast area, this paper we focuses on Primorskii Krai, Khabarovskii Krai and Republic of Sakha (Yakutia) in the Russian Far East where the author has carried out field studies during the past five years. The area is located from 120 degrees to 150 degrees East longitude, and from 43 degrees to 75 degree North latitude, and covers the Pozharskii district of Primorskii in the South and Eveno-Bytantaiskii ulus (region) on Republic of Sakha in the North. The main inhabitants I have studied are Udehe and Nanai and Ul'chi who inhabit the basin of the Amur River and Ussuri River. In the Republic of Sakha we have studied the Yakut, Even and Evenki, etc. These inhabitants are recognized as typical indigenous people who conducted hunting and gathering activities and cattle-breeding in the RFE. The forests of the area can be classified into five types: deciduous forest, boreal coniferous-deciduous mixed forest, boreal coniferous forest, forest tundra and tundra. In this report we describe each tribe's current status and problems from South to North according to our field research results.

First I intend to explain the research background and history on the topics. My major concern on the studies in the RFE is about 'correlations between environment and the inhabitants". In other words, I have been trying to grasp the structure of livelihood of indigenous people in the RFE and correlation between technological system and the environment from the perspective of hunting. The "livelihood strategies" mean the combination of several occupations and activities. The combination and structure was voluntarily constructed by indigenous people in close connection with environment. This environment" is used in the widest sense including nature and culture.

The livelihoods of the inhabitants have been greatly influenced by the politics and economy, or legal system and control ideology ruled by the governing classes. The natural environment also has strongly affected and limited their livelihood strategies. On the contrary, we cannot ignore the fact that the inhabitants positively manage nature for their purposes.

The vague subject of "correlation between environment and the inhabitants" focused on their activities in order to clarify the dynamism of adaptation through the livelihood strategies on the natural environment and cultural environment, which is grasped from observation and study.

Considering modern hunting, it is necessary to discuss it from the viewpoints of trade and market economy. Hunting, which is as a livelihood measure on condition with trade and money conversion, includes two systems: regional ecosystem as a production ground (environmental system) and market as a place for trade and money conversion (social- economic system). Hunting can be a means of living when is related to a market, and hunters may attempt to raise their potential to satisfy market demands. Getting higher potential means the increase of competitiveness in the market. There are three choices to obtain such advantage: to increase of harvesting rate in a regional ecosystem, to improve quality of harvest, or to reduce costs of hunting. These efforts will cause improvement of the hunting technology and the production processing system.

The demand of the market affects production processes, technology and the system under the modern market economy. Hunters as producers realize their security of livelihood in response to such market demands. This process is recognized as a technological adaptation to a market as an element of environment. Actors, who improve skills and the processing techniques, and seek the advantages of their product in the market, are hunters (inhabitants) themselves.

But the techniques which markets satisfy can not always match with the demands of hunting activities in a

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regional ecosystem. Actually, the hunter does not give a priority only to techniques with a high capture rate. We can find the difficulties of selection on the methods, the relation to the environment, the stance of hunting and their risk management.

Technological adaptation to the environment can be found not only in hunting but also in various other occupations. But when we consider the relation between inhabitants and forest in the RFE, this perspective is a useful tool for analysis.

DIFFERENT LOCAL PEOPLE (INHABITANTS) AND THE ENVIRONMENT

1. Overview of Forest Vegetation

The deciduous broad leaf forest is mainly composed of Mongolian oak which dominates on the lowland on the middle basin of the Amur River to the Ussuli River in the western Sihote-Alin Mountains ranging from Primorskii Krai to Khabarovskii Krai, the home land of the Udehe and the Nanai. Especially at the end of September, the autumn colored leaves of the deciduous trees such as Manchurian maple, Manchurian linden and Manchurian walnut are splendid.

Dr. Susumu Okitsu classified the forests in the area into five types as follows on the basis of the vegetation survey from the middle basin of the Bol'shaya Ussurga River (the branch of Ussuri River) to the Alm rive (Okitsu 1993:p562):

- deciduous forest mostly with Mongolian oak on the lowland of the lower part of the river;
- coniferous - deciduous mixed forest zone, " Korean pine - Coniferous broad leaf mixed forest" dominated by Korean pine and *Betula costate Traut* on the middle basin of the river;
- Yezo spruce - *Abies nephrolepis Maxim* forest on the upper basin of the river;
- Yezo spruce dominant forest or Yellow birch forest on the highest basin of the river reaching the main mountain ridges and the timber line;
- And creeping pine zone and mountain tundra above the timberline.

The distribution of forest vegetation described above is almost the same in all our research fields with small differences in elevation: the Bikin River basin in Krasnyi-Yar on Pozharskii raion (district) of Primoskii Krai for the Udehe, the middle basin of the Amur River in Naihin on Nanaiskii raion of Khabarovskii Krai.

On the alluvial plain, river terrace and oxbow lake, shallow and natural levee on the middle basin of the Amur River situated from 45 degrees to 50 degree North latitude, the following vegetation are growing;

- willows such as weeping willow and crack willow;
- tall deciduous tree species such as white birch, Manchurian walnut, Mongolian oak and *Tilia amurensis Rupr*;
- deciduous shrubs such as wild rose, hawthorn sp., bird cherry, hazel and snowball tree.

Scirpus sylvaticus and bulrush grow on wetlands of shallows and islands.

However, in the lower basin of the Amur River above 50 degrees North latitude, the vegetation changes drastically. Around the Nizhnii-kharbi village which is downstream of the Nanai, and the Kal'chom village of the Ul'chi where people of the Khabarovskii Krai Ul'chisukii raion village located in the downstream (north) and Ul'chi become subjects hits the boundary which shifts from the deciduous broad leaf forest to the coniferous forest as a village of people of Nanais to live in the Amur.

The deciduous forests, which appear to be secondary forest made by human impacts, are observed around the village, lake and river basin. On inland there are northern boreal forests composed of tall coniferous tree species like Yezo spruce, larch, spruce and pine. Our research collaborator, Dr. Shirou Sasaki pointed out that Nizhnii-kharbi is a boundary of vegetation as well as the habitat between the Nanai and Ul'chi. Based on the 19th century's documents of racial history, it was assumed that the vegetation boundary and the racial boundary of this region were recognized as the northern boundary of cultivation.

The Stanovoi Mountain, which lies from east to west on 55 degrees North latitude, are a watershed between the Amur River and the Lena River. The northern part is the Republic of Sakha where the Yakut and the Even live on.

The Republic of Sakha occupies about one-fifth of the lands of the Russian Federation and is almost eight times the area of Japan. The land covers the area from 55 degrees North latitude to 75 degree North. The greater part of the land belongs to the Arctic Circle, and the earth contains permafrost. The capital Yakutsk is located around 65 degrees North latitude on the river terrace in the left bank of the Lena River. This city is covered by boreal coniferous Taiga composed of Yezo spruce, Dafurian larch and fir. As for secondary vegetation, the silver

birch is dominant, and willows such as goat willow grow around rivers, lakes and marshes.

There are innumerable *alas* in the forest of central Yakutia around Yakutsk. As I will describe later, an "alas" is a hollow where the permafrost has melted, and is accompanied by meadow, lakes and dome shape hill, "pingo". Yakuts have actively used these *alas* as pastures for cattle and horses.

On the other hand, the taiga with Dahurian larch dominate around Kustur village of Eveno-Bytantaiskii ulus on the alluvial lowland at the foot of Verkhoyansk Mountains, around 69 degrees North latitude. In the middle mountain creeping pine (*Plunus pumela*) zone appears and tundra with lichen emerge in the high mountain. Around the branch of the Yana River and the Bytantai River where the Even conduct hunting and reindeer farming, the neighboring Omoloi River and the branch river (Sietindze River) are located near 70 degrees North latitude and typical tundra-taiga. We can see Dahurian larch sparse forest only on good site conditions.

2. Wildlife Population

It is natural that such differences of forest environment are reflected in fauna. Especially, sables, which have occupied an important position for indigenous hunters from the historical viewpoint, decrease the density as the dense coniferous forest increase in the North, and almost disappear in the tundra-taiga.

However, around Sakkyryr (Batagai-Alyta) of the Eveno-Bytantaiskii ulus, sables were introduced from Ust'-Barguzin on the east coast of the Baikal Lake during 1952 to 1954 aiming at breeding of the animal, consequently small population of the animal inhabit at present. In addition, the 30 musk deer were also introduced into Taimir peninsula around 1996. At first 10 animals were brought from Canada, and later 20 animals from Alaska. The musk deer have increased to 1500 at present. I heard that they are planning to introduce bison to the region.

As for introduction of exotic animals, Dr. Toru Ikeda reported that the muskrat and American mink were intentionally introduced into the region by the former Soviet Union aiming at fur utilization. These animals were introduced into Batagai-Alyta and Kustur village in 1967 and muskrat failed to establish (Ikeda, 1996). American mink has established itself in the southern part of Sakha but failed around Yakutsk and the northern part of Sakha.

The main wild mammals inhabiting the Republic of Sakha, which have been confirmed through direct/indirect observation or interviews from hunters and literature surveys, are as follows; arctic hare, northern pike, Siberian flying squirrel, black-capped marmot, Siberian chipmunk, Eurasian red squirrel, long-tailed Siberian souslik, European beaver, Siberian weasel, sable, wolf, red fox, polar fox, lynx, European wolverine, brown bear and Polar bear.

Ungulates, including Siberian musk deer, red deer, roe deer, moose, reindeer and snow sheep (Siberian bighorn) have been confirmed.

On the other hand, brown bear which prefer the grassland as their habitat, and Asian black bear, which prefer the forest vegetation as their habitat, inhabit together on the Amur River basin from Primorskii Krai to Khabarovskii Krai as known on the research by G.F. Bromlei. According to the interviews of Udehe hunters, brown bear, wolverine and moose inhabit the coniferous forest and High Mountain grassland. Black bear and wild boar inhabit the lowland deciduous forest / coniferous - deciduous mixed forest on the Bikin River basin of Primorskii Krai. Consequently two animal groups coexist in the region.

The another wild mammals that have been observed in the region are as follows:
Tiger, wolf, red deer, sika deer, roe deer, musk deer, Far Eastern red deer, wild goat, lynx, fox, raccoon dog, badger, Manchurian hare, Eurasian river otter, Siberian weasel, sable, Siberian chipmunk, red squirrel, North Chinese flying squirrel, northern pike, arctic hare, etc.
As for exotic species, muskrat, American mink, common raccoon, etc., have been introduced into the region.

As I mentioned in the section on the forest vegetation, the vegetation of the Amur River basin changes at 50 degrees North latitude, Stanovoi Mountains work as a barrier to the exchange of the wildlife population between north and south. Roughly said, the Amur River basin including Shihot-Alin Mountains are composed of two blocks: one consisting of the animals which prefer temperate forests, and the other for the animals which prefer boreal forests such as coniferous forests and grassland. Beyond the Stanovoi Mountains black bear and wild boar gradually disappear, then the animal populations of colder environments emerge. Beyong the Verkhoyansk Mountains we can find animals well adapted to the cold environment.

HUNTING, GATHERING, REINDEER BREEDING AND THE ENVIRONMENT

The indigenous people in the RFE who live along big rivers like the Amur tend to have a special emphasis on fishing. The tribes who live along a branch river or inland mountainous area tend to emphasize hunting. The gathering of edible wild plants, wild mushroom, wild berries and nuts, and breeding of livestock such as big, goat, cattalos and horses were conducted as a supplement of hunting and fishing. At present the inhabitants have established vegetable gardens on their premises, and cultivate vegetables and potatoes, where the land is suitable for cultivation.

However, in Sakha beyond the Stavoni Mountains, livestock farming and reindeer breeding become key occupations and fishing becomes more important. Naturally enough, the environment (flora and fauna) changes are reflected even in the livelihood strategies of the people.

Hereafter I would like to describe the livelihood strategies of tribes in relation with landscape, products and main occupations such as hunting, gathering and livestock farming, with reference to our research experience.

1. Krasnyi-Yar / the Udehe

Hunting Territory

The population of the Krasnyi-Yar is about 600 and the half of them are indigenous people, mostly Udehe. The Udehe's main occupation is hunting, and fur animal hunting is a quite important for them. Fishing and gathering activities of edible wild plants, mushrooms, medicinal plants and berries are conducted as supplementary activities.

Hunters of Udehe in Krasnyi-Yar have territory for each individual (or each family) for hunting and gathering. It is common that the territories are both sides of a stream or valley with boundaries on the watershed ridges. This territory is passed on as inherited property, and the individual fur animal hunting is limited only to the territory. However, it is possible to open for the big game hunting, fishing, and the plant collection when the territory owner gives permission. Therefore, this territory can be recognized as a hunting unit to regulate the hunting of fur-bearing animals.

The hunting style of the Udehe is basically single-person hunting, but they also hunt in groups of 4 to 5 persons for bear and wild boar. Most groups consist of relatives. Each hunter has his hunting hut as a base camp in the territory, and hunters use the hut several times a year.

In the times of the former Soviet Union, the territories were managed under the Gospromkhoz (state hunting, fishing and gathering enterprise). The territory of the Krasnyi -Yar is controlled by the stock company "Bikin" (describe later), which divides this territory by hunter today, after the collapse of the Soviet Union. In the year of 1995, 43 federal authorized professional hunters were registered in the company "Bikin" (25 Udehe hunters, 8 Nanays, 7 Russians, and 3 Ukrainian and Yakut), and the territory size is about 1,352,000 ha in the Bikin River basin. Therefore more than 10 % of the territory is open for non-professional hunters and non-local hunters, the area for professional hunters is around 1.2 million ha. The average size of hunting unit is about 30 – 40,000 ha. One hunter stated that the hunting units are not divided evenly and the average size varies from 20 km by 15 km to 20 km by 20 km. Another hunter stated that the hunting units around the Krasnyi-Yar village are comparatively small and the size increases as the unit locates on the upper part of the basin. The reason might be that the population density of sable, which is a key fur hunting animal, are found in decreasing numbers as one moves further to the upper part of the basin. As I described before the upper basin of the Bikin River is a cold area where the conifer trees dominate and the productivity of nuts decrease. Thus the population densities among field mice, weasel and sable decrease together, because field mice are nut eaters, and weasel and sable are the predators of nut eaters.

The criteria of hunting unit is based neither on equal distribution of area or on large size meat animal such as bear, red deer and wild boar. The fact that the criteria are based on the population density of fur hunting animal (especially sable) should be given special attention. If the territory is allocated in order to secure the livelihood based on hunting, gathering and fishing, the criteria must include a device to distribute equal opportunities on these activities among the villagers regardless of individual skill. In short, we can judge that the method of allocation itself is a precondition of fur animal hunting aiming at money base trade, but for a basic exclusive right as the guarantee of livelihood on the hunting and gathering.

I believe that the territory allocation of the Udehe has established and passed on in connection with the fur

trade and fur market, and we can find the remaining influences in the fur trade with the Quing dynasty in the 18th - 19th century.

The fact that a territory was allocated to and inherited by hunters and their families, means that the population changes of fur-bearing animals in the territory were also managed by the owners themselves. If they hunt too much they would face the decreases of the harvest the next year. The hunter and the family should bear the risk. They are also required their management skill to continue their hunting activity under sustainable resource use. At present, there are no data showing that the sable decreased significantly in the territory.

Hunting and Fishing Calendar

The hunting and fishing calendar in Krasnyi-Yar, and the history of trapping are shown in Table 1 and Table 2, respectively.

Table 1 indicates yearlong the hunting and fishing schedule of the Udehe hunter, and helps understand how they gave specific emphasis to hunting. They conducted other activities in the intervals between hunting. Moreover, the fur animal hunting and the large size animal hunting based at a hunting hut are combined according to the ecology of target animals and the natural environment. The timing of hunting is decided according to the target animal species and the objectives of the hunters. They hunt the animals to obtain fur during mid-winter because fur quality becomes better in that season. They hunt animals with a lot of fat from the end of autumn to spring. For immature antler of red deer as medicinal material, the period from the end of winter and the beginning of summer, is a best hunting season. The antler of the deer grows during that period. Before and after the hunting season they conduct fishing to seek materials for preserved food; fishing in spring is to obtain summer food and fishing in autumn is for food for winter.

From May to June, they collect royal fern, bracken, butterball and wild garlic, from early summer to early autumn they collect mint, burnet and wild berry. Children and women are keen on collecting fruits and berries such as cowberry, bog bilberry, bird cherry and honeysuckle. Medicinal plants like ginseng have been collected in large quantity as a cash crop.

Table 2 indicates major trap hunting and its brief explanation. Trap hunting is conducted from a base hunting hut during winter. Ten types of traps shown in the table are traditional traps restored by the Udehe hunters. Apart from a few traps like automatic bow, the materials of these traps are basically collected on the field and are all natural materials (such as tree, tree bark and vine). This is based on the wisdom that the natural materials have the advantage of preventing target animals from noticing unnatural smells and shapes. There are two types of traps; those set in wait for the animals on their track and the traps that lead the animals to bait in relatively high population density areas. Regarding a trap "Fuka" for sable that is set using a fallen tree crossing over a stream, when the river is not frozen they set the trap on an artificial animal track using a falling tree. After the river freezes, they use bait to guide an animal to the track. Most traditional traps, which have been handed down among the Udehe, were aiming at hunting of the fur animals; traps for large size animals aiming at meat acquisition were quite few. Excluding an automatic bow these traps don't damage the captured animals. We can find their technical skill in their style of hunting that they hunt the fur animals without damage for trade products. When hunting is for food consumption, some damage to the fur is not a major problem. When they have to hunt to obtain the animal unhurt for barter and cash exchanges, special skills are emphasized. Of course, the use of the restored traps has been decreasing since the 1970s and steel jawed traps are the mainstream at present. However, the traditional traps made by old materials are still set at certain locations. The way and the location of join trap set are followed the traditional knowledge.

At present the Udehe hunters set 200-500 jaw traps a person to hunt fur animals. The top rank of the harvest rate is for sable, second and third rank are mink and otter. The harvest of sable in Krasnyi-Yar from 1991 to 1994 was 607, 745, 408 and 498 respectively. Of course, the figures include the harvests by professional hunters as well as supply to the stock company "Bikin" by non-professional hunters. The harvests of sable have a tendency to decrease as a year passed by. The change was caused not by the decrease of sable population; it arose by decline of the desire to hunt. Recently hunters are giving their greater attention to large size animals as meat resource rather than fur animals.

As I described before, 200-500 traps in a hunting territory of 30-40 thousands ha are not so high density of trap. However, maintenance and monitoring of these traps requires much labor of the hunters. However, as you can find in the table, they make times for large size animal hunting in the interval of these works. In the table “A” means large size animals hunting in October, hunters use unfrozen rivers as traveling routes, they conduct tracking of red deer by a dugout. Meats obtained by the hunting are stored in the hunting hut and preserved as

food during snow and frozen periods. In “B”, they use snowmobiles for traveling when it is snowy and the river is frozen. At this time, the temperature decreases remarkably and the fur quality become better. During this time, hunter spend much time for trap setting for fur animals, its maintenance and collection of harvest, on the other hand they conduct driving hunting of red deer and wild boar which cannot move quickly due to snow. In “C”, the hunting season finishes and these traps are removed. Then they start large size animal hunting to take meat to the village. That method is mainly tracking by chasing field signs such as footprints and so on.

Udehe hunters stated that large size animal hunting is becoming popular because of bad food situation. They also pointed that the population of deer and wild boar has decreased in the five years because hunters give a priority to obtain food rather than cash.

Five months life in the hunting hut is skillfully synchronized with the changes in the natural environment, and the lifestyle depends on the careful selection of hunting methods and techniques.

2. Naihin / the Nanays

Fishing Calendar

It is difficult to report on the Naihin's hunting and gathering activities at the same level of detail as for Krasnyi Yar because we conducted only three days of field research in the area. According to the January 1998 census, the population of Naihin was 2,123 (1,206 Nanays, 4 Nibvkh, 3 Udehe, 1 Ul'chi and the Russians) with 473 families. 159 families worked for the fishery and the forestry industry in former Kolkhoz. The Troitskoe port close to Nahin is for timber export and still ships coniferous timber. Most workers in forestry are Russians.

Naihin is one of the considerably larger villages on the basin of the Amur River. Key industries of the indigenous people in the village are fishing and hunting. The village has complex channels and many islands at the juncture of two rivers, the Amur and Manoma. On the islands along these channels, several villages（Targon, Susu, Dondon, Gardama, Sayan） were scattered in former times. These villages were integrated into Naihin in the 1930s. Before the integration, the villages were located at slightly high sites or table-lands such as natural embankments on islands or sandbars next to fishing grounds because the indigenous people used shallows in the vicinity of the confluence point on the channels of the rivers as their fishing ground.

Prior to the field research I had expected that the priority between hunting and fishing of Nanai in Naihin would slightly different compared with that of Udehe in Krasnyi-Yar. The hunting and fishing calendar (in Table 3) shows us that food stock for summer and winter are prepared through spring fishing and autumn fishing, respectively. This cycle is similar with that of the Udehe. However, the techniques and measures for fishing have more variety than those of the Udehe. Of course, the conditions of the main river and the tributaries, such as velocity of water and the shape of flow are different. Thus it is natural that the techniques and measures on the fishing and target fish have an extent of variety. However, it seems that there is a difference in the fishing harvest due to the fishing measures. This discussion is based on our interviews with hunters; we have not obtained statistical data on harvests. Recently strict legislative regulation is enforced on fishing harvest in the Amur River because of sharp drop of fish populations and water pollution. In the case of silver salmon, the fishing season is from September 10 to September 30, and the quota of harvest per inhabitant is 42 kg (7 - 8 salmons). Before the regulation the indigenous people harvested two to three times the current quotas. Water pollution has become more serious and this has led to a decline in desire to fish in the river. Thus the fishing activities in the area are facing an important turning point. In addition, it is impossible to ascertain locations and offices where accurate data and information are kept. The investigation to find the location of such data is a future problem.

The topics which I want to describe here are that the most fishing techniques originate in net fishing. Fishing using false bait is for the winter season when river is frozen. Fishing with a fish spear is only conducted in July.

The Amur River freezes around November 10 in a normal year. The pike fishing by children is conducted using hooks with fake fish-bait and they capture around 20 fish a day under good conditions. In December, they hunt the freshwater lamprey in creeks and channels. In mid-winter, groups of 6-8 persons drill the frozen river to ish together using a net. They hunt carp, crucian carps, catfish, dice, and other types to process the boiled mashed fish, smoked fish and salt fish. The Amur River thaws at the beginning of May and the water level rises thereafter. They start to catch salmon when the fish come up the river in June. July is a quiet period but they continue a low level of fishing. In August, silver salmon start to come up the river, and then the indigenous people compete with each other to fish for salmon. However the fishing season is limited at present as mentioned above. The sturgeon fishing is conducted from summer to the autumn, and they process a large

amount of boiled mashed fish and the smoked fish during September and August to prepare for the shortage of food in winter.

The nylon bag net for silver salmon used to be made until the 1940s. Several families worked together to knit the bag with thread from nettle fiber. The role of women was big on the fishing in Naihin. The woman joined the fishing in winter. The fact suggests that they strongly depended on resources from river.

Hunting Calendar

The fur animal hunting for squirrels, weasels, and otters starts in November. It was captured with an automatic bow before. Squirrels are hunted by guns nowadays but were captured by automatic bows before. For automatic bows to hunt small animals, they used a small sized arrowhead. Automatic bows to otters were set near the nest hole on the riverside and had bigger arrowhead. There were two kinds of methods to install the automatic bow: horizontal shooting and vertical shooting. The same trap as used by the Udehe captured the small fur animals such as squirrel, weasel, and otters. They construct a small feeding space and set a log with a trigger. When an animal touches the trigger the log drops onto the neck of the animal. Otter is a difficult to catch because the animal is clever and agile. Because squirrels live in abundance in forests where there are many pine trees and nuts, they can hunt 30-40 animals a day using a small rifle. It is said that skilful hunters can hunt about 300 squirrels a month.

Weasel's fur sells higher than the squirrel but the population of weasel is less than the squirrel. They can capture 20-30 weasels but only 1-2 otter during a winter. Regarding sable, they can hunt 15-20 sables in the village near Khabarovsk but 5-6 sables in Naihin because of the differences of population.

Dogs are used for wild boar hunting. On the wild boar hunting the dog’s role is to pursue a wild boar and keep the animal at bay. The dog should keep the wild boar at the same place until the hunter overtakes it. Regarding bear hunting, when a hunter finds a den of bear he returns to his village to report, then he gets people together and goes to capture the bear. At the den, hunters dig a new opening and stick a club into it to drive the bear out. Then they shoot the bear coming out from the original opening. During November and December hunters spend days for hunting as mentioned above, and they come back to the village temporary in December in order to buy foods and sell off the hunted furs they captured.

In January they intensively hunt sables. This month is for fur animal hunting. Hunters carefully give attention to the plant growth and consider a timing of the hunting, because red deer shed its antlers during the end of March and April. The immature antler hunting season of red deer is conducted when the tops of a specific grass's bud fork into three. Actual peak of the hunting is June and the beginning of July. In April after getting the timing of red deer hunting, most hunters take a day off and spend the period maintaining hunting tools. In May they spend much time to hunt small fishes to processed "takusa" but sometimes hunt duck geese and swan. June is a hunting season of red deer, hunters ask processing of immature antler to the old age people with experience because there are not so many people who have a skill. Therefore, hunters immediately returned to their village from their hunting ground with an antler to process it, when they shoot a red deer. They don’t hunt many deer because the meats are easy to spoil. Chinese purchased processed antlers at high prices. It is said that the sales were enough to cover their annual living costs.

The red deer hunting involves nighttime tracking and stealth. Hunters lie in wait for red deer at where deer come to feed water plants. Then they hunt the animals from a boat. When red deer are grazing the plants the deer can not recognize hunters. The hunter then approaches and shoots the deer. Moose are hunted in the same way. Hunters traveled to hunt moose on the basin of the Anui River, Pikusa River and Horu River. As for swan, goose and duck, they hunted in the interval of other activities; August is a best season for duck hunting. As October is a season of migratory birds, they do not conduct bird hunting, but begin preparation for the hunting in November.

Mongolian Oak Woods

We can see splendid Mongolian oak woods on natural levee plateaus in the old villages around Naihin. The woods have quite artificial landscape with pure Mongolian oak stands. The author had never seen such pure woods consisted of single nut trees except in the Nanai.

It is said that logging of Mongolian oak woods had been prohibited by the village rules. The acorn was fed for livestock but the people did not eat them. The indigenous people of the Nanai collected acorns to feed domesticated pig livestock. Before the revolution, they captured young wild boars alive and fed them acorn and fish. They basically used fish as feed. Acorns were used not only as livestock feed, but also or human

consumption. They kept acorns in boxes of white birch. Dried salmon roe was preserved.

Chestnut and horse chestnut are main tree species which they managed for such purpose. The site condition like soil type and other condition sometimes affect the establishment of such kind of pure stand. However, the forest has almost even tree age and crown size. The landscape of stands is rather rough. More studies are needed to confirm that the woods were managed aiming at acorn production to obtain the materials for making preserves. However it is difficult to clarify the amount of crop output.

Among the preserved foods, there was a cookie-like food, which was made of crushed and kneaded fruit of bird cherry then dried by sunshine or the heat of a Russian stove. They drew frogs and other images on the cookies before hardening The pictures were drawn by hand or stamped by wooden form. This is one of winter preserved foods, which were stored in Chinese pottery. They capped the container with fish oil. The food kept well preserved for more than a year.

The indigenous people collected mugworts in May and dried them as food for winter. The dried plants were used as ingredients of soup. The soup was cocked with dried mugworts and fish or meat. The seasoning was mainly salt and sometimes they added wheat flour to the soup. There was soup of the nettle and mushroom, made of dried wild plants or mushroom.

3. Kal'chom / the Ul'chi

Kal'chom is a small village with 50 houses on the left bank of the Ukhta River which connects Udyl' Lake and the Amur River on the southwest of Bogorodskoe. . Details of the population structure were not available, but it is known that most are the Ul'chi. The Ul'chi are classified as Tungus – a Manchurian group linguistic ally, however they are close to the Nanai.

The main occupation of Kal'chom is fishing and hunting. They have fishing grounds both in Udyl' Lake and on the Amur River. There is no water flow in Udyl' Lake. On the other hand the Amur River flows considerably fast. Such differences of the environment in the fishing ground have brought remarkable variety of fishing methods and techniques. Hunting has been conducted on the basin of Shiruko River and Bichi River, which flow into Udyl' Lake and they have hunting huts in their hunting ground as a winter bases like the Udehe and the Nanai. However, we were not able to obtain details on the area.

Fishing Calendar

The hunting and fishing calendar of the Kal'chom is shown in Table 4. The fishing of Kal'chom consists of fishing in the main stream of the Amur, Udyl' Lake and its branch river. Because the hunting season overlaps their fishing season for five months especially from October to March, hunters have to go back and forth between taiga and the lake. The hunters start river fishing after a ceremony to the god of water. In the ceremony hunters make a hole on the frozen fishing ground and they put grain, dried wild garlic, cigarettes and vodka into the hole. All offerings are tied to the string and offered. Then they recite the following: "the god of water, please give ice and fish for us. We place offerings for it". This ceremony is conducted in each fishing ground. Under ice fishing were started in false bit fishing, which I described in the section of Nanai, and net fishing to catch crucian carp and pike. The fishing net is 20-30m total length with bag shape. It is a kind of pull net which spreads under ice and is pulled for 100-200 m distance along to the bottom of a river. They also use fixed net, which is set and left several days at specific points. Before spreading the nylon net, they made fishing net by thread of nettle fiber or flax like the Naihin and the Udehe did. The ice fishing is conducted from December to February when the lakes, marshes and rivers are frozen over.

In March they finish the fishing because ice begins to thaw. Then hunters can't drive vehicles on the ice. It is said that ice melts twice during winter. The first time is a thaw of the mainstream in the Amur River and the second is a thaw of the Udyl' Lake. In April the ice of the lake begins to move and flows into the mainstream. The ice disappears completely in May.

In June, the season of river fishing starts because Sakhalin trout and summer salmon come up the river. At this time, the ceremony to the god of water is also conducted. Young people don't participate in the ceremony. Only aged people join the events. The contents of the event are not different with the opening ceremony for ice fishing. Captured Sakhalin trout and summer salmon are preserved as dried fish or boiling mashed fish. Moreover, they process fish oil from carp, grass carp and others. The indigenous people eat dried fish with the fish oil after autumn. The summer salmon fishing can be conducted until August, but the peak of the hunting is July and they usually take rest and prepare for silver salmon fishing in September.

The silver salmon fishing conduct until September on the mainstream of the Amur. In Kal'chom, there are two fishing grounds, which are shared by several villages. These fishing grounds are not exclusive but commonly used by several villages together. Of course, the indigenous people use these fishing grounds for fishing even in now. The silver salmon are also preserved as food for winter. Captured fishes are mainly processed to salt fish or dried fish, and salmon roes are dried to make dried salmon roes.

Silver salmon fishing ends when the temperature falls and the salmon begin to migrate down to the Amur River from the Udyl' Lake, and taimen begins to move to the Udyl' Lake from the mountain stream. Then rivers are frozen again.

Regarding taimen fishing, taimen inhabit in the Ujiri Lake during autumn and winter and go back to the upper stream of the branch river in summer. Therefore, the fishing method is different between summer and winter. In summer fishing in the past they caught fish using spears and torches at night, but this fishing method is prohibited at present. They caught the fish from the boat. They conducted the fishing even in daytime. They used double net trap for the winter fishing. The mesh size of outside net is 200 mm and that of inside net is 70-80 mm. The biggest taimen is 60 kg in weight and 2 m in length. In the past such big fish could be caught, but now the average size of fish has become smaller. The weight of big fish is around 25 kg and middle one is around 15 kg recently.

Hunting Calendar

When the thaw of the river advanced in kal'chom in May, they started hunting for goose and duck. Though they used bows and arrows in the past, today they hunt the animals mainly by gun because the use of firearms expanded in the 1960s. Swans fly to the area but nobody shoots the bird because Ul'chi have a taboo against shooting swans. During May and June they hunt immature red deer to obtain antlers for medicinal purposes, but this practice has stopped. In this season they hunt large size animals such as musk deer, red deer, moose, bear and other. Because black bear and musk deer are protected animals, the large size animal hunting has become unpopular. They occasionally shoot brown bear. In July they stop bear hunting and concentrate on moose hunting. In August they spent much time for summer salmon fishing and a preparation for silver salmon fishing in September. Thus they don't hunt much. In September they spent time river fishing, and also shoot goose and duck in the interval between main activities. After October they spent much time for the preparation of winter hunting. The Ul'ich did not have permanent hunting huts on the hunting ground until recently. In the past they stayed in simple tents in the hunting grounds. It is said that they began to have permanent hunting huts 15-16 years ago. Sable and other fur animals were once hunted by automatic bow and net traps. They captured around 10 sables/season/year on average. A hunter stated that he hunted 20-30 squirrels a day. There are considerably differences of annual harvest. They capture 1 – 3 otters and 7-8 foxes a year on average. The hunter stated that they went out their village to sell fur when the ice of the river starts to thaw from March to April. The Kal'chom's hunting ground is located along the branch river. These territories were strictly passed on and managed by the indigenous people, however the tradition was broken in the Soviet Union times. The reason for this is not clear.

4. Sakha Republics/ Yakut, Even, Evenki and Yukagir

The population of Republic of Sakha is 1,062,000 people and Slavic Russians account for 60 percent of the population. Yakut account for more than 30 percent and the rest are inhabitants of Even, Evenki and Yukagir. According to 1989 statistics, the population of capital Yakutsk was 187,600 people, composed of 26.5 % Yakut, 63.5 % Russian, 4 % Ukrainian, 1.8 % Tatar, 1.2 % Buryat, 8 % Belarus, 2.2 % others. Because the Slavic population increased due to natural resource developments, which started during Soviet times, the population share of indigenous people considerably dropped. Economy of Sakha is relatively good in Russian Federation due to abundant natural resources such as diamonds, gold and natural gas. The town of Yakutsk ison the river terrace of the left bank of Lena River. The town of Yakutsk is on the second terrace with a 90-95 m elevation (on the Lena River basin, there are seven terraces). The difference in elevation between the highest terrace and lowest terrace is 200-260 m.. This land feature makes the area a kind of basin enclosed by terrace. Therefore, cold air is easy to stay on the basin and the temperature becomes lower than on higher ground.

The exposures of low terrace scarp on the Lena River are mainly composed of mudstone and sandstone. The slope has been developed as pasture. Yakut call themselves Sakha and it is said that they are descendants of Chukchi tribe who went up north from southern step on the outskirts of Lake Baikal in the past. They made their

living by livestock farming and hunting. They also played an active role as traders.

Hunting Licenses and Fur Animal Hunting

The Republic of Sakha is a place to produce the best quality furs in Russia thanks to cold temperatures in the winter. The production of ermine furs accounts for 78%of the total in Russia. The Republic of Sakha is divided into 33 districts. In the eastern Sredne-Kolymsk district there are more than 200 hunters and sable hunting is prospering very well in the district. In the report I mean the hunter is a person who makes license contract with the racial business concern, Sakha Burt (hereafter, Sakha Burt in the abbreviation) that there is a headquarters in Yakutsk. As for Sakha Burt, I will describe these details later together with the racial stock company "Bikin" of the Udehe. So I will give an overview of the hunting license and fur animal hunting at this section.

There were more than 6,000 hunters in the year of 1997. 2200 hunters are registered as professional who have a special contract with Sakha Burt. Around 4000 hunters are registered as non-professional hunters, who don't have specific contracts with Sakha Burt. The Republic of Sakha has had two hunting management divisions since 1996. One is the Ministry of Nature Protection Department on Biology Resources of Republic of Sakha (Yakutia) which supervises the management of wildlife and forests. Another is Sakha Burt, which supervises hunter and hunting licenses. In Russia, the authority issues a hunting license for each animal species and decides their hunting season. Such systems are quite different from Japanese systems. The license is not issued by examination but is bought by the hunter.

As for sable fur, which is the highest-grade product, Sakha Burt issues 25-30 thousand licenses every year. The sable hunting season is from October to the beginning of March. The license charge of one sable is fixed at 0.045 % of a minimum wage by the Sakha's rules and it was 2300 rubles in 1996. Though non-professional hunters can hunt sables, they have an obligation to report their harvest after the hunting season and have to pay a charge for their harvest. The reason why they can deal in such way is that Sakha Burt is the only organization from which hunters can receive cash for fur. Incidentally, the hunting fee of a sable for non-professional hunter was 500 rubles, and 300 US$ for foreigner. The number of licenses issued for fur-bearing animals excluding sable in 1996 were 200 for squirrels, 180 thousand for muskrats, 20 thousand for ermines, 16 thousand for weasels and 150 thousand for hares. The actual harvest of fur accepted by Sakha Burt in 1996 was 22 thousand sables, 150 thousand of squirrels, muskrat and ermines. Most of hunted domestic fur animals for cash from the region were supplied to Sakha Burt.

The president of Sakha Burt stated that around 70 percent of sables were hunted by gun, and jaw traps captured 30 percent. The squirrels were shot by gun, ermines are captured by jaw traps and muskrats by net traps. In addition, the harvest of sables, squirrels and ermines were exporting to international markets. These sales are the main income source of the entities. Therefore it is said that the livelihood where people can not earn income by the hunting of these fur animals is quite poor. The harvest of muskrat was mostly for domestic consumption in Russia. Mink habitat is further south but people mostly depend on imported fur. The production of fox furs used to be active but recently the production decreased because of technical difficulties. Generally, the decrease of fur demand in the 1970s brought serious damage to the hunting industry. The international fur boycott campaign and animal protection movement has also affected hunting seriously. However, only the sable and the ermine have continued to maintain their prices.

As for the squirrel furs, the price has been depressed for the last few years. Because unfavorable conditions have accelerated the trend away from hunting, the government of Sakha started to pay 140 thousand rubles to preserve traditional hunting knowledge.

Big fluctuations occurred in 1996 and 1997 due to the drastic changes of exchange rates for Russian rubles. The buying prices of ermine, weasel and muskrat were 14 thousand, 16 thousand and 6 thousand rubles, respectively. The hunters could receive an added 6 thousand in subsidies. As for white polar fox, since the hunting price is 200 thousand rubles and the subsidy 100 thousands rubles, hunters can get 300 thousand rubles in total. Because the recent currency value of ruble is relatively small, the income from fur animal hunting has become inadequate to cover their cost of living. When I saw the price of the hunting tools at a shop in Yakutsk on August 1997, the unit prices of a small jaw trap for sable and ermine is around 25 thousand rubles. The big size trap for fox costs 10 thousand rubles. As I mentioned before, usually professional hunters set 200-300 jaw traps in the hunting grounds and they have to buy several new traps to replace broken ones. Hunters must bear high costs to maintain trap hunting.

Cattle, Horse Farming and Aras

In Yakutsk and the outskirts, the minimum air temperature in midwinter reach minus -60°C, and the permafrost layer is 250-300 m deep. In tundra the depth of permafrost sometimes reaches 1000 m. The thickness of the permafrost layer decreases sharply as one travels to the south from the polar region. Taiga with Dafurian larch stretch on the permafrost around Yakutsk. The yearly average air temperature is -10°C Yakutsk City, and the cumulative temperature during winter is 7000-800 °C days (Kinosita 1981.p.23.). But the air temperature is also extremely high in summer. For example the average temperature of July in 1997 was 32 °C and several days were over 40°C in August 1998. There is a 100 °C temperature difference between summer and winter.

The surfaces of the permafrost thaw in summer and freeze again in winter. The surface layer where the permafrost is repeatedly thawing and freezing is called active fault. The active fault sometime reaches 4 m thickness at a places with daylight and high temperatures for long hours, like bare ground. However the average thickness is around 2.0 – 2.5 m. On the other hand, the thickness of the active fault decreases in taiga with high tree density because sunshine is intercepted.

Annual precipitation is low at around 200 mm. Rainfall does not reach the permafrost layer and stays in the active fault. The rainfall works as a source of water to sustain forests. In taiga, which is dominated by Dafurian larch, the stand density is around 15,000 trees per ha (in dense forests) and the average diametar at breast height (DBH) is around 10-15 cm. The average tree height is 10-15 m with a 50 – 100 cm stand interval. The stand age is around 100 years. In the taiga there are innumerable hollows, so called *Aras*, which are caused by permafrost melting. The thawing of permafrost is caused by direct exposure of land surfaces to warm temperatures or sunshine due to clear cutting or forest fire. When the land is covered by forest the thickness of active fault is less than 1 m. However once the land is exposed the layer expands 2 m due to the heat from the land surface. The land surface starts to sink gradually along with evaporation of the melting water. The land surface has sunk 2 m – 3 m in 30 – 40 years and the sink expands to the forest edge of the hollow. The thawed area extends into the taiga, and forms round-shaped areas of bare land (*Aras*). It is said that the sinking continues to 10 m in depth and then stops. The *Aras* sometimes forms ponds. There are several thousands big and small *Aras* around Yakutsk and the central part of Sakha. The diameter of *Aras* vary from a few meters to 1 km. Because the soil on *Aras* is favorable for grass, *Aras* is quite suitable for pastureland. Yakut have used *Aras* as rangeland or farmlands for cattle and horses (especially for the Yakut horse).

During Soviet times, one Yakut family would live in one Aras. These were connected together by a network of roads. We can say that the Yakut has brought and developed the livestock farming system into scattered *Aras* in Siberian vast taiga from the steppes around Lake Baikal where their ancestors cultivated this system. If nature did not produce many *Aras*, the Yakuts created *Aras* intentionally to secure pastures and cultivated land.

A small hill within an *Aras* is called a "Pingo". One can find signs of Yakut grave sites on *pingos*, and large red pines that are considered sacred along roads between *Aras* are still recognized as a places to make prayers to the sprits of forests. I cannot describe iIn more detail more here, but I believe that *Aras* are a kind of artificial landscape, which are the results of inhabitant's alterations and their management of natural landscapes.

5. Kustur / the Even

Reindeer Breeding and Hunting

It is said that the Even people speak the Even language (one of Tungus languages), but today most Even in the Republic of Sakha use the Yakut language as their daily language, and only elderly persons can speak their original language. According to 1989 statistics, there were over 1,700 registered Evens. Many of them live on the northern part of Republic of Sakha, and mainly make their living by reindeer farming with fishing and hunting as a side business. In the case of the village of Kustur on Eneno-Bytantaiskii ulus in the Republic of Sakha, there are 250 families with a population of 1,000, which is composed of 600 Yakut, more than 400 Evenki and only 1 Russian. Their hunting style, especially winter hunting, is centered on the hunting of large animals. The hunting of fur-bearing animals decreased. Even stated that the recession of the fur industry began in the early part of the 1980s. The recession has continued because European countries had stopped importing furs from overseas, and the recent condition is quite bad. Until 1990 there was a well-managed fur trade center in Irkutsk. However recently most fur are consumed for home-use because the center was closed after 1990. At

present, large animal hunting is conducted for acquisition of meat. Though the Siberian Big horn herd had a large population of 40 three years ago, but now it has decreased to 10. It seems over-hunting has caused the decline. When the fur animal hunting was active, the Siberian Big horn hunting was conducted by tracking by one or two hunters. At present, hunters conduct hunting drives with 5-10 persons. The method was a traditional one. However they did not need to use the method because hunters could get enough income from fur animal hunting.

Regarding firewood collection in Kustur village, villagers collect firewood from a forest, 30-40 km from the village, because the nearest forest along the riverside within 10km from the village, is specified as a protected area. They collect cinders as firewood from burnt area of a forest fire. Forest fires usually burn understory vegetation and kill trees. Villagers leave dead stands for three years and then collect the trees as firewood. A villager stated that an old logging site, over 60 years old, is now a bleak plain without any trees. In Sakkyryr (Batagai-Alyta) one family consumes 40 tons of firewood a year; hence 12 thousand tons of firewood are consumed by 300 hundred families. A family who lives at a hunting hut throughout the year will consume 60 tons a year, and collect the firewood at a distance of 10 km from the hut.

ATTEMPTS TO ESTABLISH "INDIGENOUS HUNTERS' BUSINESSES"

Today a new trend has emerged of indigenous people seeking stable livelihoods through the establishment of new enterprises and attempts at the market economy. Such kinds of self-management bodies are called racial hunters' entities. Examples of self-managed "indigenous hunters' businesses" include "Bikin" in Krasnyi-Yar or Primorskii and the self-managed indigenous hunters' operation "Sakha Burt" in Republic of Sakha, which I described before. During the Soviet era, the organizations which Yakut and Even hunters belonged to were closely connected with Kolkhoz and Solkhoz. The Even in Kusutur got necessary equipment for hunting such as guns, ammunition, snowmobiles, fuel and others supplies from the Kalkhoz. A fixed quota of fur animal harvest was allocated on them. The hunters in the Soviet era were divided into professional and non-professional hunters, and Kalkhoz provided ammunition to the non-professional hunters without any quota of harvest.

The professional hunters had an obligation to attend two yearlong lectures on hunting knowledge, then allocated a hunting quota according to Kolkhoz hunting plan. Until 1990 Kolkhoz imposed 1,800 rubles as a target for each hunter. At the time 1,000 rubles was enough to build a house. Professional hunters got a high salary, and hunter with high marks were officially commended and guaranteed their livelihood. In 1965, Eneno-Bytantaiskii district had five villages and there were 100 hunters including 50 professional hunters. The harvested furs were collected at Solkhoz regional center in Sakkyryr (Batagai-Alyta), then transported to Irkutsk which was a trading center of the RFE. In short, the livelihood of hunters on Sakha in the Soviet times was ensure by the state purchasing system for hunting production through the Kolkhoz, and the sales routes of fur depended on the federal organization. However, their security has been destroyed due to the collapse of the Soviet Union, and indigenous people are forced to develop a new sales routes and new markets by themselves. As the result, reorganization (into stock companies due to privatization of state enterprises) aiming at transformation form socialistic structure to the capitalistic structure is necessary. In 1992 the racial hunter's concern "Sakha Burt" was established by the advocacy of President Sakha who had the experience for the Ministry of agriculture and forestry through the integration of hunting related section and enterprises under the supervision of Solkhoz and Kolkhoz. This company constructed the fur-processing factory in cooperation with fur processing companies in Germany, Italy, France, Greece and other countries. This company also introduced fur processing technologies from Italy. The processed furs were sold through fur merchants in Saint Petersburg, Copenhagen, Seattle and other cities. Sakha has 33 districts and the company has 27 branches in the district.

There is an another enterprise, which deals with fur products, the stock company "Sarudana". The company was established as a joint venture with local capital and a European trading company, and they process, sell and export fur products. This company is training workmen and designers under the direction of an Italian company and produced original coats, vests, pochettes, bags, and so on. They sell them at the shop in Yakutsk and also export to European countries. They import some fur materials. They import raccoon and silver fox from Canada and cow skin from Italy. The reasons why they partly import fur from foreign countries are the high domestic physical distribution cost and rather cheap import price of these furs. The share of imported fur materials occasionally reaches 50 %. The production fields of the company are overlapped with that of Sakha Burt, but the roles and functions of the companies are different.

The racial hunting enterprise Bikin was established in 1994, with different characteristics from Sakha Burt from a viewpoint of its development process. The forerunner of the company was an intermediate organization

between Kolkhoz (so called Gospromhoz) and Solkhoz, and it was translated into a state fishing / hunting enterprise or state hunting association. This company handled natural resources such as edible wild plants, hunting and fishing harvests. They also supported the employees of these sectors. The company supervised the basic part of hunting management such as license delivering and sales, gun control, hunting ground management, inventory of wildlife resources and so on with small differences among the region. This new organization was also established with financial support of a brokerage firm in Vladivostock because Kolkhoz and Solkhoz stopped their activities after the collapse of the Soviet Union.

The stock company "Bikin" and racial hunter's concern "Sakha Burt" planned eco-tours and hunting tours. Then they accepted foreigner and made efforts to get foreign currencies from these events through sales of furs, souvenirs, processed products such as edible wild plants and medicinal plants. However, the tourism did not function well due to the lack of transportation and accommodations, inadequate service, and consequently they strongly depend on fur collection and process/sales section. Due to "No Fur!" campaigns since the 1980s and the animal protection movement, the demand of fur has decreased drastically and the continuation of the market is not guaranteed.

MUTUAL RELATIONS BETWEEN PEOPLES' LIVELIHOOD STRATEGIES AND THE FOREST

The hunting method and the skill of fur processing are extremely similar among the peoples of the RFE. We can say that they have similar and standard models, with small differences among regions. Such similarity might be a result of the fur trade between the Quing dynasty and Russia as well as the influence of the government of the Soviet Union. But it is not clear when and how the system was established in the vast Russian Far East.

We can also find in common their persistence displayed in their lifestyles and survival strategies. Though their historical process and the past conditions the peoples had wide variety, however each has kept its unique survival strategies by making use of the potential of the natural environment (historically, to obtain material for barter; today, to obtain currency). Even in the transition to the market economy (capitalist economy) after the collapse of the Soviet Union, the situation has not changed. It seems that the stagnation of the physical distribution and instability of the market economic has helped to make the peoples more conservative and inward-looking The peoples of the RFE have accepted specialization and separation on the assumption of resource exchange with the outside. It can be said that they have taken the fruits of the environment and used them to specialize and demarcate their territory. That is, they have settled where they are on precondition of the resource exchange. However, their livelihood is partly going back to old styles before modern times, due to the stagnation of the functions. The sustainable use of forest and wildlife resources has guaranteed the livelihood of indigenous people. However, the possibility of resource exchange is a precondition of the lifestyle and all livelihoods are not complete within the system. Now, indigenous people are reconsidering their own survival strategies in the context I mentioned above.

For example, around Krasni-Yar, the conservation of nature in the taiga is a source of security for hunting in the future, and a precondition for making a living at hunting in a market economy. Just by its existence, the taiga is a source of security for the future of the indigenous people. It is a taiga that is so wild that it appears to have been untouched, undeveloped, by the people. However, in reality an untouched taiga does not exist. The indigenous people see the taiga as an extension of their own bodies. The significance of this all is that the taiga that we see in its very natural state is not just a product of chance; rather it is a reflection of conscious intention of the Udehe people, a part of their survival strategy to keep it natural.

Said the opposite way, if the taiga loses its significance as the taiga and the indigenous people turn their backs on it in favor of new lifestyles, it would be no surprise to see the forests logged. Such a process has been repeated too often in South America and South East Asia, and that is the easiest choice which people fall into.

The author's greatest concern is an expansion of cultivation in the RFE due to stagnation of the distribution systems and a continuing rise in costs. If the people expand their family gardens further into the taiga, the cultivated area will grow dramatically and the taiga may disappear. Another concern is the trend of indigenous people toward the hunting of large size animals because of the recent depression of fur animal market. It may be that this trend to hunt large animals for their own food is made necessary by the transitions in the economy, as I described before. Certainly, these problems are attracting concern at federal and regional administrative levels in recent years, but management is quite difficult because of the vastness of the Russian Far East land.

ADDITIONAL REMARKS

Regarding flora and fauna in the area, as I described in the beginning of this report, they have delicate ecological balance in relation to the natural environment. Flora vegetation has a close relation with a climate change, land shape, geological features and so on. Fauna acquire their habitat with connection to vegetation and interspecific / intraspecific social interaction. So it has many problems if people classify the environment by simple category such as warm and cold. There are great difficulties to identify a species or a subspecies of plants or animals in the region because of the shortage of knowledge. Thus I believe that in-depth studies addressing the condition of fauna and flora in the region should be conducted by experts, and the research results will be necessary to discuss forest conservation.

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- An international joint research supported by Japan Science Research Grant of Ministry of Education from 1997 to 1999 titled "Studies on livelihood strategies of inhabitants engaging in hunting / livestock farming on Siberia".

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Table 1 Fishing and Hunting Calendar in Krasny-Yar (Udehe)

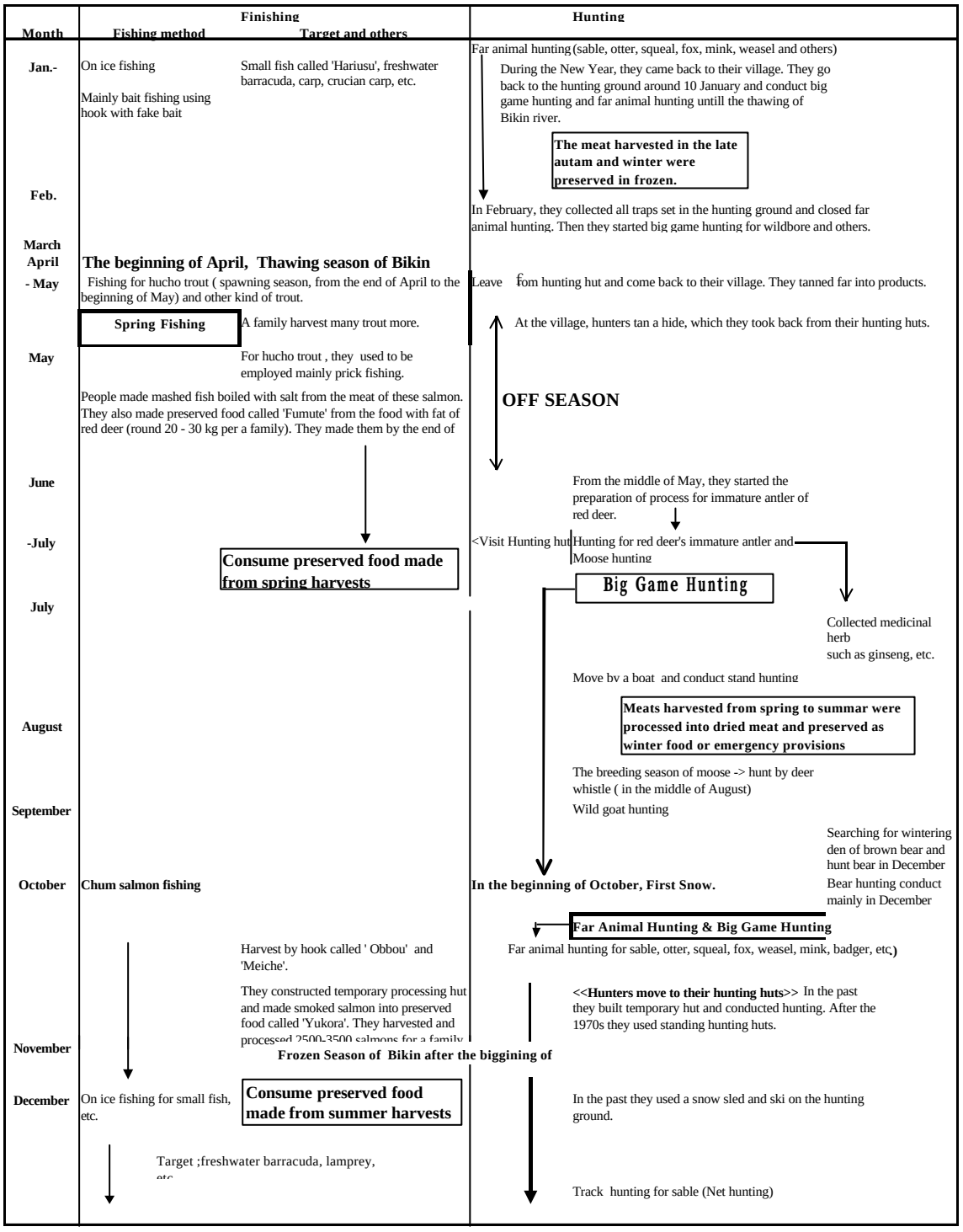

Table 2. Fishing and Hunting Calendar in Krasny-Yar (Udehe)

Month	Activities and Natural Condition	No.1,2 Dui	No.3 Type-1 Kafari	No.4 Type-2 Rangi	No.5 Type-3 Hanada	No.6 Fuka	No.7 Type-1a Fuka	No.8 Type-2b Fuka	No.9 Type-2 Fuka	No.10 Automatic bow	Others
October	Move to hunting huts from Krasnyi Yar Mainly freshwater fishing and big game hunting for wild boar, Far Eastern red deer, bear, wild goat, hare and others.		All types of trap are set trhough hunting season but in the begginig of the season huters fix the traps along **Freshwater Fishing and Big Game Hunting aiming at collection of food stock at hunting huts** **A : Hunting with dugout**			Hanada is not a standing trap throughout hunting season because it is usually set uo when hunter find game.				Automatic bouws for bear hunting are used before snowing. Traps for wild boar, musk deer and hare are set throughout hunting season.	Snare trap (Fuka) for fare
November	High season for fur hunting (for sables, mink, squalls, weasel, etc.) starts after snowing and river freeze	Due to the trap freeze					Swich to type a from type b after river freezing				Nowaday, they use mainly jaw trap
December	Rive and lake freeze (-30 - -40 C) Travel mainly by ski and snow-mobiles Return to home village.				**High season of Fur Animal Hunting Drive Hunting on snow field for wild boar, Far Eastern red deer and others with ski**						
January	**New year holiday** Go back to hunting										
February	In the middle of the month, hunting season is over. Hunter get ready to go Big game hunting for wild boar, Far Eastern red deer,		**Close Hunting Season, collect and remove traps** **C :Big Game Hunting for Meat** **In the middle of April, the thawing season, Hunters move back to home village by boat.**								

Table 3. Fishing and Hunting Calendar in Naihin (Nanai)

Month	Finishing Fishing method	Target and others	Hunting		
Jan.-	On ice fishing Net fishing(fixed net) called Angaruka (with group of 6-8 persons)	Target ; freshwater barracuda, carp, crucian carp, etc.	Far animal hunting	(sable, otter, squeal, fox, mink, weasel and others) Hunting for sable is main activities in January	
Feb.	Bait fishing using hook with face bait called Maruhaka	mainly for freshwater barracuda			
March					
April	**From the end of April to the beginning of May** **Thawing season of Amur**		Leave from hunting hut and come back to their village At the village, hunters tan a hide, which they took back from their hunting huts.		
May	Small fish fishing for the materials of preserved food, Takusu, for summer nameed. Black takusu is made from small fish and big fish is for brown takusu. Takusu means mashed fish boiled with salt.	Target ;charsthick, dace, carp, crucian carp, etc.		Hunting for gees, duck and swan around village	From May to September
June	**In the bagging, Sakhalin trout start to come up the Amur**				
	Fishing for Sakhalin trout	**Consume preserved food made from spring harvests**	<Visit Hunting huts>	Hunting for Moose's Immature Antler and red deer **Big Game Hunting**	
July	Fishing for various kind of small fish Net fishing(drift net)		Red Deer, Moose and Black Bear Hunting (Night moose hunting)		
	<<Off Season>>		Moose Hunting		
August	Chum salmon come up the stre Maintenance boat and fish net Chum salmon fishing. They proccessed salmon to preserved food in salt or by smoking (Yukora). It is not clear in the past but up to the 1960's they preserved one barrel of stock. They processed three types of Yukora, with skin, meat only and bone only. The amont was enogh for year long stock.		<Leave from Hunting hut>	<<Off Season>>	High season of Duck Hunting
September	Now, legal fishing season for chum salmons is from 10 September to 30 October and Minority peoples are allowed 42 kg (7-8 fishes) harvest a person.		Duck hunting		Season of Bird migration
October		**Consume preserved food made from summer harvests**	Far animal hunting	(sable, otter, squeal, fox, mink, weasel) (Visit hunting hut) <<Hunters move to their hunting huts>> For the hunting grounds near Gashi lake, they move to there in caravan, They use mainly fire arms and jaw traps at there. They go around their hunting grounds every day with 20-30 "fish bone yukora" as dog food.	**In the bagging, First snow comes** Far animal hunting for sable, otter, squeal, fox, weasel, mink, **badger, etc.)**
November December	the freezing season On ice fishing, Bait fishing using hook with fake bait called Maruhaka (individually)	Target ;freshwater barracuda, lamprey, etc.		In November, they hunt mainly squeals, otters, weasel. In the past, they used automatic bow or Kafari. In good hunting grounds, they hunt 300 heads of squeals (30-40 animals a day), but 20-30 weasels and 1-2 otters during a winter. As for sable, only 5-6 are hunted. On new year, they once back to home village and bring food to their hut	[Hunting for bear and wild boar]

Table 4 Fishing and Hunting Calendar in Karichohm

Month	Fishing method	Finishing Target and others	Hunting		
			Far animal hunting	(sable, otter, squirrel, fox, mink, weasel)	
Jan.-Feb.	On ice fishing	drill several holes in the ice on the lake and set fixed net	**Far Animal Hunting**		
	Net fishing(fixed net)	Target ;freshwater barracuda、carp, crucian carp, etc.			
	(Ujiri Lake)		(mainly trap hunting		Kabari Buritarfuka, Tereu
	Bait fishing Bait fishing night fishing	for freshwater barracuda by Maruhaka for fucho trout			Buritarfuka, Tereu Busar;snare trap for bear, wildbore and wolf Automatic bow(Tengure) Recently hunter mainly use Jaw trap
March	the thawing season of river	This makes difficult to use automobile on	Leave from hunting hut and come back to their village		
April - May	The ice start to move and fish come Ujiri lake from the mainstream of the Amur fucho trout move to the upper stream of		Hunter go to sell their harvest and take a rest.		
	Off Season		<<Off Season>>		
June	Ceremony Chukutri	for only old people. It is very similar with a ceremony in December but they offer smoked fish, cigarette and bread.	Duck & Goose Hunting		
	---Finishing on the mainstream of the Amur-----		**Big game Hunting**		Now mainly aiming to obtain meat.
		Sakhalin trout and fucho trout start to go up stream	<Visit Hunting hut>		
	Summer salmon fishing	Hunt Sakhalin trout in the mainstream and summer salmon in the branch river	Hunting for Immature Antler of moose		
July	Net fishing(drift net)		Red Deer, Moose and Black Bear Hunting		
		+Dried fish(Makuri) +mashed fish boiled with sugar and soy sauce(Seputrer) +Fish oil from carp, grass carp etc. They also made fish oil from Ussuri chum salmon	(Night moose hunting)		
		Fishing for fucho trout. Now prick fishing is banned and only net fishing is permitted.	<Leave from hunting hut>		
August		Maintenance boat and fish net	<<Off Season>>		
September	Autumn salmon fishing Net fishing (drift net)	They have four joint control fishing ground in the mainstream of the Amur. Fishing ground of Karichohm are located in Karaban Island and Chorunyar . In the mainstream they conduct longline fishing	Duck hunting		
October		Fish start to move to the main stream of the Amur from Ujiri Lake. Fucho trout go down to Ujiri lake from the branches.	Far animal hunting	(sable, otter, squirrel, fox, mink, weasel)	
	-------Fishing in the branch and Ujiri Lake ----------				
		Bait fishing (trout fishing using fake bait named Maruhaka)		(Visit hunting hut) Hunter stay at hunting hut along the river and conduct hunting. They used to hunt mainly by trap hunting such as automatic bow	
November	the freezing season		**Far Animal Hunting**		
December	Net fishing/bait fishing ceremony: chukutori	On ice fishing they drill a hole and make offerings into the hole for their rich harvest. This ceremony is conducted at every fishing			