

2. FOREST RESOURCES AND RECENT CHANGES

During the process of economic development the forests have suffered great losses. Reliable data for past years are not available, but according to estimates, in middle of the nineteenth century 80 to 85 percent of the southern part of the RFE (S-RFE) area was covered by forest. During the last 37 years (for which rather accurate information is available) this ratio was stable and fluctuated in the range of 67 to 70 percent.

Generally speaking, the expansion of agricultural and settlements on S-RFE forestlands was uneven over time. Clearing and logging of forest in the region have increased during at least six peaks of activity (Table 1):

- 1) Dzhurdzhen era (beginning of 13th century);
- 2) pre-revolution years (1915-1917);
- 3) industrialization era (before World War II, i.e., 1937-1940);
- 4) Khrushchev's virgin soil developments (late 1950s to early 1960s);
- 5) development of Baikal-Amur railroad zone (1975-1985); and
- 6) current Economic Crisis (1992-present).

Up to the middle of the nineteenth century when the settlement of Russia started, only aboriginal tribes inhabited the territory and forest development was limited (**Box 1**). Before that time, forest loss had occurred due to occasional burning to clear land.

In the territory substantial forest conversion into farmland began in the middle of nineteenth century when czarist Russia launched efforts for full-scale settlement in the area. From that time until the twentieth century, forests that had gentle knolls with southern exposure were developed for human settlements and agriculture. This certainly caused forest destruction. Wood was also harvested not only for housing construction, utensil and tool manufacturing, and building heating but also for industrial production, factories and transport fuel. However, in the beginning of the twentieth century large-scale logging enterprises were rare but small ones existed and they conducted primarily high-grade selective and low intensity logging. Thus the impact of logging on forest cover was less significant than the impact of clearing for agriculture.

Table 1. Logging areas and rural population dynamics in 1860-1997

*1995. Source: Data Base, Economic Research Institute, 1998

Years	Logging area (and volume) 1000 ha (million cubic meters)			Rural population, thousand persons		
	Primorskiy	Khabarovskiy	Total	Primorskiy	Khabarovskiy	total
1860	- (0.05)	1(0.1)	1(0.15)	6	10	16
1880	- (0.2)	(0.4)	(0.6)			
1900	100(1.5)	14(1.0)	114(2.5)	100	28	128
1917	304(1.8)	34(1.5)	338(3.3)	299	61	360
1923	283(2.3)	32(1.1)	315(3.4)	369	85	454
1940	332(3.1)	91(8.0)	423(11.1)	419	260	679
1960	571(4.6)	169(7.8)	740(12.4)	453	294	747
1980	742(6.1)	280(13.7)	1022(19.8)	479	324	803
1990	742	268	1010	512	387	899
1996	558*	232*	790*	490	303	793
(1997)	(1.2)	(3.8)	(5.0)			

Box 1. The History and Forest Use of Indigenous People in the RFE

Strong Influence of Russian Activities

Russia invaded what is now the Russian Far East to hunt sable in the beginning of the seventeenth century. The indigenous people put up stubborn resistance to the Russians, and the Qing Dynasty Government kept the Russians out of the Amur River basin, preventing them from expanding their territory. Although the Russians went to the Pacific coast and Alaskan region in the second half of the eighteenth century, they later abandoned the colony in Alaska. Russia eventually took the area north of the Amur River and east of the Ussuri River from China by force. At this time the prototype of future development of the RFE was shaped. Thereafter Russians immigrated at a rapid pace, due to the opening of the Trans Siberian Railroad, the rapid progress of mining developments, and as a consequence the indigenous people became minority in the region. After the Russian Revolution, the racial autonomous districts were also established according to the racial territory principle. By Stalin's policy, peasants were forced to gather on collective farms (*kolkhozy*) from the end of the 1920s and the indigenous people were also involved in this campaign. In this process, the society and economic activities of indigenous people were forced to transform drastically.

On the other hand, industrial development and natural resource exploitation also progressed rapidly, and environmental destruction became a social problem in the country. In the Far East, the negative impacts of large-scale natural resource developments were not as serious as in West and East Siberia. However, natural resource development progressively encroached upon the livelihood base of indigenous people under the unprecedented social and economic disorder after the collapse of the Soviet Union. Most indigenous people find themselves in serious poverty and do not receive the benefits of development. Because they have no effective measures to protect them against unsustainable development, it can be concluded that their future is precarious.

Livelihood Strategies Based on Trading of Non-Timber Forest Products

Before the nineteenth century the area was under an East-Asian-style system, in which the people maintained and developed their society and culture based on hunting and gathering activities, mainly for regional fur trading. Thereafter the system was transformed (through the introduction of modern technology) due to introduction of a socialist system. However, the people maintained their existing livelihood strategies based on sustainable forest resource use. After the transition to the new market economy system, almost all subsidies and supporting measures by the central government were cut or reduced drastically, and consequently the people struggle today to develop new livelihood strategies in line with the new system. Unfortunately, due to the insufficient infrastructure to adapt to the new market economy, a sharp drop of fur demand and failures in dealing with the market, most of their attempts have not succeeded.

Thus the people have given priority to hunting for meat as a new means of self-sufficiency and currency acquisition. Such a change of livelihood strategies tends to bring over-hunting of medium- and large-sized mammals and the depletion of game. As a result, natural forests have less livelihood values than they used to have, the people become alienated from their land and resources have deteriorated.

Large-scale forest development in the region started after the October Socialist Revolution in 1917. Logging operations progressed mainly in Primorskiy at the beginning. After the 1960s, full-scale logging also started in Khabarovskiy, and the speed of forest development accelerated. From 1980 to 1990 the total logging area and volume of both *krai* were around one million hectares and 20 million m³, respectively. In those days logging operations in Russia paid little attention to sustainability and used a “cut and move” strategy—moving to new logging frontiers when timber resources were exhausted in one area. It was said that such logging methods originated in legal and institutional arrangements aiming to achieve production quotas under the planned economy. In the planned economy, achieving the volume of harvest assigned by Moscow was recognized as most critical goal; thus neither profitability nor efficiency were paid attention. Timber products were sold at very low prices and the forest industry was sustained by generous federal subsidies. Most timber produced in the region was loaded to European Russia and exported. The profit from forest development was not redistributed for forest production such as forest management and technology modernization or improvements bringing efficient resource use.

After the collapse of the Soviet Union, on top of the shortcomings of the legal and institutional base, weakened forestry governance caused by political disorder and economic crisis has increased extensive logging even more than before. Log production for export has gone up especially due to the rapid increase of domestic transportation costs and sharply lower domestic demand.

On the other hand, many areas in the RFE have suffered fires every year and middle to large-scale forest fires have also occurred frequently (**Box 2**). The forest fires of 1998 in Khabarovsk were the worst since 1954 and 1976—more than 1.9 million hectares of forests were burnt that year.

Recent official statistics on forest resources reveal the changes caused by extensive forest development and frequent forest fires, in the form of degradation of forest resources with a decrease of mature forests and an increase of young deciduous forests, as well as a decrease in the volume of stock of forests (**Fig 1**).

In Russia the deforestation, i.e., the decrease of forestland, has not occurred in the same way as in tropical forests, but the degradation of forests has progressed steady. One can observe forest dynamics broadly in the RFE in that the mature forests, mainly coniferous, have decreased, and then young deciduous secondary forests such as Butura have naturally regenerated on the vacant lots. The rate of such degradation is faster than in other regions in Russia and the speed is likely increasing due to recent the situation.

Table 2. Frequency of forest fires, and burnt area from 1988-1998*

in Primorskiy Krai and Khabarovskiy Krai

Year	Primorskiy Krai			Khabarovskiy Krai		
	Number of fires	Burnt area, 1000ha	Average fire area ha	Number of fires	Burnt area, 1000. ha	Average fire area, ha
1988	217	4.3	19.8	1224	353.0	19.8
1989	351	19.3	55.0	997	115.7	55.0
1990	227	1.3	5.7	953	130.9	5.7
1991	127	3.1	24.4	291	11.5	24.4
1992	216	6.9	31.9	372	17.1	31.9
1993	262	14.4	55.0	651	60.3	55.0
1994	78	3.3	42.3	278	13.0	42.3
1995	178	22.5	126.4	569	53.8	126.4
1996	187	6.8	36.4	1128	191.0	36.4
1997	425	13.3	31.3	389	34.0	31.3
1998*	556	58.6	105.4	1262	1900.0	105.4
Average	256.7		49.5	737.6		322.7

* to October 26. Source: Far Eastern Forestry Research Institute

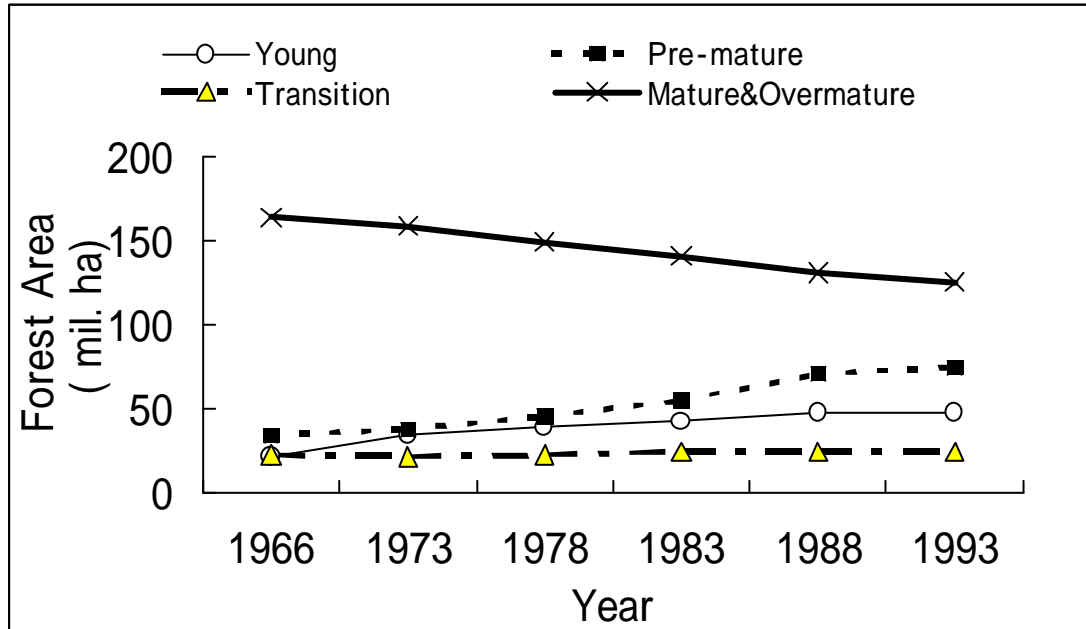


Figure 1. The Change of Forest Area in the RFE (Unit: million ha)
Source: Sheingauz et al. (1989) etc.

Box 2. Risk and the Causes of Forest Fires in the S-RFE

Fire Risk

The official Russian classification of fire risk divides all forest area into 5 classes by coefficient of risk. Of the total area 41.5 percent of the forest area in Khabarovsk has been classed “very high” or “high” risk (Sheingauz, 1998b). In neighboring Primorskiy Krai, more than two-thirds of the territory is concentrated in the “middle” class and less than 1 percent in the extreme classes (“very high” and “low”) (Sheingauz, 1998b). Thus, the forests in Khabarovskiy Krai can be evaluated as having a rather high potential for forest fires.

Causes of Fires

As for the causes of forest fires, it is said that 15 to 30 percent of all recent fires in the RFE were of natural causes, whereas 70 to 85 percent were by human activities (Sheingauz, 1998b). Of the more than 500 fires of 1998 it is estimated that 80 percent were started by human activity.

(YAMANE Masanobu)

The Causes of forest fires, average for 1988-1997,

Causes	Krai	
	Primorski	Khabarovski
Careless behavior of population with fires including: logging operations and survey expedition	64.0	57.9 5.1 6.5
Agricultural burning of grasslands	25.0	12.2
Lightning	4.8	16.1
Other	6.2	13.8
<i>Total</i>	<i>100</i>	<i>100</i>

Sources: data of the krais' Forestry Service Directorates