The Current State of National Forest Management and its Effect on Mountain Villages in Northeastern Japan

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1 Introduction

The forestry industry in Japan has diminished recently because of structural changes in Japanese industry, stagnation of wood demand, and the low price of wood mainly due to the increased importation of logs. Moreover the number of forestry workers has decreased and those remainders are ageing now. Many forestry regions have been struggling to revive forestry under these difficult conditions.

National forests occupy about one-third of the area of total forest land in Japan. The national forest service has played an important role in the development of Japanese forestry, and also has had a great effect on many local mountain villages. Incidentally, national forest management is at a big turning point just now. First, rationalization in national forest management, which includes drastic retrenchment in labor, is being carried out because national forest accounts have had deficits since 1975. Secondly, an active preservation campaign for natural forests, which reflects a growing interest with the natural environment by Japanese people, forces modification of national forest management policy.

The purpose of this paper is to clarify present practices of the national forest service and also to examine and compare some cases of settlement composition in mountain villages which are surrounded by national forest.

There are not many geographical studies dealing with forestry in Japan. In particular, the relationship between national forests and mountain villages has been given little attention recently. On the other hand, some studies were done in the field of forest economy. For example, Suzuki (1983) analyzed contract organizations concerned with national forests. Chiiki-noringyo-kenkyukai (ed.) (1982) discussed regional differences in forestry organizations concerned with national forests on the basis of field surveys in six forestry regions. These studies are referred to in this paper, but the author attempts to grasp not only forestry but the total occupational composition in mountain villages.

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2 Recent trends in national forest management

National forests were formed by the distinction of ownership of forests with the tax and land reform in the 19th century in Japan. After the unification of forest administration in 1947, national forests have been operated by self-supporting budgets based on the National Forest Service Special Accounts Law. National forests are managed by 9 regional forest offices, 5 branch offices, and 316 district forest offices (in 1988) under the jurisdiction of the Forestry Agency.

Fig. 1 shows the change in cutting volume since World War II. Roughly speaking, cutting volume increased with the development of the Japanese economy. For private forest land, though cutting volume of fuel wood decreased, total volume did not change in the 1950's. On the other hand, the cutting volume in national forests continued to grow from the 1950's to the 1960's. Its volume reached a peak in 1964, then it decreased. In Japan, importation of logs became free from the beginning of the 1960's, turning Japanese forestry to stagnation and depression. The degree of decrease in cutting volume for private forests was more drastic than that for national forests. While cutting activity in private forests is in a period of stagnation recently, that of national forests is recognized as gradually decreasing (Fig. 1).

Fig. 2 shows the changes in artificial regeneration area. The area in private forests tended to decrease after 1961, and the similar tendency was also seen in

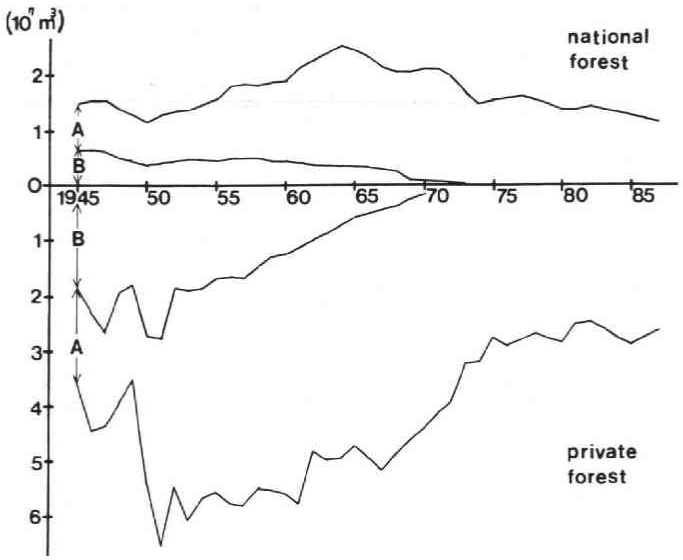

Fig. 1 Change in cutting volume.
A : lumber wood, B : fuel wood.
Source : *Ringyo tokei yoran* (by **Forestry Agency**)

Table 1 Cutting volume and silviculture

Regional fosest office	Pref.	Log production (m^3)		
		Directly operated	Contracted	Total
Aomori	Aomori	236,148(63)	140,896(37)	377,044(100)
	Iwate	168,222(69)	73,919(31)	242,141(100)
	Miyagi	51,840(77)	15,626(23)	67,466(100)
Akita	Akita	438,981(96)	20,402(4)	459,383(100)
	Yamagata	76,250(94)	4,607(6)	80,857(100)
Maebashi	Fukushima	83,964(48)	91,150(52)	175,114(100)
	Tochigi	28,478(54)	24,230(46)	52,708(100)
	Gumma	33,952(51)	32,400(49)	66,352(100)
	Niigata	11,669(47)	13,220(53)	24,889(100)
Total		1,129,504(73)	416,450(27)	1,545,954(100)

Note: ( ) means the share (%), 'log production' means production-completed volume, cutting.

Source: *Service statistics* (by **Aomori, Akita, and Maebashi regional forest offices**) and

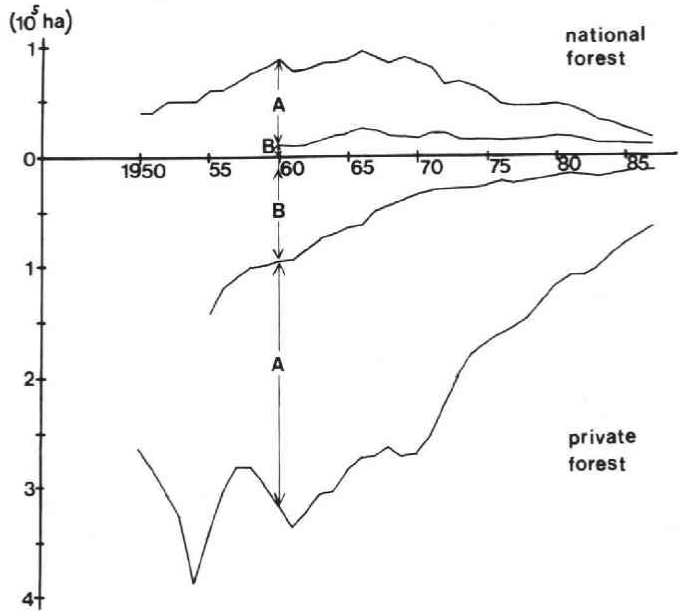

Fig. 2 Change in artificial regeneration area.
A: expansive afforestation, B: reforestation.
Source: see Fig. 1

area in national forest, 1987

Stumpage sale (m^3)			Silviculture area (ha)		
Free contract	Competitive contract	Total	Directly operated	Contracted	Total
259,395(86)	41,742(14)	301,137(100)	8,029(41)	11,466(59)	19,495(100)
289,991(81)	66,446(19)	356,437(100)	5,911(26)	16,911(74)	22,822(100)
52,605(72)	20,291(28)	72,896(100)	2,740(39)	4,344(61)	7,084(100)
208,718(80)	52,495(20)	261,213(100)	20,187(83)	4.154(17)	24,341(100)
84,628(59)	60,002(41)	144,630(100)	6,408(83)	1,290(17)	7,698(100)
205,965(64)	114,704(36)	320,669(100)	6,604(47)	7,508(53)	14,112(100)
48,436(81)	11,247(19)	59,683(100)	1,075(32)	2,241(68)	3,316(100)
56,918(69)	25,446(31)	82,364(100)	4,265(56)	3,372(44)	7,637(100)
16,439(43)	21,613(57)	38,052(100)	1,920(84)	370(16)	2,290(100)
1,223,095(75)	413,986(25)	1,637,081(100)	57,139(53)	51,656(47)	108,795(100)

'silviculture' means total area of ground clearance, planting, weeding, and cleaning

some datas offered by these offices.

national forests after 1966. For both, the tendency to decrease still continues. The reasons can be listed as follows: reduction in cutting activity, change from clear cutting to selective cutting, and conversion from artificial regeneration to natural regeneration. As for national forests, while reforestation area has not changed so much, expansive afforestation area has remarkably decreased.

From the above discussion, it is clear that the Japanese forestry industry is now in a stage of stagnation or decline in both national and private forests.

3 Practices of the national forest service

As mentioned above, Japanese forestry is now in a long depression. While national forest accounts have had deficits since 1975, improvement of the management and rationalization in the service have been carried out. That program is based on the National Forest Service Improvement Special Measures Law in 1978. This rationalization includes retrenchment in labor, a shift of service to the private sector, and so on. However, what is not clear is how to manage national forests after this rationalization.

Here the contents of the national forest service will be discussed. Cutting service in national forests is divided into log production and stumpage sale. The latter, which consists of stumpage sold to the private sector, constitutes about half of the total cutting volume. The former can be divided into directly operated work and contracted work. In 1981, the contracted volume was 25% of the total log production

(Suzuki 1983), a figure which will be higher in the future. Silviculture service also can be divided into directly operated work and contracted work. In 1981, the contracted volume was 61% of nationwide silviculture for ground clearance, 65% for planting, and 70% for weeding (Suzuki 1983).

National forests are not equally distributed in the country but are mainly located in eastern Japan (Ajiki 1988). In this paper, nine prefectures in northeastern Japan, an area under the jurisdiction of Aomori, Akita, and Maebashi regional forest offices, were chosen for study area to analyze regional characteristics in national forest management.

Table 1 shows service volume in national forests (in 1987) by prefecture. Fig. 3 shows cutting volume (in 1987) in more detail by district forest office. At first, regional differences are clear in cutting volume. Roughly speaking, cutting activity in northern Tohoku (Aomori, Akita, and Iwate prefectures) is comparatively prosperous.

Log production volume, which means production-completed volume here, is almost equal to stumpage sale volume in the total study area (Table 1). Seventy-three percent of log production is directly operated work, and 27% is by contracted business. In regard to stumpage sale, 75% is sold by free contract, most of which is for local organizations, and 25% is sold by competitive contract. Table 1 shows big differences in these contents of services among regional forest offices. It seems that forest policies are different by regional forest offices.

When looking at regional characteristics in more detail in Fig. 3, it can be pointed out that there are many regions, in which directly operated work has great importance, in Akita and Aomori. This is seldom seen in other areas and must be associated with native vegetation. That is to say, there are plenty of well-known natural conifers "*hiba*" (*Thujopsis dolabrata*) in Aomori, and "*sugi*" (*Cryptomeria japonica*) in Akita.

Incidentally, the share of directly operated silviculture work is high in the area of Akita Regional Forest Office as same as for cutting (Table 1).

4 Economic composition in mountain villages surrounded by national forests

There are many cases of forestry employment by national forest in interior mountain villages in northeastern Japan (Ajiki 1988). As mentioned above, regionally, many differences exist in national forest management. Therefore, it is considered that there are also regional differences as to the effect of national forest service on local villages and in the response of local people. Here, the relationship between national forests and local people will be examined by comparing two sample mountain villages. The study areas are Kamikoani *mura* in Akita, operated by the Kamikoani District Forest Office, and Akka district (in Iwaizumi *machi*) in Iwate, which is included in the service area of the Kuji District Forest Office. Table 2 shows an outline of forestry service by each district forest office. While the share of directly

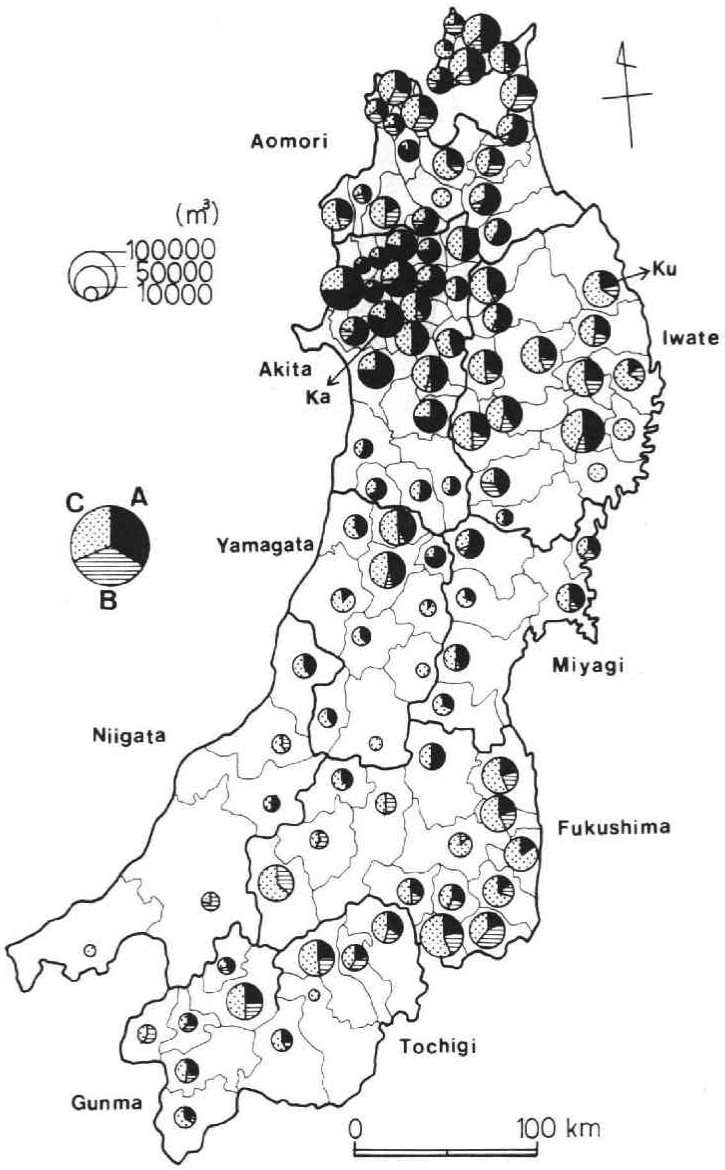

Fig. 3 Cutting volume by district forest office in 1987.
A : directly operated log production, B : contracted log production, C : stumpage sale.
Ka : Kamikoani, Ku : Kuji.
Source : see Table 1

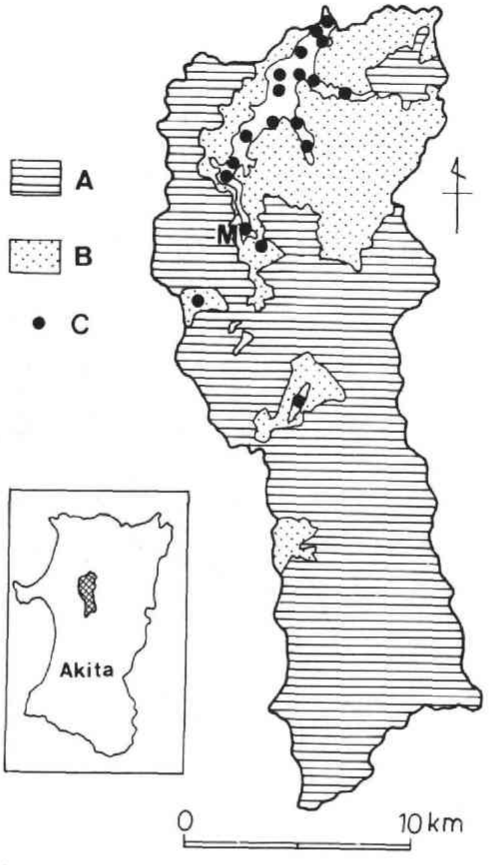

Fig. 4 Kamikoani *mura*.
A : national forest, B : private forest, C : settlement, M : Minamisawa settlement.

Table 2 Forestry services of Kamikoani and

district forest office	managed forest area (ha)	log production (m^3)			stumpage sale (m^3)		
		directly operated	contracted	total	free contract	competitive contract	total
Kamikoani	18,173	39,035(99)	578(1)	39,613(100)	8,654(73)	3,171(27)	11,825(100)
Kuji	26,884	10,132(62)	6,150(38)	16,282(100)	37,873(86)	5,975(14)	43,848(100)

Note : see Table 1.
Source : see Table 1.

operated work is extremely high in Kamikoani, the private sector plays an important role in Kuji. Thus these two samples have contrasting characters.

4.1. A case of Kamikoani *mura*, Akita Pref.

Kamikoani *mura* is located in the northern part of Akita Prefecture (Figs. 3, and 4). Forest land occupies 94% of the total land area, and the share of national forest is 75%. In 1985, the total population was 4,116, the total number of households 1,207, and 15% of employed people were engaged in forestry.

National forests in northern Akita has been famous for their abundant growing stock of natural "*sugi*" (*Cryptomeria japonica*), due to the forest preservation policy in the *Edo* era. However, as a result of long-term cutting, almost natural "*sugi*" has already been converted to planted "*sugi*". Nevertheless, Kamikoani is the only region where considerable natural "*sugi*" still remains, and it keeps the accounts of the Kamikoani District Forest Office in the black.

Directly operated work occupies the main part of service in the Kamikoani Forest Office (Table 2). This is of course associated with the area's native vegetation. Moreover, part of the background is that many workers were employed from the 1950's to the 1960's because of a strong labor movement. Thus the number of total staff members in the Kamikoani Forest Office is comparatively large (Table 2). About 80% of the total workers are inhabitants of Kamikoani *mura*, therefore it can be said that the district forest office offered great employment opportunities to the local people. Now people employed by the forest office are distributed in almost all settlements in this village. On the contrary, private organizations participate in only a small part of the national forest service. No large-scale forest organization exists in the village. The sale of standing trees to settlement associations for their lives, considered as a traditional connection between the national forest and the local people, was stopped in 1987.

Family composition and occupations in the sample settlement will be examined. The Minamisawa settlement was chosen for study because of its strong relationship

Kuji district forest offices in 1987

silviculture area (ha)			number of staffs		number of contract organizations
directly operated	contracted	total	white color	blue color	
1,469(88)	208(12)	1,677(100)	130	187	1
125(7)	1,739(93)	1,864(100)	66	50	12

with the national forest. Strong dependence on forestry is clear from the fact that persons employed by the district forest office are seen in 13 households among a total of 27 households (Table 3). The reason can be considered to be that many households in this settlement do not possess enough farm and forest land. For this reason many households came here from other areas to make charcoal in the *Taisho* era. Incidentally, the young generation does not engage in forestry, and in many households the young people have left (Table 3). This is because the district forest office has not employed new workers recently and also because of poor employment opportunities in nearby areas.

Table 3 Family composition and occupations in Minamisawa settlement (1988)

No	older geneation		young generation		managed farm area (a)	belonging forest area (ha)
	male	female	male	female		
1	(74)A	(70)—			370	0.1
2	(73)—	(66)A	(37)C	(36)D	250	2.2
3	(62)A	(59)A	(38)C	(37)D	230*	0.4
4		(62)A	(33)D		150	
5	(58)C+A	(56)—			120	0.3
6	(44)B1	(42)D			115	
7	(56)C	(55)C			70	7.1
8	(55)B1	(54)B1			50	
9		(40)B1			43	
10	(56)B2+D	(49)B2			40	
11	(58)B1	(53)—			37	
12	(44)D	(44)D			30	
13	(52)B1	(52)B1			18	
14	(52)B1	(51)C			10	
15	(58)B1	(55)B2	(26)D		10	
16	(47)B1	(38)D				1.1
17	(68)B3	(61)—	(39)C	(37)D		0.7
18	(63)D	(55)B2				
19		(61)D				
20		(60)B1	(40)B1	(38)D		
21	(58)B1	(53)B1				
22	(60)B1	(56)B2				
23		(56)—	(33)E			
24	(56)B1	(56)—				
25	(45)B1	(38)D				
26	(59)B2		(34)?			
27	(62)D	(58)—	(34)D	(33)D		

Note: ( ) means age, A: farming, B: forestry (1: employed by district forest office, 2: employed by forest owner's association, 3: employed by forest company, 4: belonged to settlement association 'kokuseikyo') C: another own business, D: another wage labor, E: migrant wage labor.
*: breeding beef cattle
Source: data by field survey in 1988

Forestry workers in district forest offices can work year-round. Their working conditions are better than other forestry workers. As Table 3 shows, however, most workers in the forest office are in their 50's. Thus the composition of the Minamisawa settlement, which strongly depends on the district forest office, will break down in the near future. Since forestry reproduction is difficult, the settlement itself will be faced with a big change.

4.2. A case of Akka district in Iwaizumi *machi*, Iwate Pref.

Akka district, which is a part of Iwaizumi *machi* administratively, is located in the northern part of the Kitakami Mountains in Iwate Prefecture (Fig. 3, Fig. 5). Forest land occupies 98% of the total land area, and 62% of it is national forest. In 1985, the total population was 1,275, the number of households 424, and the percentage of those engaged in forestry in the district 19%.

Kitakami Mountains are basically in the zone of deciduous broad-leaved forests. Iwate was formerly the greatest charcoal producing prefecture. In the Akka district, charcoal making also prospered by the active sale of standing trees from the national forest to local settlement associations due to the forest policy thinking of local inhabitants at that time. From the 1950's to the 1960's charcoal making declined and nearly disappeared. However, settlement associations, named "kokuyurinzai-seisan-kyodo-kumiai (national forest log production cooperatives)" and here called "kokusei-

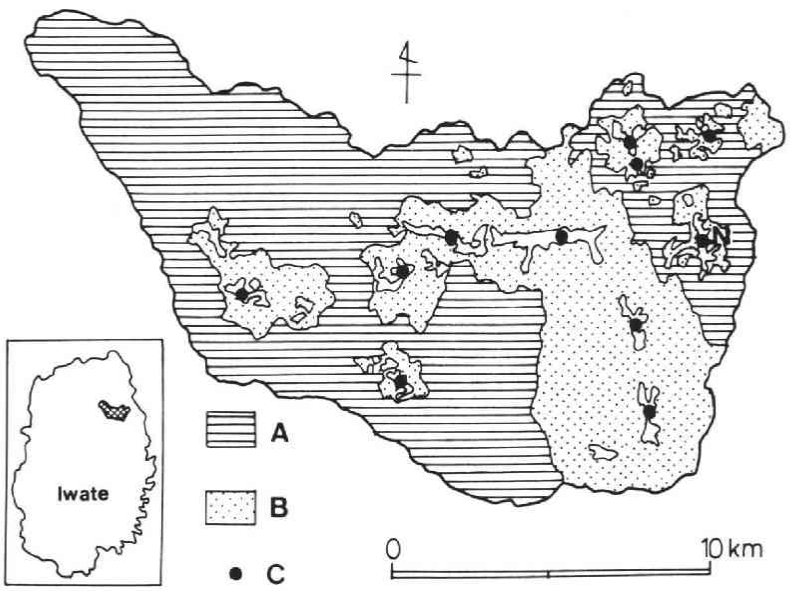

Fig. 5 Akka district.
A, B, C : see Fig. 4, N : Nennen settlement.

kyo" in abbreviation, have maintained their activities to date by receiving free contracts for standing trees and contracts for silviculture work.

As Table 2 shows, the Kuji District Forest Office does not have so many directly employed workers. Therefore the directly operated part of its activities is small and the private sector part is big in both cutting and silviculture. The "kokuseikyo" plays an important role among private organizations. For the national forest service in the Akka district, activities by the "kokuseikyo" accounts for 23% of totoal cutting volume and 52% of total silviculture work in 1986. Groups of "kokuseikyo" are formed by each settlement and operated individually.

The Nennen settlement, which is located in the eastern part of Akka, is said to have prosperous "kokuseikyo" activity. Table 4 shows that members of 10 households engage in forestry by "kokuseikyo" among a total of 15 households. This type of forestry is not year-round. However, as most households in Nennen have forest and farm land, they can maintain both agriculture and "kokuseikyo" work. That is to say, agriculture and forestry work together moderately. Moreover, it seems that engaging in "kokuseikyo" work together is helpful in encouraging a communal sense of the settlement. As Table 4 shows, this "kokuseikyo" consists of not only older generation members but also of younger one. Being able to alternate generations is one of the advantages of the "kokuseikyo". The composition of the Nennen settle-

Table 4 Family composition and occupations in Nennen settlement (1986)

No	older generation		young generation		managed farm area (a)	belonging forest area (ha)
	male	female	male	female		
1	(52)A	(50)A	(25)A	(24)—	130*	43.5
2	(61)B4	(61)A			100	40
3	(67)A	(63)A	(41)B2	(34)B2	100*	33
4	(64)A	(66)A	(43)E	(41)A	100	30
5	(44)B4+A				85*	35
6	(45)B4+E	(45)A	(18)E		80	20
7	(51)B4+A	(50)A	(24)E		70*	44
8	(52)B4+A	(50)A			60*	5.5
9	(60)B2	(58)A	(24)B4+E		50	15?
10	(45)B4+A	(38)A			50*	8
11	(60)A+B2	(58)A	(36)B4+A	(27)—	50*	2.2
12	(64)A	(61)B2	(36)B4+A	(35)A	40*	31
13	(71)A	(64)A	(29)B4+A		40*	15
14	(53)B2	(55)B2			10	
15		(58)B2		(23)D	8	

Note: see Table 3
Source: data by field survey in 1986

ment is more stable than that of Minamisawa in Kamikoani. Nevertheless, as there are few other employment opportunities in Akka, some persons are working away from home (Table 4).

"Kokuseikyo" is maintained by contracts with the district forest office. Hence it tends to be influenced easily by national forest policy. But for the Nunnen settlement, "kokuseikyo" is comparatively full of labor. Therefore this form of management is considered to be maintained in the future, if a certain degree of work is ensured.

5 Conclusion

In this paper, current practices of national forest services were first investigated regionally. Then regional comparisons were made to examine settlement compositions in two sample mountain villages, where the types of national forest service are different. As a result, contrast in the two samples was clearly described. However, it is difficult to fully comprehend the relationship between national forest service and local inhabitants by only these examples. Further case studies are necessary.

As mentioned above, national forest management is now at a turning point in Japan. Various changes will occur in some aspects of mountain village life as a result of change in national forest management. Geographical viewpoints, taking accounts of regional characteristics, will be increasingly necessary in order to analyze mountain villages and forestry and to make accurate forecasts.

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