

## Spatial Structure of Zenmai Gathering: A Case Study of a Mountain Village in the Heavy Snow Zone

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# Spatial Structure of *Zenmai* Gathering : A Case Study of the Mountain Village in the Heavy Snow Zone

Kazunobu IKEYA

## 1 Introduction

Territoriality is defined as regional occupation exclusively by individuals. In this paper, this corresponds to the spatial structure of *zenmai* gathering.

Human territoriality has been studied in such academic fields as animal ecology, ecological anthropology and sociology. Anthropologists presented a framework for analyzing the diversity of spatial organizations, including human territoriality. Dyson-Hudson and Smith (1978) explained various types of resource use by the application of the costs-benefits theory in evolutionary ecology. Human territoriality occurred when both resource density and resource predictability were high. Human geographers have also studied the subject in recent years (Tuan 1976, Sack 1983, Ikeya 1984, Ueda 1986).

On the other hand, "*iriai-rinya*" (forests where people are habitually allowed to enter) has been studied in law sociology (Ushimoi *ed.* 1962), sociology (Nishikawa 1951, Katsumata and Hoshi 1959), history (Oka 1956), and human geography (Oguri 1958, Fujita 1977, Yamaoka 1977, Nishida 1981, Matsuo 1981) in Japan. Ushimoi (1962) arranged "*iriai-rinya*" into three usage classifications: "*kyoudou*" (common forest), "*wariyama*" (division of forest holding), and "*tomeyama*" (prohibited forest). The occurrence of "*wariyama*" was caused by spontaneous developments in private management influenced by the commercial economy.

The author has previously reported on the destruction of a "*zenmai*" gathering territorial structure which was mutually agreed to inhabitants in order to clarify the changes in a village lifestyle caused by a dam construction plan (Ikeya, 1984, 1989b). The author applied the above model to the types of resource use in Japanese mountain villages. In the case of "*maitake*", a kind of mushroom, which is usually found at the base of Japanese oaks, resource density and predictability were low. Since there is keen competition for *maitakes*, people can't form a geographical territoriality. In the case of "*zenmai*", a kind of wild plant, the territoriality occurred when two variables

were high.

Although this model is to a degree useful in explaining this diversity, we have to consider not only the ecological circumstances but also the penetration of a commercial economy. The author considers that the formation process of *zenmai* gathering territory must be explained by not only ecological factors, but also by the above mentioned social-economical reasons.

This paper aims to outline the changes in spatial structure of *zenmai* gathering areas in Gamou, Tadami-*machi*, Fukushima Prefecture from the *Meiji* Period (1868–1912) to the present time. This example provides a different type of resource use, as compared with that of Miomote, Asahi-*mura*, Niigata Prefecture. We would like to discuss the reasons why two types of resource uses arised.

This paper is based on field research in the study area in September 1981, December 1983, and April 1986. The author conducted the oral interviews with native people, and gathered the materials at the local government in Tadami-*machi*.

## 2 Study area

*Zenmai* (*osmunda japonica*) is a kind of fern, and the young shoot is a traditional edible plant in Japan (Photo. 1). *Zenmai* is densely distributed on the steep slopes of mountains where heavy snow falls. Therefore, *zenmai* of good quality has been produced in the mountain villages of the Tohoku region facing the Japan Sea.

The author identifies “*Zenmai* settlements” where *zenmai* production is important to village life’s economy. As shown in Fig. 1, these settlements are distributed at the foot of the Moriyoshi Range, the Waga Range, the Kurikoma Range, the Choukai Range, the Asahi Range, the Iide Range, and the Echigo Range.



Photo. 1 Young shoots of *Zenmai*

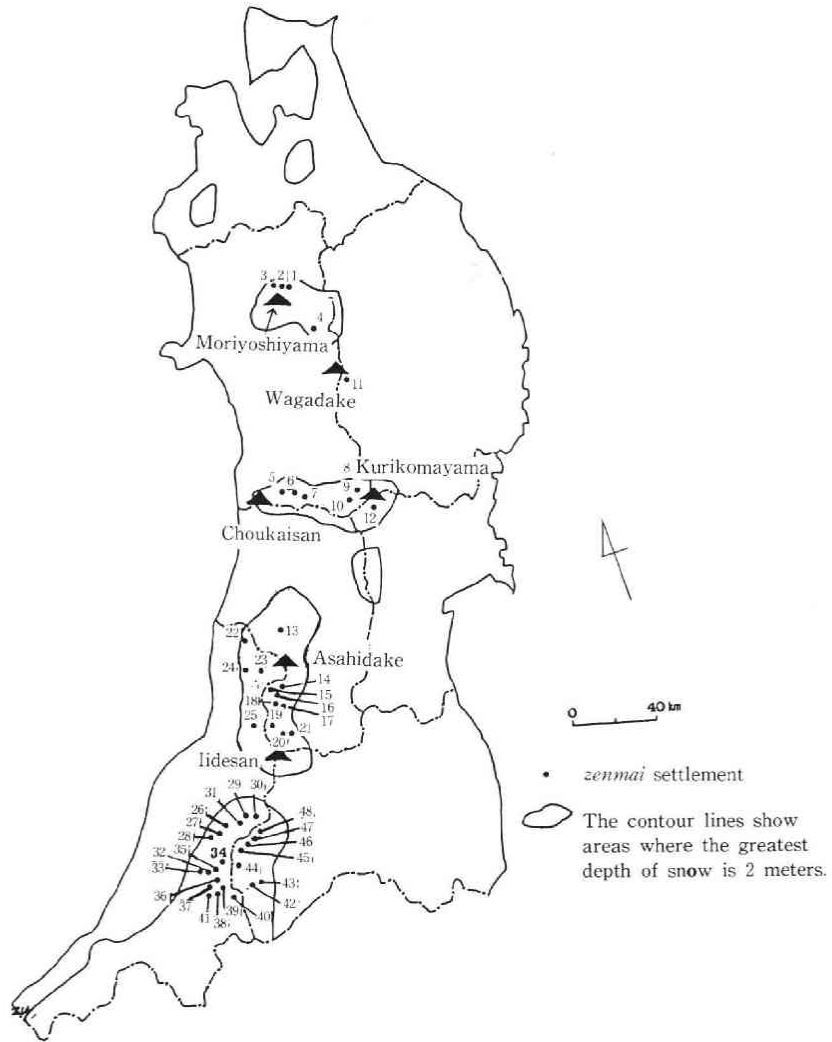


Fig. 1 The *zenmai* settlements and the greatest depth of snow (after K. Ikeya (1989a))

- ① Sunagozawa, ② Hirata, ③ Yunotai, ④ Tamagawa, ⑤ Momoyake, ⑥ Harimizu, ⑦ Sarakawa, ⑧ Hiyamadai, ⑨ Oyasu, ⑩ Yunotai, ⑪ Marushida, ⑫ Ikusazawa, ⑬ Ootori, ⑭ Gomizawa, ⑮ Orido, Iriorido, ⑯ Arasawa, ⑰ Kaname, ⑱ Furuta, ⑲ Kotamagawa, Choujyabara, ⑳ Takeya, ㉑ Hirogawara, ㉒ Yamakumada, ㉓ Miomote, ㉔ Chinawa, ㉕ Ooshi, Kanamata, ㉖ Kamisugigawa, ㉗ Ooe, Ootani, ㉘ Yoshigahira, ㉙ Semi, ㉚ Kurotani, ㉛ Muroya, ㉜ Matsukawa, ㉝ Mukaimatsukawa, Sugawa, ㉞ Ooshirakawa, Gomizawa, ㉟ Ootochiyama, ㊱ Mitsumata, ㊲ Oritatē, ㊳ Imogawa, ㊴ Utsuno, ㊵ Ginzandaira, ㊶ Minowazawa, ㊷ Shirasawa, Kuratani, ㊸ Shionomata, ㊹ Togokura, ㊺ Irikarouzu, Kanouzu, ㊻ Gamou, ㊼ Shiro-sawa, ㊽ Takizawa.

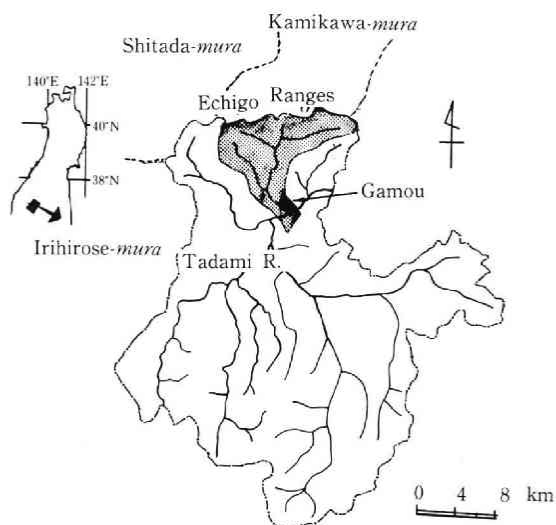


Fig. 2 The study area.

The study area, Gamou in Tadami-machi, is located at the foot of the Echigo Range in South Aizu Province (Fig. 2). Most parts of this area are covered with national forest land which is 5,738 ha in area. It is inadequate for afforestation because of steep landforms and heavy snowfall. In the mountains in Gamou, it is said that *zenmai* grows wild in all places where water flows, as if it were hemp fields. The forest is managed by the Yamaguchi District Forest Office belonging to the Akita Regional Forest Office since the Meiji Period. Local residents are permitted to use the national forest in order to gather wild plants and mushrooms.

The settlement is located in the vicinity of a confluence of the Tadami River and the Gamou River, and is constituted by four districts, Yagisawa, Idaira, Kubo and Miyahara. The number of households in the area is about 130, and the population was approximately 500 in 1986. Most of the people living in Managawa along the Gamou River, were moved to Idaira because of flood damage in 1971. The main jobs of the villagers are *zenmai* production in spring, road construction in summer and autumn, and work away from home in winter.

For *zenmai* gathering, people either construct "zenmai huts" (Photo. 2) and go to gather *zenmai* in the surrounding areas (Photo. 3), or commute by car or motorcycle. At the present time, there are 33 households in such huts, 22 of them being village people of Miyahara. This indicates an increase in branch families ("bunke") engaged in *zenmai* production because of its economic importance to village life.

Fig. 3 shows the distribution of *zenmai* production in Tadami-machi, in 1982. The production in Gamou, Kanouzu at the foot of the Echigo Range, in the northern

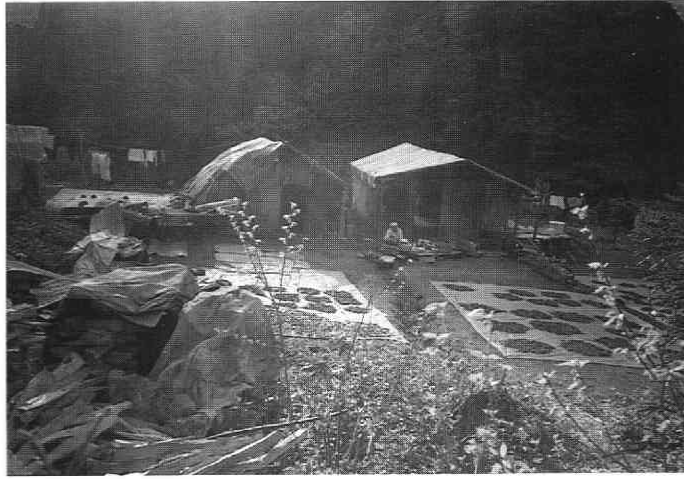


Photo. 2 “Zenmai hut” in gathering area (“Ookanbukuro”), June. 1986.



Photo. 3 Zenmai gathering on the steep slope of “Ookanbukuro-zawa” in Gamou.

part of Tadami-*machi*, shows high yields of 2,600 kg (“700 *kan*”), with a value of 20~30 million yen per month.

### 3 Zenmai gathering in the Meiji Era. (1868-1912)

During the *Meiji* Era the mountains in Gamou were commonly utilized, and gathering areas for each family were not divided. The old ruins of a pot show that people living in Niigata crossed the border to gather *zenmai* in government forests in



Photo. 4 Processing of *zenmai* in front of "zenmai hut".

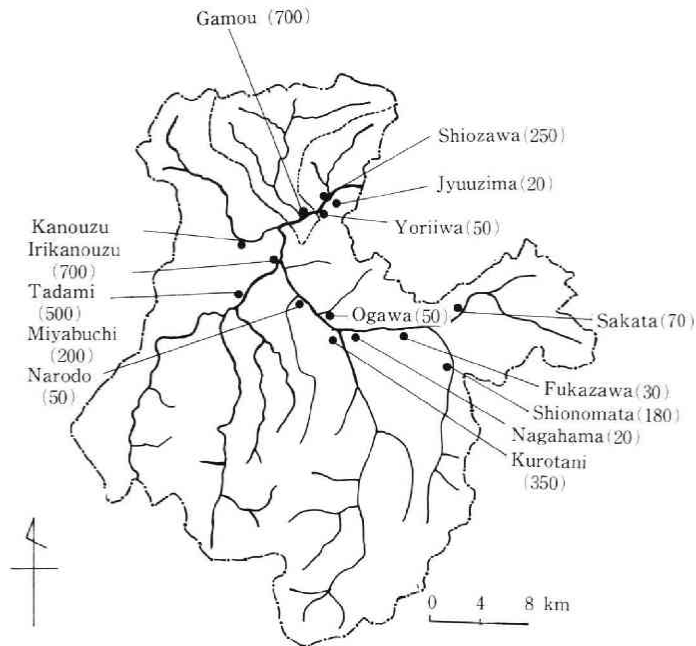


Fig. 3 Distribution of *zenmai*'s production in Tadami-machi, 1982.

( ) : Production of *zenmai* (kan): 1 kan-3.75 kg (from research of local government)

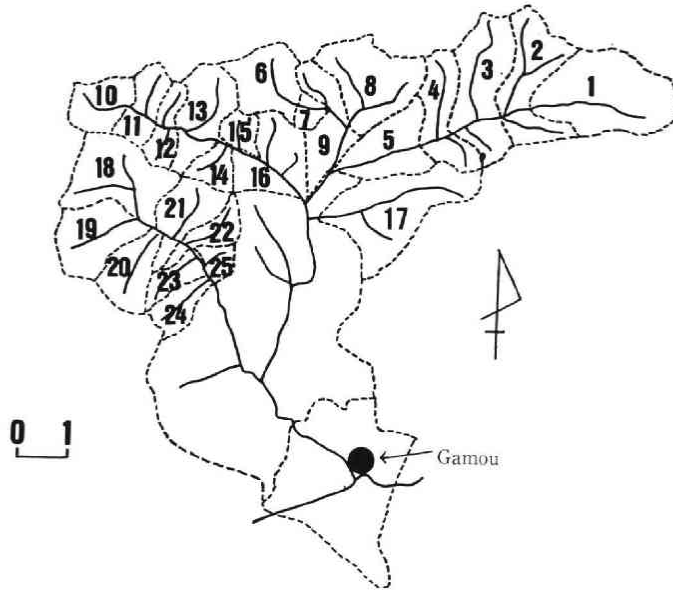


Fig. 4 *Zenmai* gathering area in Gamou from the *Meiji* Era to 1945.  
Source: Susumu Igarashi and Tamotsu Igarashi, interview, April 1986.

Gamou, but we can't clarify the starting date. They lived in Morimachi-*mura* (now a part of Shitada-*mura*), and passed along "the Nakategoe street" connecting Managawa in Gamou and Ooe, Ootani, in Morimachi-*mura*.

However, in the middle *Meiji* Era the number of gatherers from Echigo increased. Therefore, Shinkichi Baba, living in Gamou, divided into two parts, "*iraiyama*" near the Gamou settlement and "*Kaiyama*" far from the settlement. The latter was occupied by Niigata's people and, moreover, divided into 25 sections based on detailed information about the distribution of *zenmai*, according to Husazi Igarashi and Kango Igarashi. This division made it easy to get the money called "*yamatekin*" for the use of mountain land. Fig. 4 shows *zenmai* gathering areas from the middle *Meiji* Era to 1945. Each section was called "*shirotaki*", "*iwatate*", "*ookanbukuro*", etc.. After Niigata's people had occupied each area, the village people of Gamou used the same places. Their names were Nitaroo Annaka in Nagano, Zirousaku Sakai in Ooyamachi, and Torazou Yoshida in Ootani in Morimachi-*mura*, Niigata (Table 1).

In early May, village people in Niigata visited the area where small huts were set up and produced smoked *zenmai* ("*aoboshi zenmai*"). In late June, people kept the money in the mountains, and carried the *zenmai* through the "Nakategoe" or the "Hachijuurigoe" street. Incidentally, the main occupation in Gamou was sericulture. Though *zenmai* gathering at the common place was carried out, they were not



Table 1 Name of gatherers from the *Meiji* Era to 1945

Name of gathering section	Name of gatherer in Niigata	Name of gatherer in Gamou
1 Shirataki	?	Kango Igarashi
2 Iwatakezawa	?	?
3 Ookanbukuro	?	Sunao Igarashi
4 Takishita	?	?
5 Ippondamo	?	Hitoshi Igarashi
6 Takiue	?	?
7 Takishita	?	?
8 Mochiba	?	Kengo Oodaira
9 Kamakoshi	?	Torachiyo Yokota
10 Tengu	?	Suejiro Sanpe
11 Bunagoya	?	Eiji Wakabayashi
12 Nakagoya	?	Ukichi Takizawa
13 Kanegasawa	?	Michie Igarashi
14 Takishita	?	Hayanosuke Sanpe
15 Kumanosawa	?	?
16 Akamon	?	Tokuji Nishizawa
17 Koshirasawa	?	Matsuji Igarashi
18 Akaiwa	?	Makoto Igarashi Kinji Sanpe
19 Mochiba	?	Kikuo Sanpe Yasutarou Sanpe
20 Sankazawa	Nitarou Annaka	Yosaburo Igarashi
21 Shukuba	Zirousaku Sakai	Tomozi Hasebe
22 Yoshizawa	Torazou Yoshida	Eisa Sanpe
23 Kamiookura	?	Matahachi Baba
24 Ookura	Sinkichi Imai	Tamotsu Igarashi
25 Fukuzawa	?	Itsuya Takizawa

especially interested in *zenmai*.

#### 4 *Zenmai* gathering from the *Taisho* Era (1912-1925) to 1946

As soon as a road was constructed into Aizuwakamatsu and coaches were driven, the villagers in Niigata sold *zenmai* to the merchants visiting from Aizuwakamatsu. The village people saw this situation, learned how to produce the smoked *zenmai*, and sold it to the same tradesmen. Consequently, the village people knew that the prices of *zenmai* were high, and that it was very easy to sell. The village people of Niigata were prohibited from gathering in Gamou's mountain. The people in Gamou gradually occupied the *zenmai* gathering areas.

In this period wealthy people built a new house for a producer after they gathered a large quantity of *zenmai* produced for two years. For example, building a house cost only about 300 *yen* and that sum was earned through gathering *zenmai*. *Zenmai* production during about one month of each year brought people a secure income. The custom of “*maegari*” also arose, in which brokers advanced rice and other staples to villagers each fall in exchange for *zenmai* deliveries the next spring. *Zenmai* was called “treasure grass”. However, all households did not always gather. Rich households were engaged in the sericulture, while poor people worked at *zenmai* gathering. Thus, *zenmai* was also called “poor grass”.

Since common forest cooperatives in the Yamaguchi District Forest Office arose after 1945, cooperative members paid money to that office to acquire gathering rights.

##### 5 *Zenmai* gathering from the rapid economic growth which started after 1955 to 1986

Since the price of *zenmai* rose rapidly in about 1960, the number of *zenmai* gatherers increased. Because the older 25 sectional divisions became inconvenient, two new sections were added and were subdivided into sections for two to four people rather than for one as in the old sections (Fig. 5). As a result, *zenmai* gathering areas were divided into 50 sections with a yield of more than about 94 kg (“25 *kan*”) per

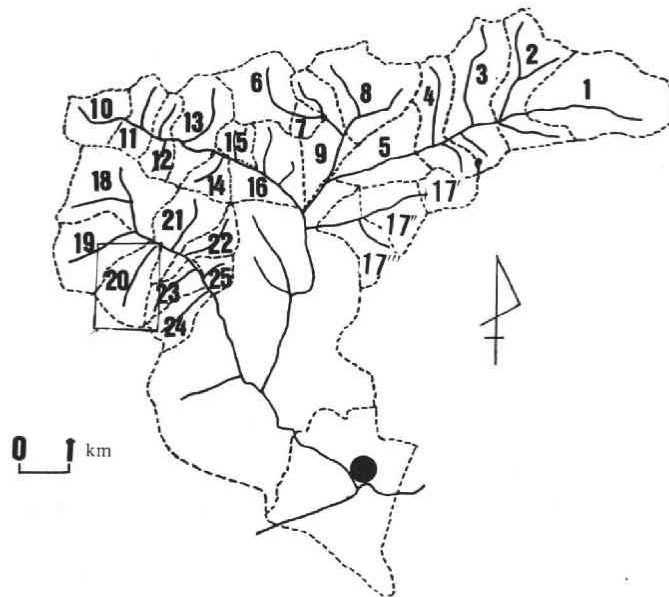


Fig. 5 *Zenmai* gathering area in Gamou in 1965.  
Source : Susumu Igarashi, interview, April 1986.

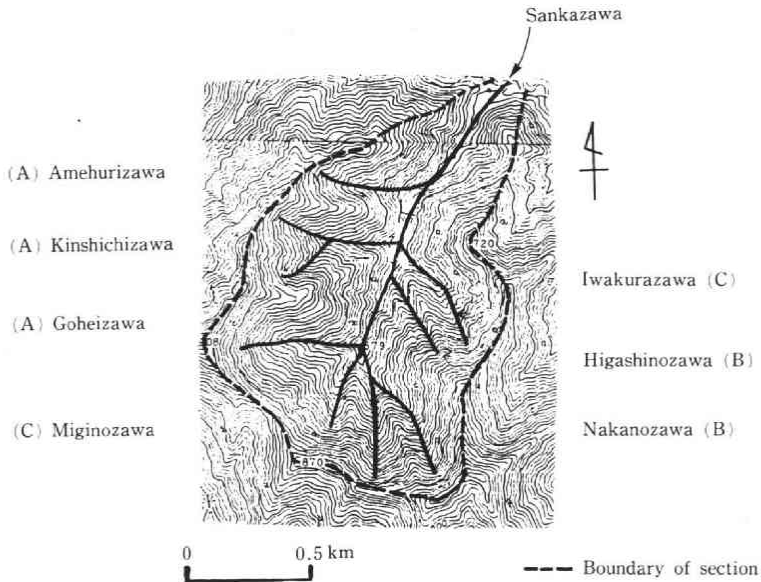


Fig. 6 An example of gathering section divisions.  
Source: Homane Baba, interview, April 1986.

section, as a basis. Fig. 6 shows how the sections in the Sanka Stream were divided into three sections. Through mutual agreement among three people, one person gathered at Amehuri-zawa, Kinhichi-zawa and Gohei-zawa, where *zenmai* was distributed on one side of the slope, another person at Higashino-zawa, and Nakanozawa, and the last person at Migino-zawa, and Gankura-zawa where the distribution of *zenmai* was on both sides.

The gathering area for each household was decided at a meeting in the village. The village people made a contract about the gathering areas for three years and paid the money ("Nyuzanryo"). The agreed price equalled in the range of from 6,000 to 18,000 yen in 1972. When three people utilized an area, the amount of money was paid by the three of them (Table 2). There were some popular gathering areas, such as Kamakoshi and Akamon, where more people than the association planned for, applied (Table 2). It was easy to arrive at the area from their home, due to the construction of a woodland pass.

As *zenmai* gathering areas per household became smaller, *zenmai* production per family gradually decrease. Yet, total production increased to 7,500 kg. ("2,000 kan"). In about 1965 (*Showa* 40) the number of new households greatly increased in Miyahara (Fig. 7). They were engaged in a complex of occupations, ; *zenmai* gathering, road construction and "dekasegi". The increase in households was apparently caused by

Table 2 Number of gatherer in each gathering section

Name of gathering section	Prescribed number of gatherer	Prescribed price to use each section	Decided price	Number of gatherer in 1972	Number of gatherer in 1984
①	1	4,000	6,000	1	1
②	1	4,000	6,000	2	1
③	2	10,000	15,000	2	4
④	3	9,000	13,500	4	3
⑤	3	9,000	13,500	2	3
⑥	2	6,000	9,000	2	1
⑦	1	4,000	6,000	1	0
⑧	2	8,000	12,000	2	2
⑨	3	9,000	13,500	5	3
⑩	2	6,000	9,000	1	1
⑪	2	6,000	9,000	2	1
⑫	1	5,000	7,500	1	1
⑬	3	9,000	13,500	2	2
⑭	1	7,000	10,500	1	1
⑮	1	5,000	7,500	1	1
⑯	4	16,000	14,000	5	4
⑰'	1	5,000	7,500	1	1
⑰''	1	3,000	4,500	1	3
⑰'''	1	5,000	7,500	1	1
⑱	3	12,000	18,000	3	2
⑲	4	12,000	18,000	4	2
⑳	3	12,000	18,000	3	1
㉑	2	8,000	12,000	2	2
㉒	1	5,000	7,500	1	2
㉓	1	5,000	7,500	1	2
㉔	3	12,000	18,000	3	3
㉕	1	4,000	6,000	1	1
㉖					1
㉗					1
㉘					4
㉙					2
㉚					2
㉛					2
㉜					2
㉝					1
㉞					2
㉟					1
Total	53			55	67

Source: *Gamou-Buraku-Shiryou*, in 1972 and 1984

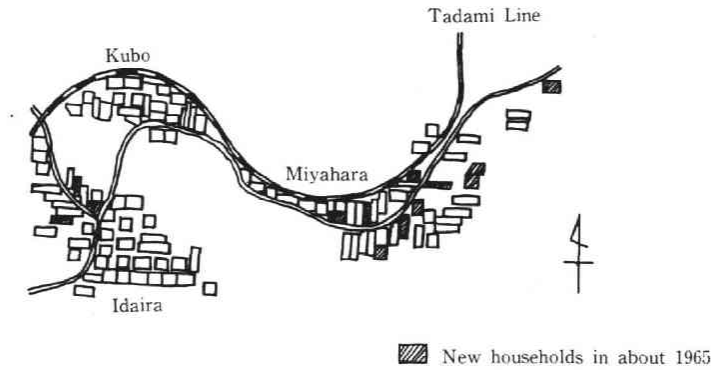


Fig. 7 Distribution of new households.

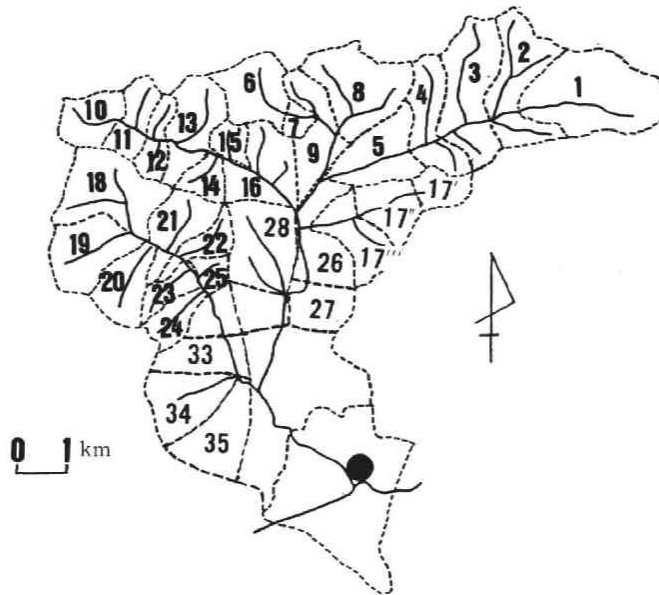


Fig. 8 *Zenmai* gathering areas in Gamou in 1981.

26~35: additional sections.

26; Semigakura, 27; Tsubokura, 28; Honkawanamerizawa, 29; Gamougawadaiichi, 30; Gamougawadaini, 31; Managawadaiichi, 32; Managawadaini, 33; Takataki, 34; Ishitakazawa, 35; Managawanamerizawa.

the *zenmai* gathering income.

Fig. 8 shows *zenmai* gathering areas in 1981. A common forest near the settlement was subdivided into 11 sections. Figures of the division add up to 38, and 75 households in each section. Since the village people of Yagisawa went to the areas to

gather in the early morning, competition in common forest areas was severe, so the land was divided by the mutual agreement of the villagers.

## 6 Conclusion

This paper describes the changes of spatial structure in *zenmai* gathering areas in Gamou from the middle *Meiji* Era to 1986.

The results are simplified in Fig. 9(B).

(1) In the *Meiji* Era each household in Gamou didn't occupy a specific gathering section. However, as the number of gatherers increased in the middle *Meiji* Era, the remote mountain land was divided into 25 sections in order to obtain the "*yamatekin*", but the common forest area near the settlement remained undivided. The author calls this pattern the "common type".

(2) In the early *Taisho* Era the village people in Gamou started to produce large quantities of *zenmai* because they acquired the skill of making smoked *zenmai* ("*aoboshi-zenmai*") and knew the high value of *zenmai*. As a result, their occupation took the place of people's one and the 25 sections were utilized. The author calls this pattern the "large division type".

(3) The price of *zenmai* increased with rapid economic growth. Since other households started to gather, an obstacle to gathering arose due to the former spatial structure. The consequence was that the gathering areas were further subdivided into 50 sections. The author calls this pattern the "small division type".

The above process is different from that which took place in Miomote, Niigata Prefecture (Ikeya, 1989b). In Gamou the former spatial organization prohibited the people's passing across the boundaries between the gathering sections. Moreover, gatherers could change gathering areas according to the circumstances of each household. Thus, this was a skillfully arranged organization adaptable to changes in the number of gatherers.

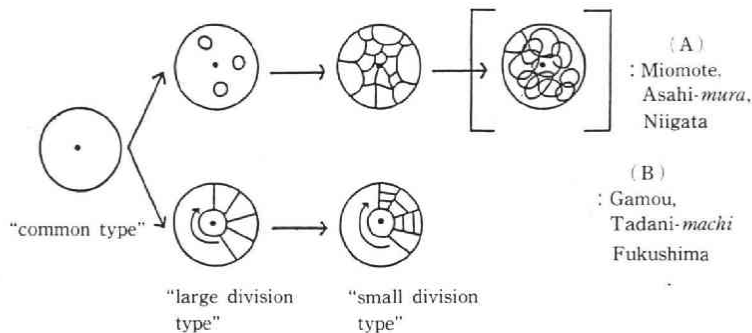


Fig. 9 Development process of spatial structures in gathering.

On the other hand, in Miomote, Niigata Prefecture, after a mountain hut was occupied by one household in an area, another household could use the other land (Ikeya 1989b). This is shown Fig. 9(A). The gathering territory was decided not by a conference of gatherers, but by mutual agreement. This was a permissive organization where boundaries were decided by a tacit understanding among villagers. As a result, in some *zenmai* settlements, the destruction of the gathering territory structure occurred by three means of a dam construction plan, the increase of gatherers from the city, and their disregard of *zenmai* ecology.

The author considers that the former process occurred in Gamou due to low resource density, and the latter in Miomote due to high resource density because the gatherer's number gradually increased. This is useful in explaining the diversity of spatial structure by not only socio-economical factors but ecological ones.

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