The Socialogical Studies of Fleshy Fungi in the Mountainous Zone Forest in Kii-Peninsula. *

by

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Among the forests in Japan, characteristic mountainous zone forests are *Fagus crenata. Quercus mongolica* var. *grosseserrata* forest, Betula var. Japonica forest, and Coniferous forest. The mountains above the Montane zone forest are often covered by fogs and clouds and damp. So the fungi which are parasitic with fallen trees, fallen leaves, fallen branches, and stumps. The fungi which come out on earth, grow very much. I reported about the fungi socialogical studies in *Fagus crenata* forest in Chubu-Kinki regions.

This time, the fungi in *Fagus crenata* forest in Mt. Odaigahara in Yoshino-Kumano National Park are investigated and reported.

The *Fagus crenata* forest in Mt. Odaigahara is above 800 meters above sea level, and is, according to plant socialogical studies, forest community, the type of *Sasamorpheto-Fagetum crenatae* which is often seen in mountains of Pacific Ocean side in Japan islands. And there are also Subass. *rhodoretosum,* Subass. *Pierietosum,* Subass. *quercetosum,* and *Tsuga sieboldii* Community (Table 1).

When I investigated the fungi-society, I adopted various methods, such as phytosocialogical method. Quantity is by frequency abundence frequency, coverage, density, relative density, quality of sociability.

As a method to measure coverage of the fungi, I took the method that fungi fungal zone, such as fairy ring, is coverage. And so, I could analysis the fungi society. As I already detailed, this time I report briefly.

On earth in *Fagus crenata* in Mt. Odaigahara I acknowledged Characteristic species, such as *Cortinatius subarmillatus, C. ninnulens, C. flexipes, C. watamukiensis, Collybia confluence, C. erythropus, Amanita flavipes, Mycens palygramma, M. crocata, Clitocybe candicans, Hygrophorus leucophaeua, Pholita lanta, Russula aurata.* The fungus society in Mt. Odaigahara is *Cortinuvius subarmillatus-Clitocybe canaicans* Community which are characteristic species.

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About the society of fungi which are parasite with withered trees, such as fallen trees, fallen branches and stumps. I analysed phytosocealagically by the method of 20×20 meters quadrat in *Fagus crenata* forest.

The result is follows. That fungi society is *Oudemansiella venosdamella-Lampteromycea japonicus* Community which the fungi, such as *Lampteromyces japonicus Oudemansiella venosolamellata O. nucida Mycena crocata Neobulgaria pura Creolophus pergamenus Hercium ramosum Fomes fomentarius Trachyderma tsunodae* are characteristic species.

Summary

This time I investigated the society of fungi which grow in the Montane zone in Mt. Odaigahara which is the roof of Kii-Peninsula.

The result is as follows.

1. In *Fagus crenata, Quercus mongolica* var. *grosseserrata* forest occurs in Kii-Peninsula.
2. I investigated fungi socialogically by making quadrat in this forest. Coverage were measured by fungal zone, such as a fairy ring.
3. In *Fagus crenata* forest, fungus society, such as *Cortinarius subarmillatus-Clitoeybe canaicans* community *Oudeemansiella venosolamella-Lampteromycea japonicus* community exist.

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Table. 1 Summarized Community tabld of *Cortinarius subarmillatus-Clitocybe canaicans* Community

Species	Density	Frequency	Relative density	A/F	Cavereage	Sociability
Characteristic species of *Cortinarius subarmillatus-Clitocybe candicans* Community						
Cortinarius subarmillatus	6.7	E	14.9	0.15	2	4
C. hinnuleus	1.3	C	2.9	0.05	1′	2
C. flexipes	1.2	C	2.6	0.03	1′	2
C. watamukiensis	0.6	A	1.3	0.15	+	2
Collybia confluens	2.1	C	4.6	0.04	1	2
C. erythropus	1.2	C	2.6	0.03	1′	2
Amanita flavipes	1.2	C	2.6	0.03	1′	2
Mycena polygramma	1.0	B	2.2	0.04	+	2
M. crocata	0.6	A	1.3	0.15	+	1
Clitocybe candicans	5.1	C	11.4	0.14	2	4
Hygrophorus leucophaens	1.0	B	2.2	0.06	+	1
Pholiota lenta	1.2	C	2.6	0.03	1′	2
Russula aurata	0.8	B	1.8	0.05	+	1
Companions spp.						
Hygrophorus russla	1.0	C	2.2	0.04	+	2
H. arbustivus	0.6	A	1.3	0.15	+	1
Tricholoma flavorirens	0.8	C	1.8	0.05	+	1
T. portentosum	1.0	C	2.2	0.04	+	2
T. ustale	0.6	A	1.3	0.15	+	1
Cortinarius elatior	0.8	B	1.8	0.05	+	1
C. salor	1.0	B	2.2	0.06	+	1
Amanita caesarea	0.6	A	1.3	0.15	+	1
A. pantherina	0.6	A	1.3	0.15	+	1
A. rubescens	0.8	B	1.8	0.05	+	2
A. rubrovolvata	0.6	A	1.3	0.15	+	1
A. spissacea	0.8	A	1.8	0.2	+	1
A. vagiuata	0.6	A	1.3	0.15	+	1
A. manita sp.	0.6	A	1.3	0.15	+	1
Boletus edulis	0.8	B	1.8	0.05	+	1
B. violaceofuscus	1.0	B	2.2	0.06	+	1
Lactarius piperatus	1.2	C	2.6	0.03	1	2
L. vellereus	1.0	B	2.2	0.06	+	1
Collybia maculata	1.0	B	2.2	0.06	+	2
Inocybe fastigiata	0.6	A	1.3	0.15	+	1
Rozites flavoannulata	0.6	A	1.3	0.15	+	1
Rhodophyllus crassipes	0.8	B	1.8	0.05	+	2
Xerocomus chrysenteron	0.6	A	1.3	0.15	+	1
Wynnea gigantea	0.6	A	1.3	0.15	+	1
Oudemonsiella radicata	0.6	A	1.3	0.15	+	1
Cortinarius sp. (1)	1.0	B	2.2	0.06	+	1
Cortinarius sp. (2)	0.8	B	1.8	0.05	+	1

Table. 2 *Oudemansiella Venosolamella-Lampteromycea japonicus* Community

Species	Density	Frequency	Relative density	Sociability
Characteristic spp. of *Oudemansiella Venosolamella-Lampteromyces Japouicns* Community				
Lampteromyces japonicus	10.6	E	16.9	4
Oudemansiella Venosolamellata	12.4	E	19.8	4
O. nucida	3.6	B	5.7	4
Mycena crocata	2.0	B	3.2	2
Neobulgaria pura	2.6	A	4.1	2
Creolophus pergamenus	2.0	A	3.2	2
Hericium ramosum	1.6	B	2.6	2
Fomes fomentarius	2.0	B	3.2	2
Trachyderma tsunodae	1.2	A	4.9	2
Companions spp.				
Panellus serotinus	2.6	A	4.1	2
Pleurotus ostreatus	3.6	B	5,7	4
Lyophyllum ulmarium	1.6	A	2.6	1
Lentimus edodes	1.6	B	2.6	2
Pholiota adiposa	1.2	B	2.6	2
P. lenta	1.0	A	4.9	1
P. squarrosa	1.0	A	1.6	1
Polyporellus elegans	1.0	A	1.6	1
Fovolus alveolarius	1.2	A	4.9	1
Phyllotopsis nidulans	1.0	A	1.6	1
Phellinus igniarius	1.0	A	1.6	1
Grifola gigantea	1.0	A	1.6	1
Hericium erinaceum	1.0	A	1.6	2
Inonotus hispidus	1.0	A	1.6	2
Gymnopilus spectabilis	1.0	A	1.6	2
Panellus stipticus	1.2	A	4.9	2
Hydnum repandum	2.0	A	3.2	1

1. Frequency class : ~20% (A), 21~40% (B), 41~60% (C), 61~80% (D), 81~100%(E)
2. Coverage class : (Penfound-Howara)~1%(+), 1~5% (1'), 5~25% (1), 25~50% (2), 50~75% (3), 75~100% (4)
3. Sociability class : Monogrw (1), Tufted growth (2), Spot or cushion form (3), Small colony or mosaic form (4), big flock (5)

Fig. 1 *Hohenbuehelia serotina* in *Fagus crenata* forest in Tanuki mountain-pass.

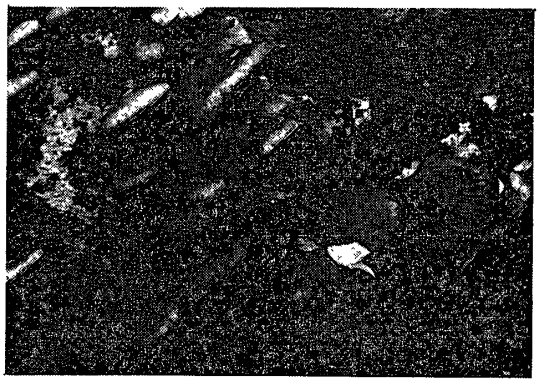

Fig. 2 *Lampteromyces japonicus* on fallen Fagus crenata in Nishitani.

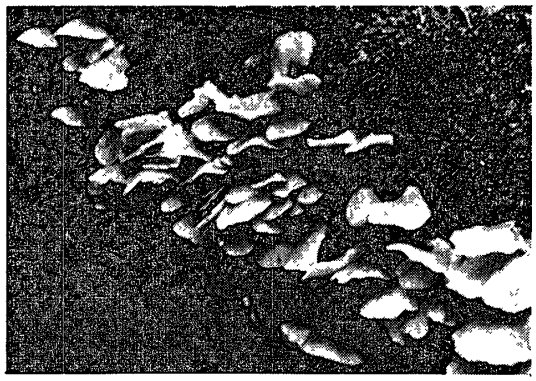

Fig. 3 *Pleurotus ostreatus* on fallen *Quercus mongolica* var. *grosseserrata* tree on neighbourhood of Ōdaitsuji.

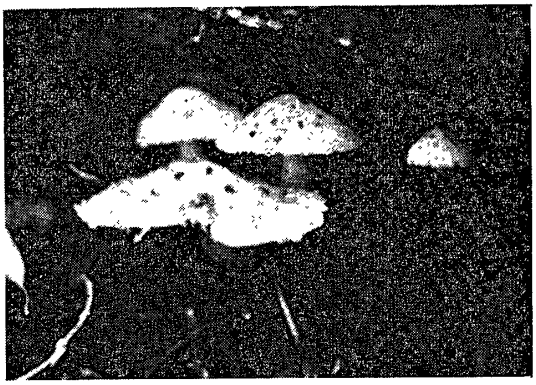

Fig. 4 *Pholiota squarrosa* on fallen *Fagus crenata* tree in Chichigatani.

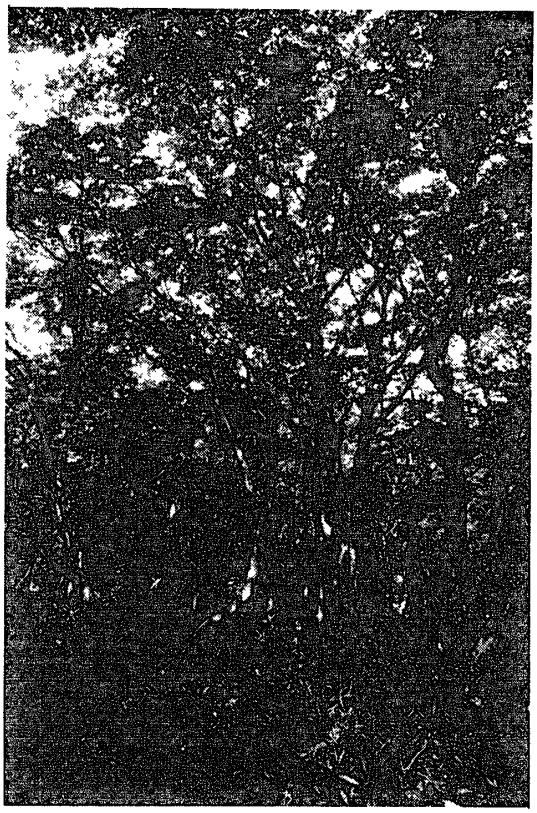

Fig. 5 *Fagus crenata-Rhododendron Mettermichii* forest on neighbour hood of top of Mt. Hinodegadake.

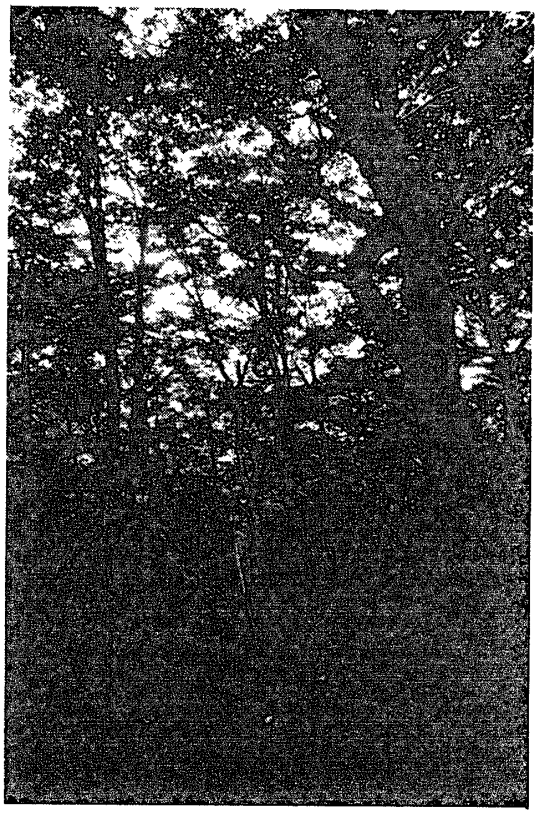

Fig. 6 *Fagus crenata-Sasa tenuissima* on neghbour hood of top of Mt. Hinodegadake.

Fig. 7 *Fagus creuata-Tsuga Sieboldii* forest in Nishitani.

Fig. 8 *Sasamorphete-Fagetum crenatae* in Nishitani.

Table. 3 Oudemansiella Community tabld of *Sasamorpheto-Fagetum crenatae*

Record number		82	85	88	90	95	102	106	87	78	37	86	92	94	100
Altitude (m)		1180	1160	1160	1150	1400	1120	1140	1200	1500	920	1200	1685	1540	1150
Slope aspect (°)		N10W	S50E	N45W	N45W	E	N80W	N45W	S40E	S80E	S50E	N40W	E	E	S60E
Slope degree (°)		30	21	31	30	28	34	31	18	20	13	28	18	14	6
Size of quadrat		30×30	30×30	30×30	30×30	20×20	30×30	30×30	15×15	10×10	10×10	10×15	10×15	10×10	20×20
Tree 1 (Height^m/Total coverage%)		20/100	25/90	18/100	18/100	20/100	17/100	20/90	20/100	17/100	16/80	20/80	10/90	14/100	17/80
Tree 2 (cm/%)		10/50	10/50	12/60	12/50	10/50	8/60	10/50	10/60	9/40	10/20	8/60	10/80	8/40	8/50
Shrub (m/%)		2/100	3/100	3/100	1.5/90	1.5/100	2/90	2.3/100	3/100	2.5/100	3/100	3/60	0.5/100	0.4/100	25/80
Herb (m/%)		0.15/10	0.2/10	0.15/5	0.15/5	0.15/10	0.15/10	0.15/5	0.25/20	0.25/60	0.2/20	0.15/10	0.15/15	0.2/10	0.2/40
Moss, Total caverage (%)		10	8	5	10	1	8	5	10	5	15	10	5	5	10
Total of species		20	21	20	20	22	20	14	14	18	23	18	13	12	15
Character species of *Sasamorpheto-Fagetum crenatae*															
Fagus crenata	T-1	5·5	5·5	5·5	5·5	4·5	4·5	5·5	5·5	4·4	4·4	3·3	4·4	5·5	2·2
Viburnum furcatum	S	1·1					1·1			1·1	2·2	2·2			1·1
Palura coreana	S	2·2	2·2	+·1		3·3	+·1	1·1		1·1	3·3	1·1		+·1	2·3
Lindera umbellata	S	1·2		1·2		+		2·2							
Acer micranthum	S	+			·	·		·	+	+		+			
	T-2	2·2			+	+		2·2	1·1	·		1·1			
A Sieboldianum form. *microphyllum*	T-2	1·1	1·1	1·1	+	1·2				1·1		1·1			
A Shirasawanum	T-1		2·2	1·1	+	+				1·1		1·1	1·1	+·1	2·2
Acanthopanax sciadophylloides	T-2		+	+	+	1·1	+		+						
Stewartia monadelpha	T-1	2·2	2·2	2·2	3·3	2·2	3·4	3·3	2·2			2·2	1·2	2·2	
	T-2	·	·	1·1	1·1	·	1·1	·	·			1·1	+	·	
Sasamorpha purpurascens	S	5·5	5·5	5·5	5·5	5·5	3·4	5·5	1·1			3·3			1·1
Lepisorus ussuriensis var. *distans*	H	+	+	+	+	+	+	·							
Schizophragma hydrangeoides	L	+	+	+	+	+	·	+							1·1
Differential species of Subass. *rhoaoretosum*															
Rhododendron Metternichii	S	1·1		1·1	3·3	3·3			5·5	5·5					
R quinquefolium	S	+		3·3	3·3		3·2		1·1	1·1		1·1	+·1		
Clethra barbinervis	T-2	+		·		2·2			1·1	+	2·2		·		
	S	1·1		1·1		+			+	1·1	+		1·1		
Skimmia japonica	S	+		2·2	3·3	+	+	1·1	1·1	1·1	3·3	1·1			
Vaccinium Smallii var. *glabrum*	S								1·1	+					
Carex Reinii	H								2·3	3·3	+	+	1·1	+·1	3·4
Differential species of Subass. *pierietosum*															
Pieris japonica	S					1·1		1·1			4·4				
Rhododendron dilatatum	S										1·1				
Lyonia elliptica	T-2										+				
	S										1·1				
Ilex pedunculosa	T-2										1·1				
	S										1·1				
Tsuga sieboldii	T-1										3·3				
	T-2										1·1				
Ilex crenata	S										1·1				
Differential species of Subass. *quercetosum*															
Quercus mongolica var. *grosseserrata*	T-1	3·2	3·3						1·1	2·2	3·3	3·3		1·1	4·4
	T-2	·	1·1						·	·	·	·		·	·
Carpinus japonica	T-2					1·1						1·1			2·2
	S					+						·			+
Pourthiaea villosa var. *laevis*	S	1·1	1·2	+·1			1·1					1·1			
Differential species of Subass. *Sasetosum*															
Sasa tenuissima	S												5·5	5·5	
Abies homolepis	T-1				2·3								1·1	1·1	
Picea polita	T-1												+	+	
	T-2												1·1	1·1	
Rumohra mutica	H												1·1	1·1	
Character species of *Fagus crenata-Cephalotaxus harringtonia* var. *nana* Community															
Cephalotaxus Harringtonia var. *nana*	S		1·1												4·4
Ilex leucoclada	S														+
Dryopteris crassirhizoma	H														1·1