

On the *Mallotus japonicus* Forest Observed in Two Islands in Nanao Bay, Ishikawa Pref., Japan

by

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Preface

It is a great pleasure of me to recall the last visit of Prof. R. TÜXEN to Japan. He came to Kanazawa on Oct. 8, 1965 with Dr. J. SCHMITHÜSEN. Next day, I accompanied them to already snow-covered Midagahara of Mt. Tateyama. I was very much impressed by his sincere and severe attitude toward the study of plants, taking notes with one hand while scooping snow aside with the other hand. He also showed enough human touch at the inn in the evening to enjoy Japanese Sake.

Let me fill my glass with Sake and toast for his health on this occasion of his 80th birthday.

I. Floristic compositions of the *Mallotus japonicus* forest with special reference to successional stages in its undergrowth layer

The *Mallotus japonicus* forest studied here is a unique forest only observed at two small islands, Ôshima and Mizugoshishima, which are about one km to the north of Cape Man, Notojima in Nanao Bay, Ishikawa Pref.

Floristic compositions of the forest are shown in Table 1. As seen in the Table, it is a pure forest of *Mallotus japonicus* entangled with *Wisteria floribunda* and *Hedera rhombea* with the undergrowth dominated by such species as *Polygonum cuspidatum*, *Ardisia japonica* and *Liriope platyphylla*.

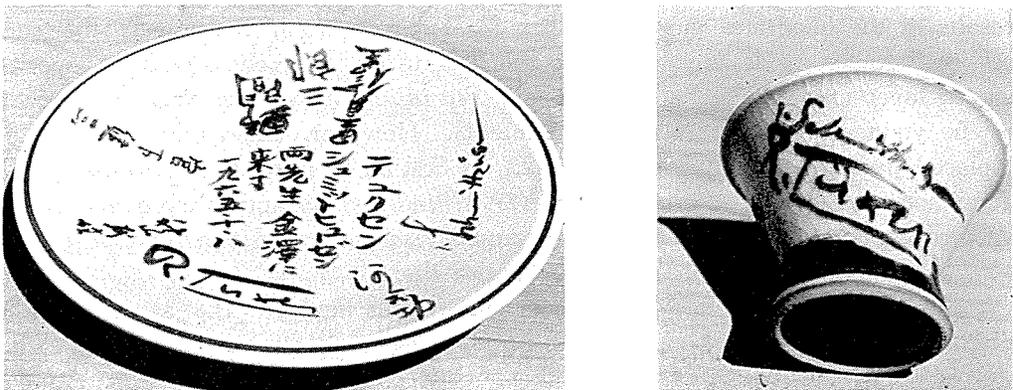


Fig. 1. A plate and a sake glass with his signatures



Fig. 2. Prof. Dr. TUXEN at Midagahara of Mt. Tateyama

Neighbouring islands, Terashima and Karasujima, in the same Bay are all covered with the forest of *Machilus thunbergii* (Tables 2 and 3). It is presumed that the original forest in Ôshima and Mizugoshishima must have been the same namely *Machilus thunbergii*. Accordingly, the *Mallotus japonicus* forest observed at present on these islands, has developed secondarily after the destruction of *Machilus thunbergii* forest and might be a tentative forest on the way to reconstruct *Machilus thunbergii* forest again.

However, at present, young trees and seedlings of only *Mallotus japonicus*, not of *Machilus thunbergii* are observed in both the forest and the undergrowth layers in the *Mallotus japonicus* forest. It seems that the *Mallotus japonicus* forest of Ôshima and Mizugoshishima will continue to prosper there unless *Machilus thunbergii* is artificially seeded into these islands since the latter will not invade across the water readily.

The height of *Mallotus japonicus* trees ranges from 3 m in Ôshima to 5 m in Mizugoshishima. Since the taller are the trees, the older is the forest, the results of the quadrates surveys shown in Table 1 seem to suggest the successional stages inside the *Mallotus japonicus* forest. Namely, dominant species in 4th layer are *Miscanthus sinensis* and *Pteridium aquilinum* var. *latiusculum* at the youngest stage, Station 1 (Table 1). However, *Miscanthus sinensis* is replaced by *Allium grayi* in Station 2. In Station 3, instead of *Allium grayi*, dominant species are *Galium spurium* var. *echinospermon* and *Polygonum cuspidatum*, which decrease in Station 4, and *Arisaema urashima*, *Liriope platyphylla* and *Ardisia japonica* start to flourish there.

After three years, in 1976, another survey was made in the same area as Station 4, in Mizugoshishima. *Mallotus japonicus* had grown to 7 m in height. The number of species appeared in the floristic compositions increased. Among the dominant species in 4th layer, it was observed that *Galium spurium* var.

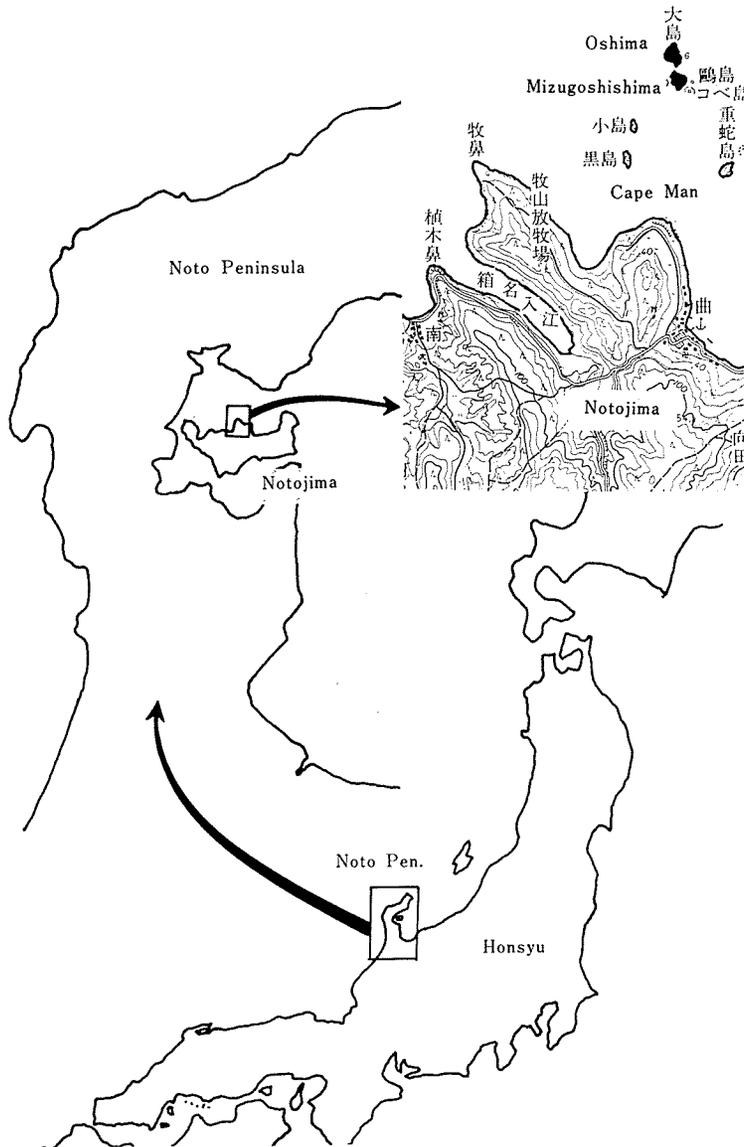


Fig. 3. A map showing the locations of Ōshima and Mizugoshishima

echinospermon had disappeared completely and *Arisaema urashima* was also decreasing. On the other hand, *Aridisia japonica* and *Liriope platyphylla* increased.

Summary

The pure *Mallotus japonicus* forest is observed in two small islands, Ōshima and Mizugoshishima, situated to the north of Cape Man of Notojima in Nanao Bay, Ishikawa Pref., Japan.

From the vegetative conditions of neighbouring islands, it is presumed that the *Mallotus japonicus* forest on these islands is developed secondarily after the destruction of the original forest which must have been of *Machilus thunbergii*.

Table 1. Floristic composition of *Mallotus japonicus* forest at Ōshima and Mizugoshishima

Station number	Ōshima (Apr. 22, 1973)		Mizugoshishima (Apr. 22, 1973)		Mizugoshishima (Aug. 5, 1976)	
	1	2	3	4	5	6
Number of species	8	11	9	11	15	13
1 st-layer						
<i>Mallotus japonicus</i> (Akamegashiwa)			5.5	5.5	5.5	5.5
<i>Wisteria floribunda</i> (Huji)						1.1
2 nd-layer						
<i>Mallotus japonicus</i> (Akamegashiwa)	3.3	4.4				
<i>Akebia quinata</i> (Akebi)			+	2.2		
<i>Kadsura japonica</i> (Sanekazura)				+		
<i>Wisteria floribunda</i> (Huji)			+			
<i>Hedera rhombea</i> (Kizuta)					2.2	
<i>Euonymus sieboldianus</i> (Mayumi)						+
3 rd-layer						
<i>Rosa multiflora</i> (Noibara)	+	1.1	1.1	1.1		
<i>Mallotus japonicus</i> (Akamegashiwa)					+	1.2
<i>Sambucus sieboldiana</i> (Niwatoko)					1.1	
<i>Morus bombycis</i> (Yamaguwa)					+	
<i>Kadsura japonica</i> (Sanekazura)						+
<i>Wisteria floribunda</i> (Huji)						+
4 th-layer						
<i>Galium spurium</i> var. <i>echinospermon</i> (Yaemugura)		+	5.5	+		
<i>Pteridium aquilinum</i> var. <i>latiusculum</i> (Warabi)	3.3	+				
<i>Allium grayi</i> (Nobiru)		4.4	+			
<i>Polygonum cuspidatum</i> (Itadori)			3.3	+	2.2	3.3
<i>Akebia quinata</i> (Akebi)	+	+			+	1.2
<i>Hedera rhombea</i> (Kizuta)		+		+	1.2	
<i>Stellaria aquatica</i> (Ushihakobe)		+	+			
<i>Mallotus japonicus</i> (Akamegashiwa)		+		+	+	2.2
<i>Ophiopogon japonicus</i> (Jyanohige)			+	+	1.2	
<i>Miscanthus sinensis</i> (Susuki)	5.5					
<i>Arisaema urashima</i> (Urashimasô)				3.3	+	
<i>Liriope platyphylla</i> (Yaburan)				1.1	2.2	3.3
<i>Ardisia japonica</i> (Yabukôji)	+			1.1	2.2	
<i>Artemisia princeps</i> (Yomogi)	+					
<i>Lathyrus japonicus</i> (Hamaendô)	+					
<i>Rumex acetosa</i> (Suiba)		+				
<i>Kalimeris yomena</i> (Yomena)		+				
<i>Rhus japonica</i> (Nurude)		+				
<i>Clematis terniflora</i> (Senninsô)					+	
<i>Oplismenus undulatifolius</i> var. <i>japonicus</i> (Chijimizasa)					+	
<i>Morus bombycis</i> (Yamaguwa)					+	
<i>Trichosanthes cucumeroides</i> (Karasuuri)					+	
<i>Vitis ficifolia</i> var. <i>lobata</i> (Ebizuru)					+	
<i>Lonicera japonica</i> (Suikazura)						+
<i>Rosa multiflora</i> (Noibara)						+
<i>Euonymus sieboldianus</i> (Mayumi)						2.2
<i>Aucuba japonica</i> var. <i>borealis</i> (Himeaoki)					+	+
<i>Paederia scandens</i> var. <i>mairei</i> (Hekusokazura)						+
<i>Ranunculus japonicus</i> (Umanoashigata)						+
<i>Phanerophlebia falcata</i> (Oniyabusotetsu)						+

Table 2. Floristic composition of *Machilus thunbergii* forest at Terashima

1 st-layer
<i>Machilus thunbergii</i> (Tabunoki) 4.4
2 nd-layer
<i>Ilex integra</i> (Mochinoki) 1.1
3 rd-layer
<i>Machilus thunbergii</i> (Tabunoki) 1.1, <i>Rhus japonica</i> (Nurude) +, <i>Arundinaria simonii</i> (Medake) +, <i>Eurya japonica</i> (Hisakaki) +, <i>Sambucus sieboldiana</i> (Niwatoko) +
4 th-layer
<i>Polystichum polyblepharum</i> (Inode) 3.3, <i>Phanerophlebia falcata</i> (Oniyabusotetsu) 1.1, <i>Arisaema urashima</i> (Urashimasô) 1.1, <i>Dryopteris erythrosora</i> (Benishida) 1.1, <i>Ficus nipponica</i> (Itabikazura) 1.1, <i>Rosa multiflora</i> (Noibara) +, <i>Clematis terniflora</i> (Senninsô) +, <i>Campanula punctata</i> (Hotarubukuro) +, <i>Galium spurium</i> var. <i>echinospermon</i> (Yaemugura) +, <i>Carex stenostachys</i> (Nishinohonmonjisuge) +, <i>Lilium lancifolium</i> (Oniyuri) +, <i>Akebia quinata</i> (Akebi) +, <i>Hedera rhombea</i> (Kizuta) +, <i>Polygonum cuspidatum</i> (Itadori) +, <i>Petasites japonicus</i> (Huki) +, <i>Rubus hirsutus</i> (Kusaichigo) +, <i>Stauntonia hexaphylla</i> (Mube) +,

Table 3. Floristic composition of *Machilus thunbergii* forest at Karasujima

1 st-layer
<i>Machilus thunbergii</i> (Tabuniki) 4.4
2 nd and 3 rd-layer
<i>Ilex integra</i> (Mochinoki) 1.1, <i>Camellia japonica</i> (Yabutsubaki) 1.1, <i>Hedera rhombea</i> (Kizuta) +
4 th-layer
<i>Liriope platyphylla</i> (Yaburan) 5.5, <i>Polygonum cuspidatum</i> (Itadori) 2.2, <i>Ardisia japonica</i> (Yabukôji) 2.2, <i>Ophiopogon japonicus</i> (Jyanohige) +, <i>Sambucus sieboldiana</i> (Niwatoko) +, <i>Machilus thunbergii</i> (Tabunoki) +, <i>Poa</i> sp. +

Inside the *Mallotus japonicus* forest, successional stages in 4th layer are probably proceeded in order of those observed in Station 1→Station 2→Station 3→Station 4.

Also the results of another survey made after 3 years, in 1976, in the same area as Station 4 in Mizugoshishima were discussed.