

岐阜県におけるシデコブシ群落について

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Ryoji NARUSE* and Toshiharu GOTOH** :
**Phytosociological Study of a *Magnolia tomentosa*
Community in Gifu Prefecture**

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Abstract

Vegetation of *Magnolia tomentosa* communities in Gifu Prefecture, Japan, was investigated by the Z.-M. school phytosociological survey method. These thickets consist of some elements of swamp forests and of *Quercus serrata* or *Pinus densiflora* secondary forests. *M. tomentosa* thickets occurring in the Chûnô region belong to the association of *Ilici-Alnetum japonicae* (NARUSE and GOTOH, 1986), while, judging from the species components, those in the Tônô region are elucidated here as an *Ilex nipponica*-*Alnus traveculosa* community. Since this community contains many locally endemic and semi-endemic taxa of the Tôkai district, it is a new community.

Key Words: *Magnolia tomentosa*—*Ilex nipponica*-*Alnus traveculosa* community—Swamp forest
—BRAUN-BLANQUET method—Gifu Prefecture

Magnolia tomentosa THUNB. (= *M. stellata* (SIEB. et ZUCC.) MAXIM.), Star Magnolia, is a broad-leaved deciduous tree and endemic to Japan. The distribution of this plant was made clear by INAMI (1959, 1966, 1971), etc. Its occurrence in Gifu Prefecture was investigated by the members of the Gifu Prefectural Senior High School's Society for Study of Biological Education, based on their collected specimens (NARUSE, 1982). Recently, UEDA (1987, 1988) reviewed the distribution and habitats of this plant, based on herbarium specimens and his own field surveys. According to his studies, *M. tomentosa* occurs in hilly regions, and only in Gifu, Aichi and Mie Prefectures.

Vegetational investigations of the *M. tomentosa* community have already been undertaken by the prefectural government of Gifu (1978), but they were not phytosociological studies. MIZUNO *et al.* (1976) named the *M. tomentosa* community, *Magnoli stellato-Ilexetum serratae*, and used this association's name (MIZUNO, 1978, 1985). However, he has not yet published a table of the floristic composition and character species.

We have reported that *M. tomentosa* thickets in Gifu and Kakamigahara Cities (=Chûnô area)

fundamentally belong to the *Ilici-Alnetum japonicae* MINAMIKAWA *et al.* (1974) association (NARUSE and GOTOH, 1985, 1986). We have continued the investigation of the *M. tomentosa* community in the Tônô area of Gifu Prefecture. In this paper particular attention will be paid to ecological aspects of the *M. tomentosa* community in Gifu Prefecture.

Study Area and Environmental Conditions

The locations of the investigated stands are shown in Fig. 1 and listed in Table 1. Thirteen plots were distinguished in two areas, the Chûnô region and the Tônô region. The former (plot Nos. 1-7) is situated in the hill regions, from ca. 100 m to 200 m in elevation above sea level, of the northeastern extremity of the Nôbi plains (see Fig. 1). The latter area (plot Nos. 8-13) is situated in the hill regions surrounded by Mino-Mikawa Heights, from ca. 200 m to 300 (-600) m.

The study plots, which are in sunny places, in both the Chûnô and Tônô regions are located in moist places with springwater at the foot of a hill, or in swampy valley plains.

According to the meteorological data (Table 3), Gifu City (Chûnô region) and Nakatsugawa City

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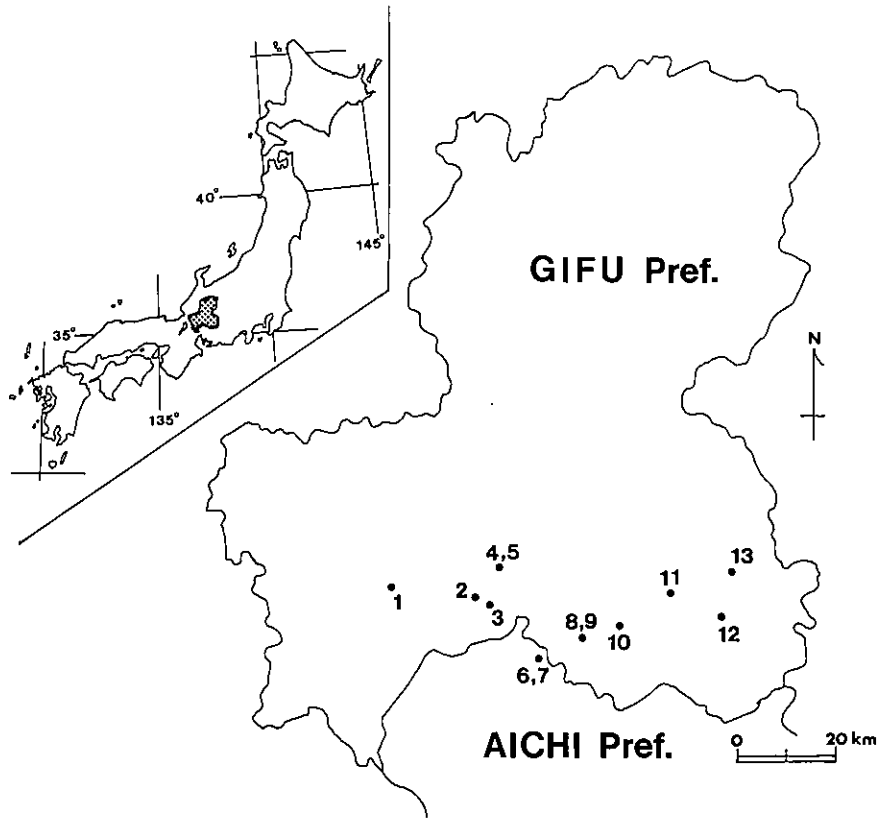


Fig. 1. Map showing the location of the stands investigated. The numerals in the map show the plot number (see Table 1).

(Tônô region) differ slightly in their temperature conditions. Although both cities' warmth index is within the limits of a warm temperate evergreen broad-leaved forest zone, the latter shows a lower coldness index than the former.

Methods

The field studies were conducted mainly in the autumn of 1985 and 1987. The investigation was carried out for the most part in the *Magnolia tomentosa* communities in Gifu Prefecture and also in Inuyama City of Aichi Prefecture, which is adjacent to Gifu (Fig. 1).

The description and classification of the communities were based on the BRAUN-BLANQUET approach (BRAUN-BLANQUET, 1932; MUELLER-DOMBOIS and ELLENBERG, 1974).

Plant names follow after OHWI (1978) for spermatophytes, and TAGAWA (1959) for pteridophytes.

Results

The table of the floristic composition of *Magnolia tomentosa* communities in Gifu Prefecture (Table 2) was derived from the data on vegetation (13 plots from 10 localities).

The tree layer (12-18 m in height) consists of *Alnus japonica*, *A. traveculosa*, *Quercus serrata*, and *Magnolia tomentosa*. *Pinus densiflora*, *Cryptomeria japonica*, *Chamaecyparis obtusa*, *Clethra barbinervis*, and *Q. variabilis* are mixed in.

In the subtree layer, *M. tomentosa* dominate in every stand. *Ilex serrata*, *I. nipponica*, *I. pedunculosa*, *Rhamnus crenata*, *Styrax japonica* and, the above-mentioned tree layer elements are also observed.

The shrub layer has a low cover ratio, averaging 27 percent. *I. crenata*, *M. tomentosa*, *Hydrangea paniculata*, *Eurya japonica*, and *Pieris japonica* are seen.

In the herb layer, *Heloniopsis orientalis* and *I. crenata* are constantly observed. Such species as

Table 1. The locality and microtopography of the stands investigated.

Plot No.	Locality	Altitude (m)	Microtopography	Date of invest.
1	Norimatsu, Gifu City	100	along a brook, at the foot of a mountain	3. Aug. 1985
2	Gongenyama, Kakamigahara City	120	along a brook, at the foot of a mountain	5. Nov. 1985
3	Mukaïda, Kakamigahara City	80	on a marsh, between a mountain and a paddy field	14. Nov. 1985
4,5	Kakinokitohge, Seki City	120	on the moist place, at the foot of a mountain	15. Oct. 1987
6,7	Yasoyama, Inuyama City (Aichi Pref.)	220	along a brook, halfway up the mountain	29. Oct. 1987
8,9	Sakuragaoka, Kani City	160	along a stream, at the foot of a mountain	5. Oct. 1987
10	Matsuno, Mizunami City	300	along a brook, halfway up the mountain	5. Oct. 1987
11	Iiji, Ena City	620	on a marsh, flat place	5. Oct. 1987
12	Higashino, Ena City	320	along a stream, at the steep slope	21. Oct. 1987
13	Nishiyama, Nakatsugawa City	340	on the moist place, at the foot of a mountain	21. Oct. 1987

Struthiopteris nipponica, *Thelypteris japonica*, *Osmunda japonica*, *Asarum takaoi*, *Oplismenus undulatifolius*, and the young trees of the above-mentioned species occur.

Discussion

Species characterizing these communities are *Ilex crenata*, *I. serrata*, *Heloniopsis orientalis*, *Symplocos paniculata*, *Hosta longissima* var. *brevifolia*, etc., growing in moist or wet places, and *Pinus densiflora*, *Quercus serrata*, *Struthiopteris nipponica*, *Rhododendron kaempferi*, *I. pedunculosa*, etc., of secondary forests species. Based on the results of tabulation, these communities are divided into the following two groups.

The first is characterized by *Alnus japonica* and *Viola verecunda* var. *semilunaris*, and contains the many species which belong to the class of *Camellietea japonicae* such as *Eurya japonica*, *Ardisia japonica*, *Camellia japonica*, *Ligustrum japonicum*, *Quercus glauca*, etc. This type of community is considered to belong to the association of *Ilici-Alnetum japonicae* because it contains the differential and character species of the association such as *Alnus japonica*, *Ilex crenata*, *I. serrata*, *Heloniopsis orientalis*, *Hydrangea paniculata*, *Rhamnus crenata*, *Viola verecunda* var. *semilunaris*, etc. (NARUSE and GOTOH, 1985, 1986). This kind of *Magnolia tomentosa* community occurs in the Chûnô region in areas such as Gifu City, Kakamigahara City, Seki City, etc.

Table 3. Temperature and precipitation of Gifu City and Nakatsugawa City.

	Gifu	Nakatsugawa
Altitude (m)	13	320
Mean annual temperature (°C)	15.4	13.5
Warmth index (°C·month)	126.3	109.1
Coldness index (°C·month)	-1.7	-6.8
Mean annual precipitation (mm)	1907	1876

based on the observations by Gifu Meteorological Observatory (1949-1979).

Ilici-Alnetum japonicae is the swamp forest community on the Pacific side of the Kinki and Chûbu districts, and it belongs to the class of *Camellietea japonicae* (OHNO, 1985). This association is considered to be the edaphic climax developing on wetlands.

Secondly, it is characterized by *Alnus traveculosa*, *Ilex nipponica*, *Cirsium sieboldii*, and *Acer pycnanthum*, and contains many species which belong to the class of *Fagetea crenatae*, such as *Clethra barbinervis*, *Lyonia ovalifolia* var. *elliptica*, *Symplocos chinensis* var. *leucocarpa* f. *pilosa*, *Hamamelis japonica*, *Stewartia pseudo-camellia*, etc. This kind of community is distributed in the Tônô region in areas such as Kani City, Mizunami City, Ena City, Nakatsugawa City, etc. We named this group *Ilex nipponica-Alnus traveculosa* community, here.

Although *Ilex nipponica*-*Alnus traveculosa* community includes many character and differential species of the above-mentioned association, *Ilici-Alnetum japonicae*, *A. japonica* rarely occurs. Furthermore, the former community contains local endemic or semi-endemic taxa (Tōkai hilly land elements) such as *Acer pycnanthum*, and *Berberis sieboldii* as well as *Magnolia tomentosa*, which occur in the Circum-Ise Bay area (UEDA, 1989). It is considered that this community has characteristically developed in swampy places in the Tōnō district.

Alnus traveculosa is sparsely distributed in southwestern Japan (MURAI, 1963). The distribution of *A. traveculosa* in Gifu Prefecture is not yet clear, because it has often been mistaken for *A. japonica*. It seems rather common in the Tōnō district, judging from our present field surveys.

Various types of swamp forests in the Tōnō district other than *Magnolia tomentosa* community have not yet been sufficiently investigated. Therefore we describe only this community, with the intention of describing its composition in detail.

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摘 要

岐阜県におけるシデコブシ群落の植生調査を行い、既報(成瀬・後藤, 1985, 1986)と合わせて議

論した。これらのシデコブシ群落は、湿地林要素とコナラやアカマツなどの二次林要素から構成されている。種組成の相違から中濃地域に分布するシデコブシ群落は、既報以外の群落も全てハンノキイヌツゲ群集に所属するものと考えられる。一方、東濃地域に分布するシデコブシ群落に対しては、新しくサクラバハンノキミヤマウメドキ群落と命名した。この群落は、東海地方に固有または準固有の種を中濃地域の群集よりはるかに多く含んでおり、独立した群落である。(Received October, 27, 1989)

○ Naohiro NARUHASHI*, Takashi SATO** and Mamoru SUGIMOTO***: Two Types of Runners in *Fragaria*. オランダイチゴ属のランナーの2つの型(鳴橋直弘*・佐藤 卓**・杉本 守***)

From studies of the morphology of *Fragaria* two types of runners in the genus have been reported (SUGIMOTO *et al.*, 1987; SATO *et al.*, 1988; NARUHASHI *et al.*, 1989), the *F. vesca* type and the *F. nipponica* type. The *F. vesca* type has a scaly leaf produced at odd-numbered nodes and adventitious roots at even-numbered nodes beyond the second node (Fig. 1, A). The *F. nipponica* type bears a scaly leaf on only the first node of the runner (the node nearest to the mother stock) and the second and subsequent nodes have a normal leaf and adventitious roots (Fig. 1, B).

NARUHASHI has observed the runners of other species of *Fragaria* in the experimental station of the National Clonal Germplasm Repository, and he and SATO have also examined specimens in the Herbarium of the British Columbia Provincial Museum (V), the Faculty of Science, Kyoto University (KYO), and in the Tokyo National Science Museum (TNS). As a result of these studies, we are able to confirm our earlier report of two types of runners in *Fragaria*. The two types are shown in Table 1. GAY (1857), DARROW (1929) and STAUDT (1962) reported that the runners of *Fragaria viridis* differed from the runners of all other species in the genus, but no descriptions were given for any of the other species. We add *F. nipponica* and *F. nubicola* to the runner type displayed by *F. viridis*. It is of very great interest that these two types of runners may allow us to speculate on groupings within *Fragaria* at the level of subgenus.

It is a pleasure to record here a debt of gratitude to Dr. K. HUMMER of NCGP and the curators of the herbaria, KYO, TNS and V, who allowed our observations of runners. We wish to thank Dr. D.E. BOUFFORD for reading the manuscript and for helpful suggestions.

著者らは、バラ科キジムシロ連植物のランナーの形態を比較検討し、構造および機能的な違いから、3つのタイプを認めた。その内、オランダイチゴ属2種に見られるランナーはオランダイチゴ属タイプとし、他から区別した(杉本ら, 1987)。また、そのタイプには、不定根を生ずる節の間に1個の鱗片葉を持つ型(*Fragaria vesca*型, Fig. 1, A)と第一節のみに鱗片葉を生じ、それ以降の全ての節から不定根を生じる型(*Fragaria nipponica*型, Fig. 1, B)の2型があることも報告した。今回、この2つのランナー型について調査したところ、Table 1のように*F. nipponica*型には*F. nipponica*, *F. nubicola*及び*F. viridis*が含まれ、残りの種は*F. vesca*型であった。このランナー型の違いは、オランダイチゴ属の属内の分類に興味ある示唆を含むと思われる。

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