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Title	On the Sasa in Tomakomai Experimental Forest and its Neighbouring Areas : Conservational Flora of Hokkaido 1
Author(s)	Ito, Koji; Kawabata, Hiroko
Citation	Environmental science, Hokkaido : journal of the Graduate School of Environmental Science, Hokkaido University, Sapporo, 7(1), 121-131
Issue Date	1984-10-20
Doc URL	https://hdl.handle.net/2115/37166
Type	departmental bulletin paper
File Information	7(1)_121-131.pdf



On the *Sasa* in Tomakomai Experimental Forest and its Neighbouring Areas

Conservational Flora of Hokkaido 1

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Abstract

The authors have designed a new series of Conservational Flora, which means a revised or a new flora of any area or region in Hokkaido as a basis for the practical conservation of plant resources. As a part of the Conservational Flora of Tomakomai Experimental Forest, Fac. Agr. Hokkaido Univ. and its neighbouring areas including Shikotsu and Chitose, where extend in central part of Prov. Iburi, southern Hokkaido, the authors treated the *Sasa* group in these areas, and enrolled 10 species belonging to 2 Genera. They are; *Sasamorpha borealis* (Hack.) Nakai [vars. *borealis* and *pilosa* (Uchida) S. Suzuki], *Sasa* (*Macrochlamys*) *kurilensis* (Rupr.) Makino et Shibata [vars. *kurilensis* and *uchidae* Makino], *Sasa* (*Sasa*) *megalophylla* Makino et Uchida, *Sasa* (*Sasa*) *senanensis* (Fr. et Sav.) Rehder [vars. *senanensis* and *harae* (Nakai) S. Suzuki], *Sasa* (*Sasa*) *veitchii* (Carr.) Rehder var. *hirsuta* (Koidz.) S. Suzuki, *Sasa* (*Sasa*) *yahikoensis* Makino var. *oseana* (Makino) S. Suzuki (in a sense of *S. macrospila* Koidz.), *Sasa* (*Lasioderma*) *pubiculmis* Makino var. *chitosensis* (Nakai) S. Suzuki, *Sasa* (*Lasioderma*) *takizawana* Makino et Uchida var. *lasioclada* (Makino et Nakai) S. Suzuki, *Sasa* (*Crassinodi*) *apoiensis* Nakai, and *Sasa* (*Crassinodi*) *samaniana* Nakai.

The authors pointed out that a confined area by the River of Chitose is the most valuable for the conservation from scientific standpoints, because of the mixture of some individuals of *Sasa* and *Sasamorpha*, and of the possibility of hybridization between them.

Key words: Conservational flora, Crassinodi, Lasioderma, Macrochlamys, *Sasa*, *Sasamorpha*, Tomakomai Experimental Forest.

Introduction

Since the publication of the Flora of Tomakomai Experimental Forest, Faculty of Agriculture, Hokkaido Imperial University, by Kudo and Yoshimi in 1916, no revision of the flora has been tried. Due to frequent visiting there, the senior author, Ito, has accumulated new collections of plants which were not listed by Kudo and Yoshimi, and the junior author, Kawabata, has particularly paid her attention to the ecological behaviour of *Sasa* plants in relation to the revision of the Genus *Sasa* in Hokkaido. Although we are revising Kudo and Yoshimi's Flora under a new title of the Conservational Flora of Hokkaido, we intend to show here a part of it, particularly, of the revision of the Genera *Sasa* and *Sasamorpha* in the Experimental forests (Ex) and the neighbouring areas; Chitose (Ch),

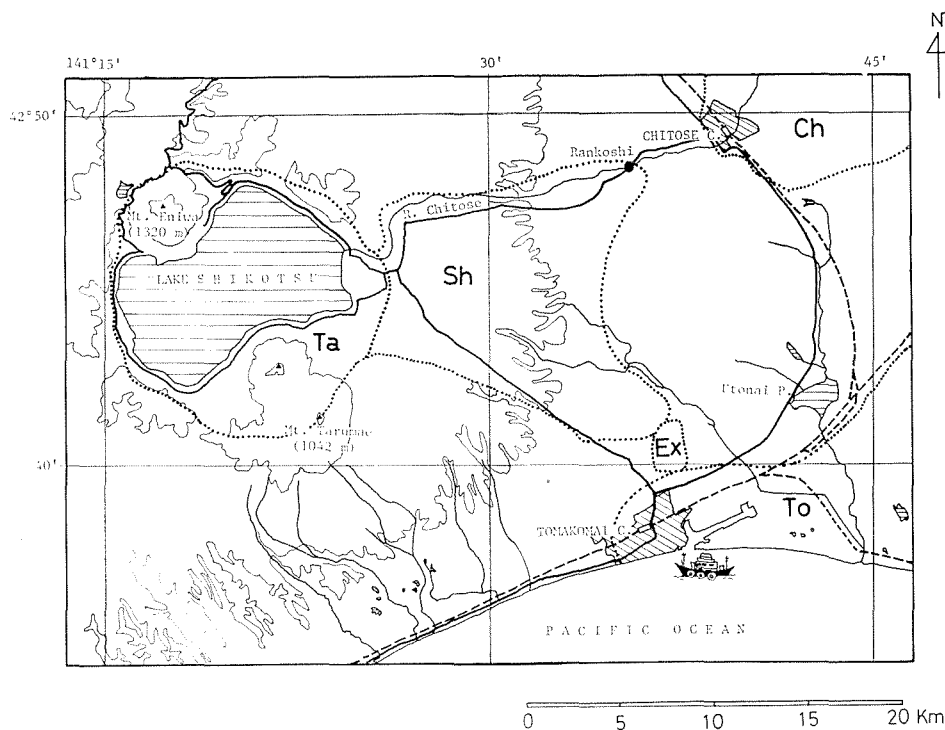


Fig. 1. Research areas.

Ch: Chitose area, Ex: Experimental forest area, Sh: Shikotsu area, Ta: Tarumae area, and To: Tomakomai area. These areas are surrounded by dotted lines.

Shikotsu (Sh), Tarumae (Ta) and Tomakomai (To) (Fig. 1).

Kudo and Yoshimi listed 2 species of *Sasa* in their flora, *Sasa paniculata* and *S. nipponica* but had looked over *Sasamorpha*, because of the incompleteness of *Sasa* taxonomy until Nakai revised the Genus *Sasa* for Miyabe and Kudo's Flora of Hokkaido and Saghalien in 1930.

Key to the Genera *Sasa* and *Sasamorpha* and 4 Sections of the Genus *Sasa* in the Areas under Consideration

1. Culm nodes swollen. Culm sheaths shorter than the internodes. Oral setae usually developed, persistent or early fallen. Rhizomes sympodial. Culms mostly ascending, simple or ramose. Leaves palmately or pinnato-palmately arranged at the top of culms or branches, 4-9 in number, chartaceous to coriaceous, narrowly lanceolate to ovate. Peduncles from culms or branches not extruded from the culm, or extruded. Inflorescences paniculate. Spikelets linear or lanceolate, 4-10-flowered. Stamens 6. Styles very short, divided almost from the base into 3 feathery stigmas. Nanophanerophyte or Chamaephyte-Geophyte. [Genus *Sasa*] 2
- Culm nodes neither swollen nor prominent. Culm sheaths at the base of culm

- longer than the internodes. Oral setae destitute. Rhizomes monopodial. Culms erect, simple or ramose on upper portions of the culm. Leaves palmately or pinnato-palmately arranged at the top of culms, coriaceous, lanceolate, usually shining above. Peduncles from upper portions of the culm extruded from the culm. Inflorescences paniculate. Spikelets lanceolate, 4-8-flowered. Stamens 6. Styles longer, divided into 3 feathery stigmas. Nanophanerophyte-Geophyte. [Genus *Sasamorpha*]
2. Culms usually over 1 m in height, robust, not withered for several years. Internodes shorter. Nodes swollen but globularly. Nanophanerophyte-Geophyte. 3
- Culms usually 50 to 100 cm in height, rather slender or more or less robust, withered within 2 years. Internodes longer. Nodes considerably prominent, globularly swollen. Chamaephyte-Geophyte. [Section 4. Crassinodi]
3. Branching dominantly from upper portions of the culm. 4
- Branching mainly from lower portions of the culm. Peduncles extruded from the culm. [Section 2. *Sasa*]
4. Culm sheaths shorter than the internodes. New shoots not covered completely with the culm sheaths. Peduncles from upper portions of the culm or branches extruded a little from the culm or nearly equal to it. [Section 1. Macrochlamys]
- Culm sheaths nearly equal to the internodes or a little shorter than them. New shoots covered with the culm sheaths. Peduncles from upper portions of the culm or branches issued often from basal portions of the culm. [Section 3. Lasioderma]

Enumeration of *Sasamorpha* and *Sasa* in the areas under consideration

Sasamorpha Nakai in Journ. Fac. Agr. Hokkaido Imp. Univ. vol. 26 (Pt. 2): 180. 1930.

One species.

1. *Sasamorpha borealis* (Hack.) Nakai l. c. 181. 1930. — *Bambusa borealis* Hackel; *Sasa borealis* (Hack.) Makino; *Sasamorpha purpurascens* (Hack.) Nakai.

a) var. *borealis*

“Jidake (Miyabe), Yezo-Suzudake”.

Culms upright, 1.5-2 m in height, 5-8 mm in diameter. Culm sheaths usually purplish or brownish purple, pilose, often mixed with retrose fine hairs. Internodes puberulous with retrose minute hairs. Nodes densely pilose with antrorse long hairs. Leaves coriaceous, oblong or lanceolate, 10-30 cm long, 2-4 cm wide, attenuate-acuminate at the top, sharply cuneate, asymmetrical at the base, dark green, shining, and glabrous above, more or less puberulous, and glaucous beneath.—On rocky substrates with thin soil layer, on acute cliffs, river sides. Hab: Ex, Sh, Ta. **Distribution in Hokkaido:** in Provinces of the Pacific and Ochotsk sides: Iburi, Hidaka, Kushiro, Nemuro and Kitami.

Distribution pattern : rare ; sporadically, rather discontinuous, aggregated.

Conservation status : maintaing, but usually neglected in environmental management.

Type locality of *Bambusa borealis* Hackel : Riruran, Akkeshi, Prov. Kushiro.

b) var. *pilosa* (Uchida) S. Suzuki in Journ. Jap. Bot. vol. **50** : 138. 1975. —

Sasa tobaena Makino et Uchida var. *pilosa* Uchida.

“Urage-Suzudake”

Leaves thinly pilose beneath.

Hab. : Sh.

Sasa Makino et Shibata in Bot. Mag. Tokyo vol. **15** : 18. 1901. : Nakai l. c. 181. 1980. : Tatewaki in Hokkaido Ringyokaiho vol. **38** (6) : 33. 1930. : Suzuki in Jap. Journ. Bot. vol. **18** : 295. 1964.

Section 1. *Macrochlamys* Nakai l. c. 181. 1930.

One species.

2. *Sasa kurilensis* (Rupr.) Makino et Shibata l. c. 27. 1901. — *Arundinaria kurilensis* Ruprecht ; *A. kurilensis* var. *genuina* Fr. Schm. ; *Bambusa kurilensis* Miyabe ; *Sasa paniculata* Camus (non Makino et Shibata) ; *Pseudosasa kurilensis* Makino ; *Sasa yezo-alpina* Nakai.

“Chisimazasa”, “Nemagaridake” (nomen ambiguum et confusum).

Plants mostly glabrous, variable in size but culms usually 1–3 m tall, 1–1.5 cm across. Leaves variable in size, larger leaves 20–30 cm long, 5–7 cm wide ; smaller ones 5–7 cm long, 1–2 cm wide, usually oblong, sometimes oblong-lanceolate, abruptly acute or acuminate at the top, sharply cuneate, rarely broadly cuneate at the base, dark green above, glaucous beneath and shining on midrib and veins, completely glabrous or more or less pilose, coriaceous. Spikes (1.5–) 2.5–4 cm long, 0.7–1.5 cm wide. Spikelets lanceolate, 1–1.2 cm long. Grains brownish, 0.7 mm long. — On mesic organic soils or damp peaty soils ; on the forest floors or open lands from lower, southern nemoral zone to subalpine, boreal pine zone.

Hab. : Sh, Ta. **Distribution in Hokkaido** : in provinces of the Sea of Japan side and central Highlands, and in heavy snow areas even in provinces of the Pacific and the Ochotsk Sea sides.

Distribution pattern : very common in snowy and mountainous areas ; communities extensive, continuous and very often mixed with other *Sasas*.

Conservation status : maintaing but little attention to the preservation and the protection from developmental management except for the use to seasoning resources and handcraft materials.

- b) var. *uchiae* Makino in Journ. Jap. Bot. vol. **5** : 41. 1928. — *Sasa uchidai* Makino ; *Pseudosasa uchidai* Makino ; *S. kurilensis* f. *uchidai* (Makino) S. Suzuki.

“Nagaba-Nemagaridake”

Leaves narrower in normally grown forms than those of var. *kurilensis*, typically 18–24 cm long, 2.5–4 cm wide, narrowly oblong or narrowly oblong-lanceolate, sharply cuneate at the base, more attenuately acute at the top than var. *kurilensis*.

The present variety is very often indistinguishable from ill-grown narrower leaved individuals of var. *kurilensis*, particularly in herbarium specimens.

Section 2. *Sasa* Makino l. c. 189. 1930. pro “Eusasa”.

Four species.

1. Culm sheaths glabrous 4. *S. senanensis*
— Culm sheaths hairy 2
2. Leaves glabrous beneath. Culm sheaths villose with spreading hairs.
..... 5. *S. veitchii*
— Leaves pubescent beneath 3
3. Culm sheaths densely puberulous with retrose short or minute hairs.
..... 6. *S. yahikoensis*
— Culm sheaths villose with spreading long hairs 3. *S. megalophylla*

3. *Sasa megalophylla* Makino et Uchida in Journ. Jap. Bot. vol. 6: 23. 1929. — *Sasa sylvatica* Tatewaki

“Oobazasa, Uryuzasa (Tatewaki)”

Plants robust, culms 1–2 m tall, 5–8 mm across. Internodes glabrous, frequently pubescent. Nodes prominent, glabrous or pubescent. Leaf sheaths glabrous, sometimes pilose at the lowest portion. Leaves ovate-lanceolate, elliptical or oblong, 20–30 cm long, 5–7.5 cm wide, rather abruptly acute or caudate at the top, sharply or broadly cuneate at the base. Oral setae developed, radiate. Peduncles extruded from lower portions of the culm. Spikelets ca. 0.7 mm long. — On mesic organic soils.

Hab.: Sh, Ta. **Distribution in Hokkaido:** the whole Hokkaido but principally in N. and E. Provinces; Teshio and Kitami, sporadically in Oshima, Iburi, Ishikari, etc.

Distribution pattern: very frequently; continuously extended.

Conservation status: maintaing, but little attention paid to the preservation of this species.

4. *Sasa senanensis* (Fr. et Sav.) Rehder in Journ. Arnold Arbor. vol. 1: 58. 1919.
— *Arundinaria kurilensis* var. *paniculata* Fr. Schm.; *Bambusa senanensis* Fr. et Sav. (incl. var. *ontakensis*); *Sasa paniculata* (Fr. et Sav.) Makino et Shibata.

a) var. *senanensis* — *S. paniculata* var. *paniculata* Nakai l. c. 193. 1930.

“Kumaizasa”, “Nemagaridake” (nomen ambiguum et confusum).

Culms 1–2 m tall, 5–8 mm across, robust, branching from lower portions of the culm. Internodes, nodes, culm sheaths and leaf sheaths glabrous. Leaves

oblong, 18–30 cm long, 4–7 cm wide, glabrous above and pubescent beneath. Peduncles issued from lower portions of the culm, and extruded from the culms. Spikelets 5–6 mm long. — On organic soil-containing field layer of mesophytic wood, on damp, acid bogs and outskirts of peat lands, on open lands from lowlands to subalpine, boreal coniferous zone.

Hab.: Ex, Sh, Ta. **Distribution in Hokkaido:** very common over the whole Hokkaido.

Distribution pattern: very common; communities extensive and continuous.

Conservation status: maintaing, but little attention paid to the preservation of this species. “Kumaizasa” is a useful material to the protection of ground surface from erosion, and an effective indicator in monitoring the deterioration of bog vegetation, particularly the change of water condition of it.

b) var. *harae* (Nakai) S. Suzuki l. c. 165. 1965.

“Minakamizasa”

Leaves ovate-lanceolate, more than 7 cm in width. Internodes and nodes usually more or less pubescent.

i. form *harae* Minakamizasa

Internodes with thinly retrose short hairs.

Hab.: Sh. **Distribution in Hokkaido:** sporadically mixed with the var. *senanensis* with narrower leaves.

Conservation status: see the var. *senanensis*.

ii. Other forms with broader leaves are as follows;

*form. *Uyetsuensis* (Koidz.) S. Suzuki “Ohba-Uyetsu-Chimaki”

Internodes and nodes glabrous. Sporadically mixed with other sasas. In Iburi: Kenfuchi National Forest, Chitose C.

**form. *subcordatiphylla* (Koidz.) S. Suzuki “Kunimizasa”

Internodes glabrous. Nodes covered with spreading long hairs. Sporadically mixed with other Sasas. In Iburi: Toyoura, Abuta T., and Oshamanbe.

5. *Sasa veitchii* (Carr.) Rehder l. c. 58. 1919. — *Bambusa veitchii* Carr.; *Phyllostachys bambusoides* var. *albo-marginata* S. et Z.; *Sasa albo-marginata* (S. et Z.) Makino et Shibata.

a) var. *hirsuta* (Koidz.) S. Suzuki l. c. 421. 1967. — *Sasa omokoensis* var. *hirsuta* Koidz.; *S. tyugokuensis* Makino; *S. sachalinensis* Makino et Nakai.

“Chugokuzasa”

Culms 1–1.5 m tall. Internodes and nodes glabrous. Culm sheaths densely pilose with spreading long hairs. Leaf sheaths glabrous. Leaves oblong, rotund to truncate, very often subcordate at the base, glabrous, fresh green above, often albomarginated in winter. — On sunny forest margins, on ditches, open lands, etc.

Hab.: Sh. **Distribution in Hokkaido:** sporadically occurring, but frequently recorded in Provinces of Iburi, Teshio and Kitami.

Distribution pattern: frequent; communities not so extensive but rather patchy.

Conservation status: maintaing, but little attention paid to the preservation and the protection from developmental management. The present Sasa is valuable for a garden ornament because of its albo-marginated leaves in winter.

6. *Sasa yahikoensis* Makino in Journ. Jap. Bot. vol. 6: 4. 1929.

a) var. *oseana* (Makino) S. Suzuki l. c. 123. 1965. — *Sasa paniculata* var. *oseana* Makino; *S. macrospila* Koidz.

“Ozezasa”

Plants mostly pubescent 1-2 m tall. Internodes and culm sheaths desely puberulous with retrose short or minute hairs. Leaf sheaths velutinous with spreading short hairs or without minute hairs. Nodes densely pilose. Leaves chartaceous, oblong, glabrous above, pubescent benath.

Hab.: Chitose. **Distribution in Hokkaido:** Provinces of Iburi, Hidaka and Kitami (according to S. Suzuki 1978).

Conservation status: no attention paid to the preservation and the protection from developmental management.

Type locality of *S. macrospila* Koidz.: Chitose.

Taxonomical and ecological status has not been investigated. Some confusion occurs among *S. laminata* Tatewaki, *S. nipponica* var. *depauperata* Takeda, *S. tomookana* Koidz., *S. yessoensis* Koidz., *S. yasokichii* Tatewaki and *S. iburiensis* Nakai in relation to the present species.

Section 3. *Lasioderma* Nakai l. c. 187. 1930 — *Neosasamorpha* Tatewaki (pro Generis)

Two species.

1. Culm sheaths puberulous with retrose minute hairs. Leaves pubescent beneath.
..... 7. *Sasa pubiculmis*
— Culm sheaths villose with spreading long haris mixed with retrose minute hairs.
Leaves pubescent beneath 8. *Sasa takizawana*

7. *Sasa pubiculmis* Makino in Journ. Jap. Bot. vol. 6: 25. 1977.

a) var. *chitosensis* (Nakai) S. Suzuki in Hikobia vol. 8: 62. 1977. — *Sasa chitosensis* Nakai; *Neosasamorpha chitosensis* (nakai) Tatewaki.

“Yezo-Nanbusuzu”, “Iburi zasa” (Nomen confusum)

Culms 1-2 m tall, 4-7 mm across, rather robust, branching principally from upper portions of the culm. Culm sheaths and internodes puberulous or velutinous with retrose minute haris. Nodes puberulous, often pilose. Leaf sheaths glabrous. Leaves oblong, chartaceous, pubescent beneath. Oral setae radiate, often destitute. — On forest floors and forest edges, mixed with *Sasamorpha borealis* and other Sasas.

Hab.: endemic in Sh.

Conservation status: threatening; no attention paid to the preservation from developmental management and forestry activities.

Type locality of *Sasa chitosensis* Nakai: Rankoshi, Chitose C.

The present *Sasa* is unknown in detail, and the type locality should be strictly protected from abused development and land utilization.

8. *Sasa takizawana* Makino et Uchida in Journ. Jap. Bot. vol. 6: 22. 1929.

a) var. *lasioclada* (Makino et Nakai) S. Suzuki in Hikobia vol. 8: 64. 1977.

— *Sasa lasioclada* Makino et Nakai; *Neosasamorpha lasioclada* (Makino et Nakai) Tatewaki.

“Chitosezasa”

Culms 1–2 m tall, 4–7 mm across, robust, branching from upper portions of the culm. Internodes puberulous or glabrous. Nodes glabrous or pilose at upper portions. Leaf sheaths densely puberulous with antrorse minute hairs, often mixed with spreading long hairs. Leaves onlong, chartaceo-coriaceous, 20–28 cm long, 3.5–6 cm wide, glabrous above, pubescent beneath. — On forest floors and forest edges, mixed with *Sasamorpha borealis* and other *Sasas*.

Hab.: Sh. **Distribution in Hokkaido:** limited in Sh.

Conservation status: see the above species.

Type locality of *Sasa lasioclada* Makino et Nakai: Rankoshi, Chitose C.

Section 4. *Crassinodi* Nakai l. c. 183. 1930.

Two species.

1. Culm sheaths puberulous with retrose minute or fine hairs. Leaves pubescent beneath. 9. *Sasa apoiensis*
— Culm sheaths villose with spreading long hairs mixed with retrose minute hairs. Leaves pubescent beneath. 10. *Sasa samaniana*

9. *Sasa apoiensis* Nakai Veg. Mt. Apoi Prov. Hidaka 24. 1930. cum descript. jap.; l. c. 185. 1930. cum descript. lat. — *Sasa sendaica* f. *apoiensis* (Nakai) S. Suzuki “Yezo-Miyakozasa”

Plants slender, 50 to 100 cm tall, terrestrial culms usually biennial, often annual. Leaves oblong to lanceolate, 18–20 cm long, 3.5–5 cm wide, membranaceous, usually albo-margined in winter. — On organic soils or volcanic ashes, on coastal meadows, open lands and forest edges.

Hab.: Ex, Sh, Ta. **Distribution in Hokkaido:** similar to that of *Sasamorpha borealis*, in Provinces of Iburi, Hidaka, Tokachi, Kushiro and Nemuro, or often of Oshima and Kitami.

Ditribution pattern: very common in areas of the Pacific side but rather rare in those of the Ochotsk side.

Conservation status: threatening; attention has been concentrated into chemical and nutrition contents of leaves as feed materials for horses and deer but

not into the preservation from developmental management and from over-grazing of horses and deer. The present *Sasa* is useful to a garden ornament plant and a protection plant from land-sliding in heavy frozen areas of Hokkaido.

Type locality of *S. apoiensis* Nakai : Mt. Apoi, Prov. Hidaka.

10. *Sasa samaniana* Nakai Veg. Mt. Apoi Prov. Hidaka. 31. 1930. cum diagn. jap. ; l. c. 184. 1930. cum diagn. lat.

“Apoi-zasa”, “Ke-Miyakozasa”

The present species is characterized by having culm sheaths which are pubescent with spreading long hairs. — On forest edges and open lands.

Hab. : Sh. **Distribution in Hokkaido** : sporadically in Provinces of Oshima, Iburi, Hidaka, Ishikari and Kushiro.

Distribution pattern : very rare.

Conservation status : endangered ; one place of Sh is being destroyed and deteriorated by road construction. No attention paid to the preservation from developmental management.

Type locality of *S. samaniana* Nakai : Mt. Apoi, Prov. Hidaka.

Conclusion

In the present revision, 10 species were listed. Among them, one species belongs to the *Sasamorpha* and the rest 9 species belong to the *Sasa*. In the Tomakomai Experimental Forest, 4 species were listed ; *Sasamorpha borealis*, *Sasa senanensis*, *Sasa takizawana* var. *lasioclada* and *Sasa apoiensis*. It is noteworthy to be destitute of the *Macrochlamys* in this Forest area. The lack of the *Macrochlamys* indicates that the Tomakomai Experimental Forest area belongs to a different climatic regime from Sh area which is surrounded by high mountains ; a severe, cold and dry, and light snowy area within the Crassinodi line (S. Suzuki 1961, Niimiya and Ito 1983). In extra-areas from Ex such as Sh and Ta, montane climatic conditions with heavy snow in winter allow the *Macrochlamys* to prosper. Thus, *Sasa* (*Macrochlamys*) *kurilensis* prevails in Sh at the foot of and on the mountain slopes of Mt S. Tarumae, Fuppushi and Eniwa.

In addition to the winter precipitation, the substrate is a factor which controls the distribution of *Sasa* plants. Plants of the *Sasamorpha* might have been influenced considerably in their distribution by rocky substrate as far as we observe. At present, actual extension of the distribution of the *Sasamorpha* might not necessarily be controlled by rocky substrate but may, instead, be controlled by light precipitation in winter.

In the areas under consideration, Sh is the richest of *Sasa* species in number ; Ex is not so rich as Sh. In the former there are 2 genera and 10 species, and 2 type localities are included, that is, *Sasa* (*Lasioderma*) *pubiculmis* and *Sasa* (*Lasioderma*) *takizawana* var. *lasioclada*. Tatewaki (1940) insisted that the *Lasioderma*

had been derived from the hybridization between a plant of the *Sasamorpha* and that of the *Sasa* in its origin. Based on this hypothesis, Tatewaki erected a new genus *Neosasamorpha*, but any proof of the hybridization has not been made from Cytology, Genetics, Ecology, etc. As Tatewaki pointed out, however, it is interesting that the type localities of two species mentioned already are very close to each other in a confined area by the R. Chitose. Around the localities, a mixture of *Sasa* and *Sasamorpha* is found, and the fact mentioned may suggest the possibility of hybridization between *Sasa* and *Sasamorpha*. In the Tomakomai Experimental Forest, a population of the *Sasamorpha* along together with that of *Sasa apoiensis* side by side, but no hybridization has been observed. In this case, it is plausible that any chance of crossing had never occurred due to the recent establishment of the two populations. If it was so, a limited area of the type locality by the R. Chitose is very valuable site for biological studies and the preservation of it will be welcome by the preservationists for the purpose of sciences. However, even if it was not so, the area is monumental in memory of Profs. Drs. Nakai and Tatewaki, who are great masters of *Sasa* taxonomy in Hokkaido as well as in Japan.

Some of the scientific names of *Sasa* species adopted in the present revision are different from those proposed by S. Suzuki (1964, 1965, 1967 and 1978), and by Kitamura and Murata (1979), since it is hard for us who have engaged in the eco-taxonomical works of *Sasa* to share the same opinion with the former authors at present. Especially, the nomenclature on *Sasa nipponica* and its allies, and on *S. yahikoensis* and its allies have been very much confused and have to be considered carefully through field observations of the performance of winter buds. In fact, we have noted one doubtful form in the Tomakomai Experimental Forest, which has been called temporarily as "Appenai-zasa" by us. It may be a member of our composite type but its specific status has been unknown in detail.

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* in Japanese ** in Japanese with English summary

(Received 15 March 1984)