

Patterns of Flowering Periods in Selected Floras of the World(7)

Lee, Yong No

(Dept. of Biology, Ewha Womans University)

世界各國의 植物相花期型에 對하여 (7)

李 永 魯

(梨花女子大學校 生物學科)

ABSTRACT

I have done several papers of flowering periods in selected floras of the world since 1969. In this paper, the patterns of flowering periods of floras, Tierra del Fuego, Isl. Barro Colorado and Karuizawa are compared. The total sums of monthly percentages of flowering taxa are 335.6 in Tierra del Fuego, 723.9 in Barro Colorado Isl. and 192.8 in Karuizawa, Japan. The patterns of Barro Colorado Isl. showed as a tropical area's patterns of flowering periods, therefore abundant flowers in there all the year round, but it is very different to tropical Java's flowering periods of the flora. The patterns of Tierra del Fuego is closely related to the patterns of flowering periods of the Falkland Isl. flora. The patterns of flowering periods of Karuiza flora is represented as patterns of northern temperate region's.

ring periods in the three countries.

INTRODUCTION

It was a wonderful trips to South America for two monthes from Dec. 15, 1984 to Feb. 15, 1985. I had visited the areas of Amazon, Brazilia, Iguacu, Buenos Aires, Rio Gallegos, Tierra del Fuego, Mendoza, Santiago, Lima, Cusco, Machupichu, Mexico and Cancun, and also I stopped at Tokyo.

In these trips I found some good floras, Flora of Tierra del Fuego in South America, Flora of Barro Colorado Island in Central America, and Flora of Karuizawa in Japan.

This paper is proposed to find patterns of Flowe-

MATERIAL AND METHOD

Flowering times were taken from the three floras, Flora of Tierra del Fuego which was written by David M. Moore(1983), Flora of Barro Colorado Isl. which was written by Thomas B Croat (1978), Flora of Karuizawa, central Japan which was written by Hiroshi Hara, Kunio Sato and Kurozawa Sachiko(1974).

Climatic data of Ushuaia Argentina was taken from department of commerce, World Weather Records (1931~1960), climatic data of Barro Col-

orado Isl. was taken from the book, Flora of Barro Colorado Isl. and climatic data of Karuizawa was taken from Rika Nyeun Pyo(1951~1980) by Tokyo Astronomical Observatory.

RESULT

The Flora of Tierra del Fuego, Moor(1983) covers 417 native taxa of flowering plants and 128 taxa of foreigners. I counted flowering times of 447 species in the flora. From Jan. to Dec., flowering taxa are

as 384, 275, 153, 32, 9, 0, 1, 1, 8, 63, 217, and 359.

In the Flora of Barro Colorado Isl. Croat (1978) the author referred to the flowering times of 821 taxa. From Jan. to Dec., flowering taxa are as 499, 531, 541, 543, 509, 542, 541, 500, 447, 420, 407, and 459.

The Flora of Karuizawa, Hara, Sato and Kurozawa (1974) covers 1015 taxa including 66 taxa of Pteridophytes.

In this study author counted flowering times of

Table 1. Flowering entries and percentages in Tierra del Fuego, Barro Colorado Isl. and Karuizawa

| Tierra del Fuego | | | | | | | | | | | | | | |
|---------------------|-------|------|------|------|------|------|------|------|------|------|------|------|------|---------|
| Taxa | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Months |
| 447 | 1502 | 384 | 275 | 153 | 32 | 9 | 0 | 1 | 1 | 8 | 63 | 217 | 359 | Entries |
| | 335.6 | 85.9 | 61.2 | 34.2 | 7.1 | 2.0 | 0 | 0.2 | 0.2 | 1.7 | 14.0 | 48.5 | 80.3 | % |
| Barro Colorado Isl. | | | | | | | | | | | | | | |
| 821 | 5949 | 499 | 531 | 541 | 543 | 509 | 542 | 541 | 500 | 447 | 420 | 407 | 459 | Entries |
| | 723.9 | 60.7 | 64.6 | 65.8 | 66.7 | 61.9 | 66.0 | 65.8 | 60.9 | 54.5 | 51.1 | 49.5 | 57.1 | % |
| Karuizawa | | | | | | | | | | | | | | |
| 896 | 1731 | 0 | 0 | 1 | 65 | 232 | 321 | 325 | 414 | 289 | 81 | 3 | 0 | Entries |
| | 192.8 | 0 | 0 | 0.1 | 7.2 | 25.8 | 35.8 | 36.2 | 46.2 | 32.2 | 9 | 0.3 | 0 | % |

Table 2. Monthly mean Temperature (°C)

| | Months | | | | | | | | | | | | | Average |
|---------------------|--------|------|------|-----|------|------|------|------|------|------|------|------|-------|---------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | |
| Ushuaia | 9.2 | 9.0 | 7.8 | 5.7 | 3.2 | 1.7 | 1.6 | 2.2 | 3.9 | 6.2 | 7.3 | 8.5 | 5.5 | |
| Barro Colorado Isl. | 5.6 | 3.3 | 3.0 | 8.6 | 27.9 | 27.7 | 29.7 | 31.8 | 26.2 | 35.6 | 45.5 | 26.9 | 22.65 | |
| Karuizawa | -3.8 | -3.4 | -0.5 | 6.3 | 11.5 | 15.5 | 19.3 | 20.1 | 15.6 | 9.4 | 4.3 | -6.1 | 7.8 | |

Table 3. Precipitation (mm)

| | Months | | | | | | | | | | | | Annual |
|---------------------|--------|----|----|----|-----|-----|-----|-----|-----|-----|----|----|--------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| Ushuaia | 57 | 50 | 57 | 46 | 48 | 45 | 38 | 49 | 38 | 36 | 50 | 49 | 563 |
| Barro Colorado Isl. | 32 | 32 | 33 | 34 | 32 | 30 | 31 | 31 | 32 | 31 | 30 | 30 | 378 |
| Karuizawa | 37 | 40 | 64 | 65 | 118 | 192 | 185 | 158 | 178 | 121 | 53 | 28 | 1269 |

896 taxa from Jan. to Dec. are as 0, 0, 1, 65, 232, 321, 325, 414, 289, 81, 3 and 0.

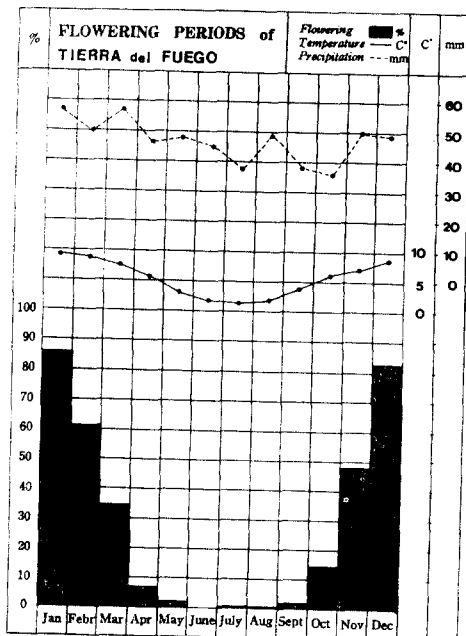
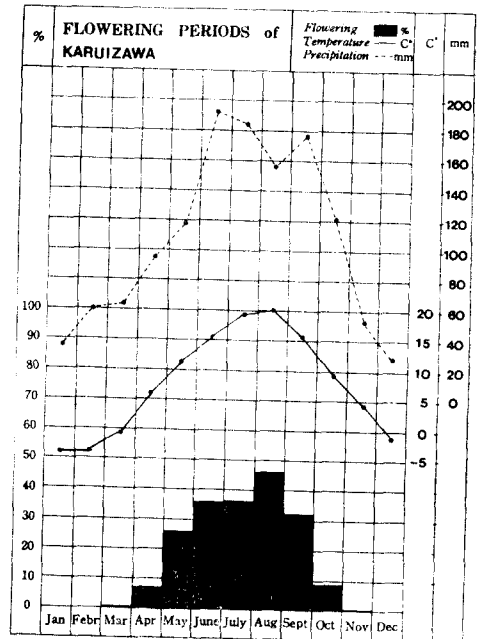
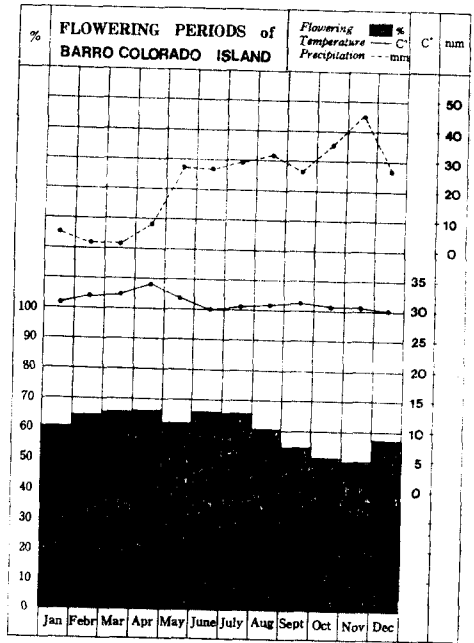
The data of flowering periods climatic precipitation and temperatures are as shown in Table 1, 2 and 3.

DISCUSSION

Tierra del Fuego is belong to the cold region in south hemisphere. There are many flowers blooming during November, December, January, February and March, while from May to September only few taxa of flowering plants blooming. The patterns of flowering periods in Tierra del Fuego is correlated with pattern of monthly temperature.

The patterns of flowering periods of Barro Colorado Isl. showed as a tropical patterns of flowering periods, but the patterns are characteristic and very march differ from the patterns of flowering periods of Java(1970).

Pattern of flowering period of Karuizawa is represent as flora of northern temperate area. Therefore the most of flowers blooming during April to



October and the peak times of flowering occurred in month of August. The pattern of flowering periods are clearly correlated with the pattern of monthly temperature..

The total sum of monthly percentages of flowe-

ring taxa is 335.6 in Tierra del Fuego, 722.9 in Barro Colorado Isl., and 192.8 in Karuizawa. Therefore, if we consider on flowering activity in terms of total percent of flowering taxa, the Barro Colorado Isl. is the first, the Tierra del Fuego is second and the Karuizawa is third position.

摘 要

世由各國의 植物相의 花期型의 계속적인 研究로서 今般 南美의 Tierra del Fuego 中美의 Isl. Barro Colorado와 日本의 中部의 Karuizawa의 植物相의 花期型을 만들어 比較하였다.

Tierra del Fuego의 花期型은 Isl. Falkland의 花期型에 비슷하면서도 조금 다른 것을 볼 수가 있었고 Isl. Barro Colorado의 植物相의 花期型은 熱帶地方의 植物相 Java에 닮았으나 다른 것을 찾아 볼 수가 있고 Karuizawa의 植物相의 花期型은 北溫帶地方의 花期型을 계성적으로 나타내고 있는 것을 볼 수가 있었다.

LITERATURE CITES

- Allard, H.A. (1932). Length of day in relation to the natural and artificial distribution of plants. *Ecology*, **13** : 221~34.
- Croat, T.B. (1978). *Flora of Barro Colorado Isl. Central America*. Stanford Univ. Press.
- Hara, H., K. Sato, and S. Kurosawa. (1974). *Flora of Karuizawa*, Inoue, Tokyo.
- Lee, Yong No. (1967). Flowering periods of the Korean and Japanese Flora. *Jour. Kor. Pl. Tax.* **1, 1.**, 15~22.
- Lee, Yong No. (1969). Flowering periods of Korean Flora. *J. K.R.B.L.* **3** : 19~28.
- Lee, Yong No. (1971). Patterns of flowering periods in selected floras of the world. *Saertrykof Geografisk Tidsskrift*, **70** : 241~253.
- Lee, Yong No. (1971). Patterns of flowering periods in selected floras of the world. (2). *J.K.R.I.B.V.*, **7** : 23~31.
- Lee, Yong No. (1972). Patterns of flowering periods in the selected floras of the world. (3). *J.K.R.I.B.V.*, **9** : 133~139.
- Lee, Yong No. (1971). Patterns of flowering periods in selected floras of the world, *J.K.R.I.B.L.*, **6** : 41~52, **7** : 23~31.
- Lee, Yong No. (1972). Patterns of flowering periods in selected floras of the world. (2). *I.K.R.I.B.L.*, **9** : 133~139.
- Lee, Yong No. (1973). Patterns of flowering periods in the South Vietnam flora. *J.K.R.I.B.V.*, **11** : 113~116.
- Moor, D.M. (1983). *Flora of Tierra del Fuego*, Missouri Bot. Garden, U.S.A.
- U.S. Department of Commerce. (1960). *World weather records (1951~1960)*. 2, Washington D.C.

(Received February 11, 1985)