

Analysis of climatic habitat for plants using Vegetation Survey Database Part 2.

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1. First

When preparing the 1/25,000 vegetation map, the Ministry of the Environment organizes the collected vegetation survey data and creates and releases the "National Vegetation Survey Database"*1.

This database is mainly composed of two tables: a list of survey points and a list of species by hierarchy. By using the information contained in this table, it is possible to determine which plant * 2 is growing at which point. You can know. By using this information and mesh climatological values, it is possible to clarify the types of climatic conditions where specific plants are distributed, and it is possible to clarify the differences in climatic characteristics between species and the location environment. It is thought that can be clarified.

In this presentation, we attempt to clarify the climatic characteristics of some plants using the National Vegetation Survey Database.

2. Material

a.Plant location information: National vegetation database (downloaded January 2020)

b.Climate value: Normal value mesh data of national land information (meteorological agency mesh average value 2010)

3. Method

Information on vegetation surveys included in the national vegetation database was obtained as point data with xy coordinates into the Esri's ArcGIS10.5.1. The mesh climatic values of the separately acquired national land numerical information were developed, and the climatic values were combined with the vegetation survey point data.

In this way, vegetation survey point data with climatic values was created, and points where red and oak grasses, beech, and giant clam were included in the tree and sub-tree layers were extracted.

From the information of the points extracted in this way, the canopy height, the diameter of the breast height, the inclination of the ground surface, and the altitude as field survey data, the annual precipitation, the annual average temperature, the minimum temperature in February, the maximum temperature in August Temperature and annual maximum snow depth were extracted.

The values extracted in this way were read into Microsoft Excel, graphed and compared.

4. Result

200 About 200 spots were found for Oshirabiso, about 2,400 for beech, and about 450 for red oak.

Figures 1 and 2 show the relationship between altitude and annual precipitation as an example of the relationship between these tree species and the environment, including climatic values. Fig. 1 shows that the distribution of beech, ossilabis, and red oak are different at altitudes, but that they are not particularly separated by precipitation. On the other hand, in the annual average temperature, it can be seen that the suitable places for distribution are different between the altitude and the temperature. Figures 3 to 5 show frequency distributions of climatic values in order to clarify suitable places for these tree species to grow.

At the altitude shown in Fig. 3, it is clear that red oak and beech overlap in suitable habitats, but red oak

and oosirabiso do not overlap. It is clear that suitable growth areas for each species are different at the annual average temperature shown in Fig. 4. In the precipitation shown in FIG. 5, there is not much difference between the three tree species.

As described above, when the climatic values and environmental factors of plant species with different distributions in the Japanese archipelago were analyzed, the cause of the difference in suitable habitat became clear. In the future, we will compare other species and clarify the relationship between specific climatic values and distribution. By accumulating such data, it will be possible to predict future changes in natural vegetation due to climate change from comparisons with climate values.

* 1: http://gis.biodic.go.jp/webgis/files/veg_survey_db_h12-29.pdf

* 2: Redlisted species are not disclosed.

Keywords: Vegetation, Climate value, Vegetation Suevey Database

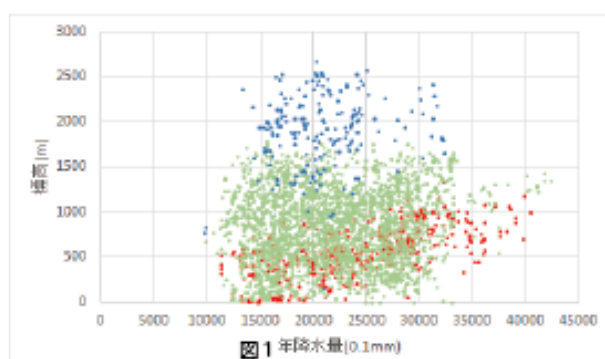


図1 年降水量(0.1mm)

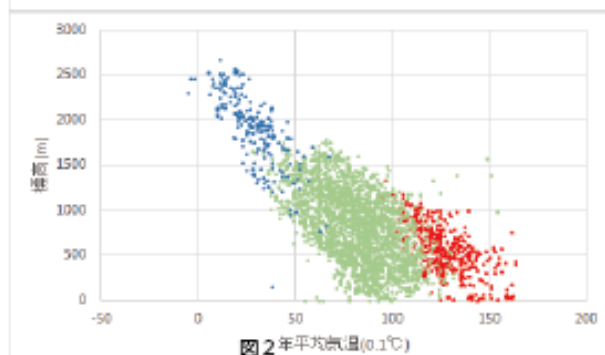


図2 年平均気温(0.1°C)



図3 標高 頻度分布図

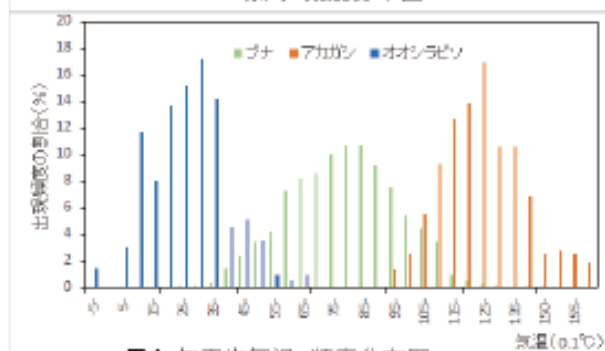


図4 年平均気温 頻度分布図



図5 降水量 頻度分布図