The Evaluation of Ski Slope Vegetation for the Biodiversity Conservation of Grasslands in Japan

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1. BACKGROUND AND OBJECTIVE

Semi-natural grassland which is defined as a component of *Satoyama* known as Socio-Ecological Productive Landscape in Japan is based on disturbance by human activities such as mowing, burning or grazing. However, this type of grassland is decreasing nowadays, because of the declination of these activity replaced due to the modern agriculture and forestry. As a result, the vegetation control by ski slope is expected to be alternative ways of maintaining these landscapes. This research set its goal to evaluate ecological potential of ski slope vegetation especially in Joshinetsu region in Japan for conservation or improvement of local biodiversity.

2. METHOD

At the beginning of this study, the data was gathered at 50 points of ski slope vegetation and 65 points of natural and semi-natural grassland vegetation on other sites basing on the previous phytosociological investigation surveyed by Nakamura in 1988 and National Institute of Livestock and Grassland Science with Blaun-Blanquet's methods. Secondary, the clustering of the plant community of ski slopes and other grasslands was separately done by TWINSPAN(Two Way Indicator Species Analysis) that is one of the cluster analysis programs. Each result of classification was verified with the result of DCA ordination using whole survey plots (Fig) , and the number of species observed in each cluster was counted by plants characteristics as foodplant of endangered butterfly and its own rarity. And information of soil condition and classic vegetation before ski development was extracted in order to discuss the relationship between these environmental factors and plant communities influenced.

3. RESULTS

The study sites could be classified into 4 clusters of ski slope vegetation and 6 clusters of grassland vegetation according to the characteristics of their plant communities. Cluster SKI I and II showing the similarity to NAT V and VI is based on the good soil condition without cutting over, contains more grassland species. THese two types also contain endengered (RDB) species and the former vegetation of this cluster was mainly natural or semi-natural grassland. In SKI III, with preserved soil conditions, more woody species were observed. This type of vegetation was previously woodlands. In SKI IV, with cut over soil condition, the species such as *Trifolium repens* and *Festuca arundinacea* dominate the community and less RDB Species were found.

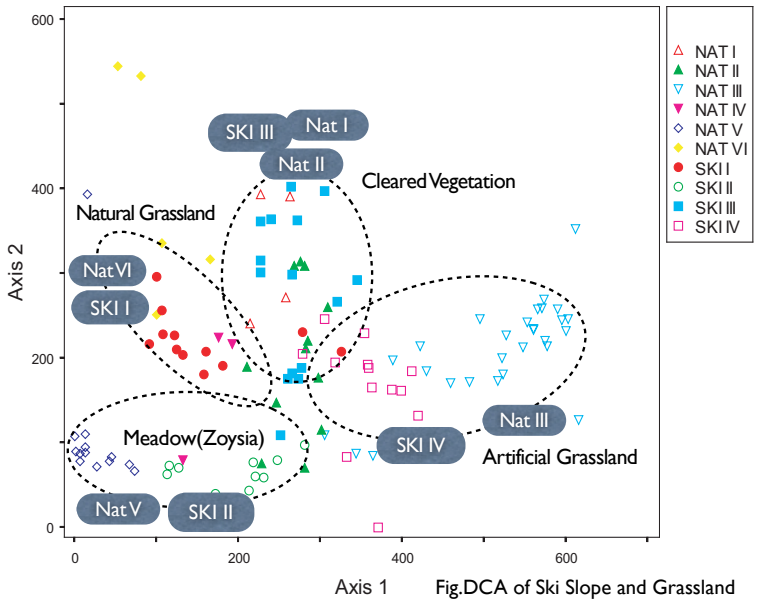

Fig.DCA of Ski Slope and Grassland

4. DISCUSSION

It is suggested that difference of former vegetation and soil condition influencing the components of plant species is caused by how the ski slope was constructed and by whose hands it was done. SKI I and II with high biodiversity were developed by local capital in early stage of ski development history of Japan and these types of ski slope supposed to be identified and managed prior to other clusters for the conservation of biodiversity of grassland at the regional scales.