Landscape Level Genetic Diversity Evaluation in Mixed Managed Forest in Hokkaido, Japan

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Aim of this research is to make indicator for genetic diversity for three major conifer tree species Abies sachalinensis, Picea jezoensis and Picea glehnii in Hokkaido and evaluate landscape level genetic diversity at Toyohira river basin, Hokkaido, Japan.

Biodiversity is one of the key factors for sustainable forest management. Biodiversity often define at three different levels, ecosystem of region, species and genes. Ecosystem and species level of diversity are able to evaluate at landscape level based on the result of ground survey and spatial information. On the other hand, genetic diversity at landscape level is rather difficult because it has to consider the size of distribution area and biogeographical characteristics which needs the data from ground survey and direct measurements of the difference of genes.

At first, we defined genetically homogeneous area. Then we made a genetic diversity indicator using forest register information. Finally we evaluate genetic diversity in our target basin.

As a result, Abies sachalinensis and Picea jezoensis were distributed widely and had own genetically “high diverse” zone. Although Picea glehnii was distributed as islands and had high diverse patches. These results reflect there own biogeographical characteristics. It is considered that the developed indicator for genetic diversity is appropriate to illustrate landscape level genetic diversity at Toyohira river basin.