

学 位 論 文 要 旨	
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題 目	Studies on the formation process of distribution range and genetic structure of widespread tropical plants (熱帯域広域分布植物の分布と遺伝構造の形成過程に関する研究)
<p>Climate change has strongly affected the formation of the species distribution range and spatial genetic structure in many organisms. Recent phylogeographic studies using molecular markers revealed the effect of glacial climate changes on the formation process of the genetic structure through the comparative studies on forest species of temperate boreal zones in the northern hemisphere. These studies suggested that population contraction and subsequent expansion via refugia at the Last Glacial Maximum (LGM) were general processes that formed the common genetic structure of terrestrial plants.</p> <p>The global climate change might have affected widespread species on the globe, in the same way. However, the impact of climate changes on population demographic processes on widespread tropical plants has not been well understood. This may be because of the general idea that those species had high dispersal ability because of sea-dispersal plants, and that impacts of climate changes on the tropical region were relatively low comparing to the boreal region. However, recent phylogeographic studies on widespread sea-dispersed plants suggested that the presence of “cryptic barrier” within oceanic regions which could be formed through common processes. The presence of similar phylogeographic pattern among different widespread tropical plants may indicate that the common factor might influence demographic processes of these species with the ones that influenced on the temperate and boreal terrestrial plants.</p> <p>In this thesis, to reveal the impact of glacial climate changes to the formation process of distribution ranges and genetic structures of widespread tropical plants, the author performed phylogeographic studies on spatial genetic structures and performed population genetic studies on the formation processes. Comparative studies were performed for some different plant species. Phylogeographic studies using molecular markers were performed in a sea-dispersal plant <i>Vigna marina</i>. Comparative demographic studies were performed for other two sea-dispersal mangrove species <i>Rhizophora stylosa</i> and <i>Xylocarpus granatum</i>. A wind-dispersal plant, <i>Acrostichum aureum</i> was also studied.</p> <p>Clear genetic structures within the oceanic region were revealed in the species used for phylogeographic studies. Demographic studies suggested recent bottleneck events in the two mangroves, and population contraction at the LGM and post-LGM population expansion in <i>V. marina</i>. These results suggest that climate change and post-glacial population dynamics affected the genetic structure of the widespread tropical plant, as reported in other land plants. Through the studies, it is suggested that the climate change worked as the common factor that influenced on the formation of distribution ranges and genetic structure of widespread tropical plants as well as the forest tree plants of boreal zones. This finding is essential to predict the change in distribution ranges and genetic structures and to make conservation plans for widespread tropical plants such as mangroves.</p>	