

Population Genetic Structure of a Bamboo Taxon, *Pleioblastus* Sect. *Pleioblastus*, in the Ryukyu Islands Formed by Geohistory and Human Activity

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In island ecosystems, past geohistorical events, such as the formation of land bridges and trenches, have strongly influenced the distribution of organisms that constitute the ecosystem. However, some plant species commonly used in human life may be influenced by significant anthropogenic effects on their distribution and population genetic structure. In this study, we focused on a bamboo taxon, *Pleioblastus* Sect. *Pleioblastus* (*P. hindsii* sensu Nakai, *P. linearis*, *P. gramineus* and *P. gozadakensis*), which have been used in human life in the Ryukyu Islands. A total of 187 ramets from 11 islands were collected for population genetic analysis using the MIG-seq methods. First, the clone identification analysis revealed that several identical genets were found tens of kilometers apart on the same island, and even from different islands separated by the ocean. Such long-distance dispersal could not be expected under natural conditions, suggesting that their distribution is due to human transplantation and propagation. On the other hand, the results of population genetic structure analysis excluding these widely distributed genets indicated that distinct local genetic clusters are formed in the islands as observed in other organisms. These results clearly demonstrate not only geological history, but also human activities have a strong impact on the distribution and formation of population genetic structure in human-related plant species.



Left Photo. A high-density population of *P. linearis* at Cape Miyako, Amami Oshima Island which is considered to be a natural distribution.

Right Photo. *P. linearis* growing on the roadside at Amami Oshima Island which is considered to be a planted population.