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Conservation Genetics of Three Endangered Species of the Genus *Oxera* in the South of New Caledonia

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New Caledonia is a global biodiversity hotspot consisting of numerous endemic species. However, their habitat range has declined due to human activities such as nickel mining and bush fire. *Oxera baladica*, *O. pancheri* and *O. rugosa* are endemic plant species in New Caledonia and in danger of extinction. In this study, their genetic diversity, genetic structure, and demographic history of the populations of these three species were investigated based on single-nucleotide polymorphism (SNP) analysis with next-generation sequencing (NGS).

O. baladica is sparsely distributed in the north and south of the island, and south populations were focused in this study. Leaf samples were collected from 78 individuals of all the recognized populations in the south of the island. *O. pancheri* and *O. rugosa* are only distributed in the south of the island, and the samples were collected from all the recognized individuals (126 individuals from seven populations and 38 individuals from three populations, respectively). DNAs were isolated from the samples and used for sequencing and searching genome-wide SNPs.

In total, 71, 133 and 68 loci were found as SNP markers in *O. baladica*, *O. pancheri* and *O. rugosa*, respectively. Their population genetic data showed lower values of observed heterozygosities than expected in most populations of the three species, suggesting higher a level of inbreeding in each local population. Analysis of spatial genetic structure clearly showed genetic differentiation among local populations of each species. Estimated demographic history of the populations in *O. rugosa* indicated that the local populations were separated from a larger population several hundred years ago due to the effect of human impacts. Consequently, it is proposed that the each population of the three species should be conserved as independent unit. In particular, populations of *O. rugosa* have the highest priority in conservation activities against recent human impacts.