

## Development of Fundamental Management Information for Iriomote Island by a Quantitative Floristic Study toward its Nomination to World Heritage

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[Abstract]

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We conducted a quantitative and comprehensive survey of the flora of Iriomote Island (Okinawa, Japan), which still contains little information about the flora despite its rich forest ecosystems and designation as a World Natural Heritage site in 2021, using the belt transect method and field trips. Based on this data, a list of vascular plant species, a distribution map of each vascular plant species, a species diversity map, a vegetation map, and an endangered plant map were made for Iriomote Island. In addition, we predicted the potential distribution areas of endangered plants and invasive alien plants through ecological niche modeling analysis for the species that could be analyzed.

On Iriomote Island, we identified 1,375 species of vascular plants (1,109 native and 266 alien species), including a new record for a species from Japan and new records for three species from Iriomote Island. One transect study area (5m x 100m, 208 sites) was established approximately per square kilometer, and 40 to 166 species of vascular plants appeared within the transect study area. The number of species was higher in the northeastern and south-central parts of the island, and lower in the peripheral regions and the lower reaches of large rivers. 183 species of endangered vascular plants in the Red List of Threatened Plants 2020 by the Ministry of the Environment, Japan, were confirmed to be distributed on Iriomote Island. One or more endangered plant species occurred in 84% (175/208) of the transect survey areas, and the number of endangered plant species in the transects ranged from 0 to 11, with an occurrence rate of 0 to 7.4%. However, species diversity weakly correlated with the number of endangered species, and there were locations with high occurrence rates of endangered species, even in some lowland forests on the island's periphery, where the number of total species was low. The potential distribution areas of 37 endangered plant species for which sufficient distribution data were available and *Sphagneticola trilobata*, an invasive alien species, were predicted using ecological niche modeling analysis. As a result, relatively good predictions were made for 11 endangered plant species and *S. trilobata*. Future distribution predictions were also made for five endangered plant species for which climate variable has contributed significantly to their distribution.

[References]

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