

## **Session Theme 14: What have we learnt about invasive species on islands and what are the best strategies for dealing with them in the future?**

**Monday, April 16, 2018 (1:30 - 5:00 PM)**

***Koi Room***

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### **The invasive tree *Miconia calvescens*, a global threat to tropical island forest ecosystems worldwide: mapping its current and potential distribution**

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*Miconia calvescens* (Melastomataceae) is a small tree native to Central and South America. A very popular plant in horticulture, it was propagated in many botanical gardens in the Tropics, and has subsequently become a dominant plant invader in lowland and montane rainforests of many tropical islands. *Miconia* is currently locally naturalized or invasive in 16 oceanic and continental islands of the Atlantic, Indian and Pacific Oceans, as well as in the Queensland region of Australia, with invaded areas reaching 61,000 ha in Hawai'i and 80,000 ha in Tahiti (Society Islands). By forming dense monospecific stands, *Miconia* constitutes a direct threat to native and endemic floras, and to forest ecosystem services as it promotes soil erosion and landslides on steep slopes. In order to assess the potential spread of *Miconia* in the Marquesas Islands, where the species is in an early stage of invasion, we built an array of species distribution models based on occurrence data from its native and introduced ranges, large-scale Worldclim climatic variables (e.g. rainfall and temperature, wind speed) as well as fine-scale topographic variables (e.g. elevation, slope steepness, solar radiation, topographic wetness index). Results from all model show that *Miconia* has the potential to spread over large areas (e.g. 46% of Nuku Hiva). Without a program to prevent its introduction in new islands, an early warning system, strong biosecurity measures, and appropriate control strategies in areas where it is already present or naturalized, *Miconia calvescens* could become a global threat to tropical island forests worldwide.