

Restoration of Native Vegetation Invaded by Alien Plants in Small Tropical Islands of the South Pacific

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Introduction

Restoration of degraded native habitats invaded by alien plants and animals is often a long and difficult process, and often site-dependent. Success or failure of management methods to control invasive species (e.g. fencing, weeding) in tropical island ecosystems may vary according to both the abiotic and biotic conditions, including the resiliency of the native biota (1, 2). Thus, a careful assessment over time with rigorous monitoring protocols should be conducted.

Methods

We conducted three experiments on small and remote islands of the South Pacific by setting up permanent plots to study native plant recruitment and vegetation dynamics after weed manual and/or chemical control: 1) in the high elevation Temehani plateau on Raiatea (Society Islands, French Polynesia) invaded by two invasive shrubs (*Chrysobalanus icaco* and *Rhodomirtus tomentosa*), 2) in a lowland dry-mesic remnant forest on Rapa Iti (Australs, French Polynesia) invaded by strawberry guava (*Psidium cattleianum*), and 3) in two sites with remnant native vegetation on Rapa Nui (Easter Island, Chile), invaded by the tree *Robinia pseudoacacia* (Rano Kau crater) and by herbaceous weeds (Ovahe beach).

Results and Conclusions

Post-control monitoring after 1-4 years shows mixed results, ranging from a rapid (Ovahe coastal vegetation on Rapa Nui) to slow (dry-mesic forest on Rapa Iti) increase of native species diversity and/or abundance in treated areas, to reinvasion by alien plants (Temehani montane shrubland on Raiatea). Long-term monitoring and the study of plant succession will be essential (3) to determine the best management methods and to achieve the partial or total restoration of various native plant communities in tropical islands.

References

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