

FLESHY FRUITED WEEDS AND NATIVE SPECIES IN THE DIET OF NATIVE AND INTRODUCED BIRDS

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The process and impact of weed invasion in a forest remnant was studied near Nelson, New Zealand. The forest canopy was dominated by totara (*Podocarpus hallii*) and beech (*Nothofagus solandri*) with a mixed understorey including many fruiting shrubs. Himalayan honeysuckle (*Leycesteria formosa*), barberry (*Berberis glaucocarpa*), and hawthorn (*Crataegus monogyna*), are the main weeds in the understorey and on the forest margins. The diet of native and introduced birds was determined from droppings collected from mist netted birds. The native bellbirds eat only the fruit of native plants, tuis eat mostly native fruits and a small amount of Himalayan honeysuckle, while waxeyes eat a wide range of fruit including some Himalayan honeysuckle and barberry. Introduced blackbirds eat some native species but their fruit diet is dominated by Himalayan honeysuckle, barberry, and hawthorn.

Blackbirds, and to a lesser extent waxeyes, are probably the main dispersers of fleshy fruited woody weeds in forest remnants. There may also be a feed-back mechanism involved with these birds bringing in weeds which in turn attract introduced birds and more weeds. The establishment of fleshy fruited weeds at the expense of native shrubs creates an inferior habitat for native birds, particularly bellbirds. In the interests of native bird habitat, control of these weeds is therefore warranted where they are likely to be replaced by native shrubs.

BIOLOGICAL CONTROL OF WATER HYACINTH IN AUSTRALIA, THAILAND AND MALAYSIA

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As part of a 1990-1993 collaborative project, the biological control agent *Neochetina bruchi* Hustache (Coleoptera: Curculionidae) was introduced to Australia, Thailand and Malaysia to supplement the effects of other agents already present. Initial stocks were obtained from USDA Florida. Rearing and host specificity testing of *N. bruchi* began at CSIRO's Long Pocket Laboratories, with the first Australian releases made in December 1990. Rearing of was also undertaken by the NSW Agriculture Research and Advisory Station, Grafton for releases in NSW, and by the Charters Towers Tropical Weeds Research Centre, Lands Protection Branch for releases in northern Queensland. CSIRO supplied starter colonies of *N. bruchi* to both Thailand and Malaysia. In Thailand, the National Biological Control Research Center (NBCRC), Bangkok host-tested *N. bruchi* and began releases in April 1991. At ASEAN-PLANTI laboratories in Malaysia, the Working Group on Biological Control of Aquatic Weeds also host-tested *N. bruchi* and began releasing in peninsula Malaysia in May 1992. The agent is now established in all three countries, however it is still too early for a measurable impact on the weed. The project is an excellent example of collaboration at state, national and international levels and has resulted in cost-effective, widespread release of a potentially valuable biological control agent. Other benefits included a high degree of scientific interaction and training which benefited all three countries. The project was supported by the Australian Centre for International Agricultural Research (ACIAR).