

Abstract of thesis entitled  
**EXOTIC PLANT INVASION OF UPLAND PLANT COMMUNITIES IN  
HONG KONG, CHINA**

Submitted by

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For the degree of Master of Philosophy  
at The University of Hong Kong  
in October 2005

Plant communities in the continental tropics appear to have suffered less from exotic plant invasions than their oceanic island counterparts. Most attention has focused on near-pristine plant communities, while modern Hong Kong can provide a 'worst-case' test to examine the invasibility of a highly degraded tropical continental landscape. Exotic plant species in Hong Kong are most prominent in disturbed lowland habitats, while research on exotic plant species in upland plant communities is lacking. The major aim of this study was to investigate the general pattern and extent of exotic plant invasions in the plant communities of upland Hong Kong.

Plant communities were surveyed in habitats exposed to different degrees of disturbance on Hong Kong's highest hill, Tai Mo Shan. Exotic plant species were most prominent along the roadside, with species richness but not percentage cover declining significantly with altitude. A small subset of the roadside exotics and a few additional species were found along a stream crossing the surveyed road. Invasion along streams was largely confined to exposed areas, while cattle disturbance might have facilitated invasion of shade-tolerant species in the shaded upstream areas. Most of the invaders were rare. A smaller subset of the roadside exotics was able to invade upland plant communities away from roads and streams, but only in unshaded areas recently disturbed by feral cattle. Seeds of exotic plants were found in cattle dung and two species germinated from dung in the study site, suggesting that feral cattle may act as dispersal agents.

Eight of the nine hill streams surveyed in various parts of Hong Kong were invaded by exotic plant species. Invasions were largely confined to unshaded areas, but the bat-dispersed tropical Asian tree, *Syzygium jambos*, was found to invade

shaded streams without additional disturbance. Several commonly planted ornamental species invading the surveyed streams had roadside seed sources nearby.

Surveys of both cattle-grazed and cattle-free open uplands away from roads and streams showed that exotic plant invasions were only found in the presence of feral cattle, and all were confined to unshaded and recently disturbed areas. No exotic plant species were found in closed vegetation or in open areas without cattle.

The results suggest that the highly degraded tropical continental landscape of Hong Kong is resistant to invasions by exotic plants, which are still largely confined to chronically disturbed habitats. Feral cattle promote invasions where people are absent, but this problem still seems to be reversible. Only *S. jambos* appears to invade streams without human aid. Future control measures for invasive plants should focus on the control of feral cattle populations, eradication of existing invasions, and screening ornamental plants for potentially invasive species before planting in or near protected areas.