

Preface

Alien plants can be managed most cost-effectively either before they have begun to spread or in their earliest stages of invasion, what we call in this book 'incursions'. When distributions are small in extent, it is possible, through coordinated control strategies, to achieve eradication or prevent further spread (i.e. containment). There has been an increasing focus on these management goals from a theoretical perspective and in relation to on-ground management, but much of the theoretical work either does not support current on-ground practice or fails to address the needs of managers and decision makers. A major aim of this book is to draw together the scattered literature and provide recommendations for how the management of incursions can be improved.

In this book we argue that incursions can be managed effectively, provided a few simple steps are taken. First, there is a need to predict, prevent, and prepare. This will help reduce the rate of new arrivals, and increase the rate at which incursions are detected. Second, when an incursion is detected, it is important not to wait, but to make an initial decision regarding whether or not to act. If the decision is to act, management options should be evaluated in a structured manner. Finally, for management to be effective it needs to be properly monitored so that performance can be evaluated and goals revisited if required. The success of an incursion response also depends on a host of facilitating activities and mechanisms – for example, legislation, strategies, action plans, and organisational structures.

The reader should not be overly concerned with the large number of alien plants that occur in different parts of the world. Most alien plant incursions pose a negligible threat and do not need to be managed (nor could they be, given the limitations on resources available). The first component of incursion response is deciding whether or not to act, and a proper response often will not involve on-ground management. A major motivation for writing this book has been to provide tools to help with this decision.

The book has been written for a range of potential readers, including land managers, policy makers, students, and researchers. While it is generally aimed at the science–policy interface, some parts review key emerging principles (e.g. assessing which species pose the greatest threat), while elsewhere we focus on outlining existing protocols (e.g. how to assess progress towards eradication). In some cases the discussion might therefore be too esoteric to be of direct value to land managers, and in other cases, where the state of knowledge is more advanced, the focus will be on how to do things in practice without discussing the fundamentals at length. We hope the reader will benefit from at least a cursory examination of all chapters, but as a rough guide: Chapters 2 and 3 address why and where plant invasions happen; Chapters 4 and 5 focus on deciding on the goal of an incursion response and how to monitor progress towards that goal; and Chapters 6, 7, and 8 discuss the policy and enabling environment in terms that often apply to all plant invasions.

Plant invasions are context-dependent – spatially, temporally, and socio-economically. Hence management needs to be adaptive. As such, we try to avoid being prescriptive and address the theories and management practices as we know them. We do, however, end each chapter with some general recommendations. Throughout the book international experts have contributed text boxes that elucidate particular topics of interest. These text boxes are vignettes that highlight real examples of what has, and has not, worked.

There are a couple of things that the book does not address. First, it is not going to ‘make the case’. Invasive plants are a serious global threat to biodiversity, the environment, economies, trade, and human health. If you need convincing, there are some excellent reports available (e.g. Boy and Witt 2013; Box 7.2). Second, we elected not to discuss classical biological control as a management option. Classical biological control can provide substantial benefits in terms of reducing rates of spread and so should be used where and when practical. There is also much to be said about the proactive development and testing of agents. But, to date, biocontrol is only implemented once an incursion has become a widespread invasion. Finally, we do not discuss restoration. Invasions can sometimes be passengers rather than drivers of global change, and control efforts will only have long-term benefits if substantial effort is placed into restoring ecosystems, as otherwise the area treated might simply be recolonised by the same or another alien plant. However, the theory and practice of restoration is well discussed elsewhere. Moreover, if the impact of an invasion is such

that restoration is required, the opportunity for coordinated control will have likely well and truly passed.

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