
Preface

Cases could be given of introduced plants which have become common throughout whole islands in a period of less than ten years. Several of the plants now most numerous over the wide plains of La Plata, clothing square leagues of surface almost to the exclusion of all other plants, have been introduced from Europe; and there are plants which now range in India, as I hear from Dr Falconer, from Cape Comorin to the Himalaya, which have been imported from America since its discovery. In such cases, and endless instances could be given, no one supposes that the fertility of these animals and plants has been suddenly and temporarily increased in any sensible degree. The obvious explanation is that the conditions of life have been very favourable, and that there has consequently been less destruction of the old and young, and that nearly all the young have been enabled to breed. In such cases the geometrical ratio of increase, the result of which never fails to be surprising, simply explains the extraordinarily rapid increase and wide diffusion of naturalised productions in their new homes.

The Origin of Species: Charles Darwin, 1859

This book is intended as a review of the problem of invasive plants worldwide. Invasion by animals or other organisms is of similar importance, but this study is confined to plant invasions. Its aim is to address the following needs:

1. To increase public awareness of the threat of invasive plants to natural and seminatural ecosystems. Increased awareness will help prevent the translocation of invasive species to new areas. Numerous instances of invasion are given to indicate the nature of the problem.
2. To alert research and governmental organizations to the threat to biodiversity posed by invasive plants, in order to focus and strengthen research and management strategies.
3. To give practical information and advice to managers, conservationists and researchers on how to deal with invasive plants. The use of case-studies of important invasive species is designed to illustrate the wide variety of invasions and control methods, and to make available the results of studies in one region

to managers working in another. The book discusses the importance of recording, evaluation of invasive potential and development of appropriate control strategies.

This work approaches the subject in the context of conservation and concentrates on plant invasion as a threat to wild biodiversity. The definition of invasive plant used here (see section 1.1) reflects this conservation bias and deliberately avoids discussion of agricultural weeds. Our intention is to attempt to change current thinking on plant invaders: from obscure problem to major hazard to biodiversity. The book is intended to be as free from jargon as possible to reach a wide constituency, including amateur naturalists, land managers and decision-makers at all levels, for instance those who can tackle issues such as legislation and prevention. The case-studies of specific invaders are intended to give evidence of the scale and diversity of invasion.

Special mention must be made here of the important contribution of the SCOPE Program. In 1982, SCOPE (Scientific Committee on Problems of the Environment), a subsidiary body of the International Council of Scientific Unions, initiated a project on the 'Ecology of Biological Invasions'. This project has resulted in a number of symposia and associated publications [145, 192, 213, 252, 285]. The main questions that SCOPE has attempted to answer are [6]:

1. What factors determine whether a species will become an invader or not?
2. What site properties determine whether a species will become an invader or not?
3. How should management systems be developed to best advantage, given the knowledge gained from attempting to answer questions 1 and 2?

In studying biological invasions SCOPE has examined a variety of organisms including plants, mammals, microorganisms, insects and fish. There seems to be no consistent use of the term 'invasive plant' in the SCOPE program. Some authors deal with species invading agricultural habitats and threatening crop production, others with adventives and comparatively few consider those that invade natural or seminatural habitats. Many of the authors lump all these categories under the term 'invasive', and this should be borne in mind in interpreting the ideas and conclusions generated by the SCOPE program. Many of the ideas emerging from the SCOPE meetings are discussed in Chapters 1 and 2.

Quentin C.B. Cronk
Janice L. Fuller