

PREFACE

When I first became interested in pollination biology around thirty years ago, there was essentially just one book to consult for core information, the classic by Faegri and van der Pijl, *The Principles of Pollination Ecology*, which has been the inspiration to generations, its last edition appearing in 1979 but still structured around the 1966 original. But twenty years on I became frustrated that there had been no single volume since that date which covered the field. This is particularly extraordinary given that the subject itself has expanded and blossomed prodigiously, both in its own right and as a testing ground for wider theories, as well as having assumed greater importance in both scientific circles and as a wider public concern.

It has not been all quiet on the publishing front since the 1970s of course. There have been excellent books with more of a natural history approach (M. Proctor et al. 1996; Buchmann and Nabhan 1996) and botanical books concentrating on floral structures (Barth 1985; Endress 1994) or on floral development (Glover 2007). Over the same period many extremely useful edited volumes have also appeared, each with chapters contributed by experts updating readers on particular themes, such as nectar and nectaries (Bentley and Elias 1983; Nicolson et al. 2007), anthers and pollen (D'Arcy and Keating 1996; Dafni et al. 2000), and floral scents (Dudareva and Pichersky 2006). Several books have compiled useful reviews on practical techniques (Dafni 1992; Kearns and Inouye 1993; Dafni et al. 2005) or on applied aspects of crop pollination (Free 1993), while Chittka and Thomson (2001) took a fresh approach by assembling chapters on aspects of pollinator cognition and learning.

But perhaps most important have been a select few edited volumes with broader pollination coverage and sometimes a more eclectic assemblage of contributions. Here the editors have been very much the lead-

ers in the field: Jones and Little (1983) began the trend with *Handbook of Experimental Pollination Ecology*, while Lloyd and Barrett (1996) produced *Floral Biology: Studies on Floral Evolution in Animal Pollinated Systems*, opening up a broader and more ecological and evolutionary perspective on the whole subject. Then two collected contributions came along in 2006, picking up the themes that had been emerging in the preceding decade: Waser and Ollerton in *Plant-Pollinator Interactions: From Specialization to Generalization*, and Harder and Barrett in *Ecology and Evolution of Flowers*. These have been seen as especially important in expounding new approaches and exposing older assumptions to a more critical analysis. The debates about generalization and specialization, and the usefulness of the syndrome concept or of alternative modeling approaches, have been particularly thought-provoking, so that anyone starting out as a researcher in pollination ecology will find much to engage them from the authors represented in those two books.

Those readers, however, would not get the background information, the core material of pollination and floral biology. A beginner would still have to explore very widely across the mass of scientific journals, hoping to light upon a reasonably up-to-date review article. And in the last decade the primary literature has undergone an extraordinary explosion in volume, almost more than in any other field, partly because of the practical and applied environmental problems now seen to be emerging with pollination services, and partly because around twenty-five years ago interest began to spread much more widely beyond the European and North American temperate pollination systems, with expertise emerging especially in the New and Old World Tropics, in southern Africa and Australia, and in Japan and China.

For all these reasons, it seemed to me timely to attempt a book that would cover the subject more thoroughly, providing chapters on every key topic, and serve both as an introduction for anyone coming into the field as advanced undergraduate or postgraduate and as a source book for professionals. Begun half way through the decade, it has inevitably burgeoned beyond the original intentions as the expanding literature burst around my ears, to the distress of my publishers. But the resulting book will, I hope, achieve at least part of its aims and will not too greatly annoy

those highly respected authors whose work I draw heavily on. Some, seeing pollination biology as pioneering a new era where ecological modelers have more to tell us than old-style field workers, might find my approach too traditional. But at least those coming in to the field hereafter may gain a better understanding of the foundations on which models can be built and so will better see where the key issues may lie.

Pat Willmer, November 2009