

Contents

<i>Preface</i>	vii
<i>Acknowledgements</i>	xii
1 Introducing Hymenoptera and their Conservation	1
Perspective	1
Classification and diversity	1
Importance for conservation	14
Social life and conservation	24
2 Alien Hymenoptera in Classical Biological Control	28
Introducing a dilemma	28
Conservation concerns	28
3 The Junction of Biological Control and Conservation: Conservation Biological Control and Cultural Control	41
4 Introduced Bees: Threats or Benefits?	51
5 Social Wasps and Ants as Aliens	63
Social wasps	63
Ants	68
Current perspective	79

6	Pollinator Declines	82
	Introducing the concerns	82
	Threats to pollinators	92
	Pathogens and parasites	93
	Pesticides	97
	Pollution	99
7	Levels of Conservation Concern and the Shortcomings of Current Practice	100
	Foci for conservation	100
	Species focus	104
	Biotope and habitat focus	122
8	Habitat Parameters and Manipulation	138
	Defining and assessing habitats in the landscape	138
	Habitat manipulations for conservation	141
	Natural and agricultural environments	141
	Urban environments	147
	Practical conservation	150
9	Species Case Histories	168
	Franklin's bumblebee (<i>Bombus franklini</i>)	170
	The great yellow bumblebee (<i>Bombus distinguendus</i>)	170
	Wallace's bee (<i>Chalicodoma pluto</i>)	173
	<i>Neopasiphae simplicior</i> in Western Australia	174
	The antennal-waving wasp (<i>Tachysphex pechumani</i>)	174
	The dinosaur ant (<i>Nothomyrmecia macrops</i>)	175
	The red-barbed ant (<i>Formica rufibarbis</i>) in Britain	177
10	Assessing Conservation Progress and Priorities for the Future	179
	Introduction: The basic need	179
	Monitoring	180
	The milieux of concern	185
	References	191
	Index	214