Contents

re	eface and Acknowledgments	vii
	Introduction	I
1.	Biotic Uniqueness: An Overview	7
	Problems in Defining Endemism	8
	Large-Scale Patterns in Species Richness and Endemism	14
	Origins of Endemic Species	20
	Traits of Endemic Species	26
2.	A Brief History of California	29
	Geologic History	29
	Climatic History	33
	Floristic History	35
3.	Plant Endemism in California: Patterns and Causes	43
	Estimating Plant Endemism	44
	Geography of Diversity and Endemism	47
	Edaphic Endemism	52
	New Evidence on the Evolution of Neoendemics	57
	New Evidence on Paleoendemism	69
	Californian Plant Endemism in a World Context	70

vi | Contents

4. Animal Endemism in California	77
Cross-Taxonomic Comparisons	78
Mammals	79
Birds	81
Reptiles	83
Fish	85
Amphibians	88
Invertebrates	93
5. Conservation Challenges in California's	
Endemic-Rich Landscape	113
Endangered Species Laws	114
Natural Community Conservation Planning	116
Conservation Easements	118
Conservation Banking	120
Advance Mitigation	122
Biodiversity Information	122
Systematic Conservation Planning	124
Marine and Aquatic Conservation	127
Climate Change Science and Policy	128
6. Synthesis and Conclusions	133
Appendix: Preliminary List of Plant Species	
Endemic to the California Floristic Province	137
Literature Cited	167
Index	187