



CONTENTS

<i>List of Illustrations</i>	vii
<i>List of Tables</i>	viii
<i>Foreword: Sydney Brenner, The Continuity of Genomes and Genetic Resources for the New Century</i>	ix
<i>Acknowledgments</i>	xi
<i>General Introduction</i>	xiii
Part I. Perspectives on the Union of Conservation and Genetics	1
1 The Expansion of Conservation Genetics Rob DeSalle and George Amato	3
2 Conservation Genetics and the Extinction Crisis: A Perspective William Conway	25
3 Moving Toward a More Integrated Approach George Amato	34
Part II. Conservation Genetics in Action: Assessing the Level and Quality of Genetic Resources in Endangered Species	39
4 Neutral, Detrimental, and Adaptive Variation in Conservation Genetics Philip W. Hedrick	41
5 Stopping Evolution: Genetic Management of Captive Populations Robert C. Lacy	58
6 The Emerging Theme of Ocean Neighborhoods in Marine Conservation Stephen R. Palumbi	82
7 Genetic Data and the Interpretation of Restoration Priorities of the <i>Cicindela dorsalis</i> Say Complex (Coleoptera: Carabidae): The Components of Conservation Genetics Revisited Paul Z. Goldstein	96
8 Range Collapse, Population Loss, and the Erosion of Global Genetic Resources James P. Gibbs	106

Part III. Saving Genetic Resources**113**

- 9 Biodiversity, Conservation, and Genetic Resources in Modern Museum and Herbarium Collections 115
Robert Hanner, Angélique Corthals, and Rob DeSalle
- 10 Banking of Genetic Resources: The Frozen Zoo at the San Diego Zoo 124
Leona G. Chemnick, Marlys L. Houck, and Oliver A. Ryder
- 11 The Role of Cryopreserved Cell and Tissue Collections for the Study of Biodiversity and Its Conservation 131
Vitaly Volobouev
- 12 The Silent Biodiversity Crisis: Loss of Genetic Resource Collections 141
Deborah L. Rogers, Calvin O. Qualset, Patrick E. McGuire, and Oliver A. Ryder
- 13 Who Owns the Ark, and Why Does It Matter? 160
Cathi Lehn, Rebecah Bryning, Rob DeSalle, and Richard Cahoon

Part IV. Genomic Technology Meets Conservation Biology **167**

- 14 Conservomics? The Role of Genomics in Conservation Biology 169
George Amato and Rob DeSalle
- 15 Genomics and Conservation Genetics 179
Judith A. Blake
- 16 Crop Transgenes in Natural Populations 187
Norman C. Ellstrand
- 17 The Role of Assisted Reproduction in Animal Conservation 199
Anne McLaren
- 18 Conservation and Cloning: The Challenges 204
Ian Wilmut and Lesley Paterson

Part V. Policy, Law, and Philosophy of Conservation Biology in the Age of Genomics **211**

- 19 Can Our Laws Accommodate the New Conservation Genetics? 213
Gerald J. Flattmann Jr., Barbara A. Ruskin, and Nicholas Vogt
- 20 The Import of Uncertainty 224
Sandra D. Mitchell

Further Reading 235*List of Contributors* 237*Index* 239