Contents

Preface, ix Acknowledgments, xi In Memoriam, xiii

PART I INTRODUCTION TO FOREST SOILS, 1

- History of Forest Soil Science and Management, 3
- 2 Global Patterns in Forest Soils, 8

PART II COMPOSITION OF FOREST SOILS, 21

- 3 Soil Formation and Minerals, 23
- 4 Soil Organic Matter, 39
- 5 Water, Pore Space, and Soil Structure, 58

PART III LIFE AND CHEMISTRY IN FOREST SOILS, 75 /

- 6 Life in Forest Soils, 77
- 7 Forest Biogeochemistry, 99
- 8 Chemistry of Soil Surfaces and Solutions, 138

PART IV MEASURING FOREST SOILS, 157

- 9 Sampling Soils Across Space and Time, 159
- 10 Common Approaches to Measuring Soils, 175

PART V DYNAMICS OF FOREST SOILS, 189

- 11 Influence of Tree Species, 191
- 12 Soil Management Harvesting, Site Preparation, Conversion, and Drainage, 213
- 13 Fire Influences, 235
- 14 Nutrition Management, 254
- 15 Managing Forest Soils for Carbon Sequestration, 276

PART VI THINKING PRODUCTIVELY ABOUT FOREST SOILS, 289

16 Evidence-Based Approaches, 291

References, 305 Index, 343