## Contents

Foreword xi
Acknowledgments xiii

1 Introduction: An Orientation to Environmental Education and the Handbook
   Robert B. Stevenson, Arjen E.J. Wals, Justin Dillon, and Michael Brody 1

Part A. Conceptualizing Environmental Education as a Field of Inquiry

Section I. Historical, Contextual, and Theoretical Orientations That Have Shaped Environmental Education Research
   Annette Gough

2 The Emergence of Environmental Education Research: A “History” of the Field
   Annette Gough 13

3 Socioecological Approaches to Environmental Education and Research: A Paradigmatic Response to Behavioral Change Orientations
   Regula Kyburz-Graber 23

4 Thinking Globally in Environmental Education: A Critical History
   Noel Gough 33

5 Selected Trends in Thirty Years of Doctoral Research in Environmental Education in Dissertation Abstracts International From Collections Prepared in the United States of America
   Thomas Marcinkowski, Jennifer Bucheit, Vanessa Spero-Swingle, Christine Linsenbardt, Jennifer Engelhardt, Marianne Stadel, Richard Santangelo, and Katherine Guzman 45

6 Transformation, Empowerment, and the Governing of Environmental Conduct: Insights to be Gained From a “History of the Present” Approach
   Jo-Anne Ferreira 63

Section II. Normative Dimensions of Environmental Education Research: Conceptions of Education and Environmental Ethics
   Bob Jickling and Arjen E.J. Wals

7 Probing Normative Research in Environmental Education: Ideas About Education and Ethics
   Bob Jickling and Arjen E.J. Wals 74

8 Self, Environment, and Education: Normative Arisings
   Michael Bonnett 87

9 A Critical Theory of Place-Conscious Education
   David A. Greenwood 93
10 Learning From Hermit Crabs, Mycelia, and Banyan: Schools as Centers of Critical Inquiry and Renormatization
   Heesoon Bai and Serenna Romanycia

11 Why We Need a Language of (Environmental) Education
   Lesley Le Grange

12 Environmental Ethics as Processes of Open-Ended, Pluralistic, Deliberative Enquiry
   Lausanne Olvitt

Section III. Analyses of Environmental Education Discourses and Policies
Ian Robottom and Robert B. Stevenson

13 The Politics of Needs and Sustainability Education
   Lesley Le Grange

14 Languages and Discourses of Education, Environment, and Sustainable Development
   Tom Berryman and Lucie Sauvé

15 Researching Tensions and Pretensions in Environmental/Sustainability Education Policies: From Critical to Civically Engaged Policy Scholarship
   Robert B. Stevenson

16 Changing Discourses in EE/ESD: A Role for Professional Self-Development
   Ian Robottom

17 Connecting Vocational and Technical Education With Sustainability
   Alberto Arenas and Fernando Londoño

18 Trends, Junctures, and Disjunctures in Latin American Environmental Education Research
   Edgar González Gaudiano and Leonir Lorenzetti

19 EE Policies in Three Chinese Communities: Challenges and Prospects for Future Development
   Lee Chi Kin John, Wang Shun Mei, and Yang Guang

Part B. Research on Environmental Education Curriculum, Learning, and Assessment: Processes and Outcomes

Section IV. Curriculum Research in Environmental Education
Heila Lotz-Sisitka

20 Traditions and New Niches: An Overview of Environmental Education Curriculum and Learning Research
   Heila Lotz-Sisitka, John Fien, and Mphemelang Ketlhoilwe

21 Environmental Education in a Cultural Context
   Albert Zeyer and Elin Kelsey

22 Place-Based Education: Practice and Impacts
   Gregory A. Smith

23 Getting the Picture: From the Old Reflection—Hearing Pictures and Telling Tales, to the New Reflection—Seeing Voices and Painting Scenes
   Tony Shallcross and John Robinson

24 Moinho D’Água: Environmental Education, Participation, and Autonomy in Rural Areas
   João Luiz de Moraes Hoeffel, Almerinda B. Fadini, M.K. Machado, J.C. Reis, and F.B. Lima
Section V. Research on Learning Processes in Environmental Education
Justin Dillon, Joe E. Heimlich, and Elin Kelsey

25 Environmental Learning: Insights From Research Into the Student Experience
Cecilia Lundholm, Nick Hopwood, and Mark Rickinson

26 Conventional and Emerging Learning Theories: Implications and Choices for Educational Researchers
With a Planetary Consciousness
Arjen E.J. Wals and Justin Dillon

27 Belief to Behavior: A Vital Link
Joe E. Heimlich, Preethi Mony, and Victor Yocco

28 Landscapes as Contexts for Learning
Carol B. Brandt

Section VI. Evaluation and Analysis of Environmental Education Programs, Materials, and Technologies and the Assessment of Learners and Learning
Michael Brody and Martin Storksdieck

29 Research on the Long-Term Impacts of Environmental Education
Kendra Liddicoat and Marianne E. Krasny

30 Advancing Environmental Education Program Evaluation: Insights From a Review of Behavioral Outcome Evaluations
Michaela Zint

31 National Assessments of Environmental Literacy: A Review, Comparison, and Analysis
Thomas Marcinkowski, Donghee Shin, Kyung-Im Noh, Maya Negev, Gonen Sagy, Yaakov Garb, Bill McBeth, Harold Hungerford, Trudi Volk, Ron Meyers, and Mehmet Erdogan

32 Geospatial Technologies: The Present and Future Roles of Emerging Technologies in Environmental Education
Michael Barnett, James G. MaKinster, Nancy M. Trautmann, Meredith Houle Vaughn, and Sheron Mark

33 Sustainability Education: Theory and Practice
Sarah Holdsworth, Ian Thomas, and Kathryn Hegarty

34 Learning From Neighboring Fields: Conceptualizing Outcomes of Environmental Education Within the Framework of Free-Choice Learning Experiences
Lynn D. Dierking, John H. Falk, and Martin Storksdieck

Part C. Issues of Framing, Doing, and Assessing in Environmental Education Research

Section VII. Moving Margins in Environmental Education Research
Constance L. Russell and Leesa Fawcett

35 Researching Differently: Generating a Gender Agenda for Research in Environmental Education
Annette Gough

36 The Representation of Indigenous Knowledges
Soul Shava

37 Educating for Environmental Justice
Randolph Haluza-DeLay
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>Indigenous Environmental Education Research in North America: A Brief Review</td>
<td>Greg Lowan-Trudeau</td>
<td>404</td>
</tr>
<tr>
<td>39</td>
<td>Three Degrees of Separation: Accounting for Naturecultures in Environmental Education Research</td>
<td>Leesa Fawcett</td>
<td>409</td>
</tr>
<tr>
<td></td>
<td><strong>Section VIII. Philosophical and Methodological Perspectives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Paul Hart</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>(Un)timely Ecophenomenological Framings of Environmental Education Research</td>
<td>Phillip G. Payne</td>
<td>424</td>
</tr>
<tr>
<td>41</td>
<td>Children as Active Researchers: The Potential of Environmental Education Research Involving Children</td>
<td>Elisabeth Barratt Hacking, Amy Cutter-Mackenzie, and Robert Barratt</td>
<td>438</td>
</tr>
<tr>
<td>43</td>
<td>Critical Action Research and Environmental Education: Conceptual Congruencies and Imperatives in Practice</td>
<td>Robert B. Stevenson and Ian Robottom</td>
<td>469</td>
</tr>
<tr>
<td>44</td>
<td>A Feminist Poststructural Approach to Environmental Education Research</td>
<td>Bronwyn Davies</td>
<td>480</td>
</tr>
<tr>
<td>45</td>
<td>Suited: Relational Learning and Socioecological Pedagogies</td>
<td>Marcia McKenzie, Kim Butcher, Dustin Fruson, Michelle Knorr, Joshua Stone, Scott Allen, Teresa Hill, Jeremy Murphy, Sheelah McLean, Jean Kayira, and Vince Anderson</td>
<td>487</td>
</tr>
<tr>
<td>46</td>
<td>Greening the Knowledge Economy: Ecosophy, Ecology, and Economy</td>
<td>Michael A. Peters</td>
<td>498</td>
</tr>
<tr>
<td>47</td>
<td>Preconceptions and Positionings: Can We See Ourselves Within Our Own Terrain?</td>
<td>Paul Hart</td>
<td>507</td>
</tr>
<tr>
<td></td>
<td><strong>Section IX. Insights, Gaps, and Future Directions in Environmental Education Research</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>The Evolving Characteristics of Environmental Education Research</td>
<td>Robert B. Stevenson, Justin Dillon, Arjen E.J. Wals, and Michael Brody</td>
<td>512</td>
</tr>
<tr>
<td>49</td>
<td>Identifying Needs in Environmental Education Research</td>
<td>Alan Reid and William Scott</td>
<td>518</td>
</tr>
<tr>
<td>50</td>
<td>Handbooks of Environmental Education Research: For Further Reading and Writing</td>
<td>Alan Reid and Phillip G. Payne</td>
<td>529</td>
</tr>
<tr>
<td>51</td>
<td>Tentative Directions for Environmental Education Research in Uncertain Times</td>
<td>Arjen E.J. Wals, Robert B. Stevenson, Michael Brody, and Justin Dillon</td>
<td>542</td>
</tr>
<tr>
<td></td>
<td><strong>Author Index</strong></td>
<td></td>
<td>549</td>
</tr>
<tr>
<td></td>
<td><strong>Subject Index</strong></td>
<td></td>
<td>563</td>
</tr>
<tr>
<td></td>
<td><strong>The Editors</strong></td>
<td></td>
<td>571</td>
</tr>
<tr>
<td></td>
<td><strong>The Contributors</strong></td>
<td></td>
<td>573</td>
</tr>
</tbody>
</table>