Contents

Preface and Acknowledgments xi

Part I Fundamental Concepts and Data 1

1 Major Conceptual Issues in Crime and Place Research 3
   1.1 Theory and Research Questions in the Literature Cory P. Haberman and Elizabeth R. Groff 3
   1.2 Crime, Place, and Race: A Dialogue Furthering a Race Aware Program of Useful Research Ajima Olaghere and John E. Eck 13

2 Foundational Spatial Concepts 27
   2.1 Points versus Areal Units Cory P. Haberman and Elizabeth R. Groff 27
   2.2 Vector and Raster Data Jeffrey E. Clutter 28
   2.3 Coordinate Systems, Projections, and Geocoding David Mazeika 31
   2.4 Euclidean, Manhattan, and Network Distances Andrew Newton 36

3 Spatial Units of Analysis 43
   3.1 Neighborhoods Pamela Wilcox, Marie Skubak Tillyer, and Graham C. Ousey 43
   3.2 Census Units Pamela Wilcox, Marie Skubak Tillyer, and Graham C. Ousey 47
   3.3 Micro Units Elizabeth R. Groff, Tom Brenneman, and Cory P. Haberman 51

4 Data at the Microgeographic Level 57
   4.1 Official Police Data Lisa Tompson and Matthew P. J. Ashby 57
   4.2 EMS Data Julie Hibdon 65
Contents

4.3 Land Use and Facilities • Kathryn Wuschke 69
4.4 Street Networks • Toby Davies 75
4.5 Census Data: Gathering Data and Measures • Bradley J. O’Guinn 81
4.6 Open Data for Crime and Place Research: A Practical Guide in R • Samuel Langton and Reka Solymosi 86
4.7 Using Crowdsourced Data to Study Crime and Place • David Buil-Gil and Reka Solymosi 93
4.8 Social Media—Twitter Data • Nick Malleson and Dan Birks 99
4.9 Victimization Surveys: Traditional and Innovative Approaches • Beidi Dong and Douglas J. Wiebe 103
4.10 Self-Report Data and the Study of Crime and Place: An Organizational Framework for Operationalization and Measurement of Proximal Factors • Caterina G. Roman 111
4.11 Primary Survey Data Collection at the Microgeographic Level • Clair White and David Weisburd 117
4.12 On-Site Assessments for Meso- and Microscale Community Criminology • Ralph B. Taylor 127
4.13 Systematic Social Observation of Video Footage • Ajima Olaghere 134

Part II Techniques for Identifying and Explaining Crime Patterns 147

5 Analyzing Spatial Point Patterns 149
5.1 Understanding the Importance of Repeat Victimization • James Hunter and Ken Pease 149
5.2 Near-Repeat Victimization • Shane D. Johnson 153
5.3 Distance-Based Point Pattern Tests: Ripley’s K-Function and Nearest-Neighbor Analysis • Alese Wooditch and Hannah Steinman 159
5.4 Point Pattern Tests: Andresen’s Spatial Point Pattern Test • Martin A. Andresen 165
5.5 Kernel Density Estimation • Jillian Shafer Desmond 171

6 Area Pattern Tests 176
6.1 Modeling Spatial Autocorrelation • Ned Levine 176

7 Measuring Concentration 187
7.1 Measures of Crime Concentration for Places and Other Units • YongJe Lee and John E. Eck 187

8 Regression Models 197
8.1 Nonspatial and Spatial Linear Regression • Wouter Steenbeek and Stijn Ruiter 197
8.2 Count Regression Modeling • Ned Levine and Dominique Lord 220
8.3 Using Geographically Weighted Regression to Explore Spatial Crime Patterns • Meagan Cahill 234
8.4 Mixed (a.k.a. Multilevel) Models • Ralph B. Taylor 242
8.5 Group-Based Trajectory Analysis • Sue-Ming Yang 252
9 Measuring Interaction Potential 263
  9.1 Mobility Triangles  •  Julien Chopin, Eric Beauregard, and Stefano Caneppele 263
  9.2 Crime Travel Demand Modeling  •  Ned Levine 269
  9.3 Discrete Spatial Choice Models  •  Wim Bernasco 275

10 Other Analysis Techniques 287
  10.1 Conjunctive Analysis of Case Configurations  •  Timothy C. Hart, Asier Moneva, and Miriam Esteve 287
  10.2 Crime Scripting  •  Hervé Borrion and Hashem Dehghanniri 298
  10.3 Agent-Based Simulation Models  •  Dan Birks and Nick Malleson 304
  10.4 Small Area Estimation for Crime Analysis  •  David Buil-Gil 308
  10.5 Incorporating Time into Studying Crime and Place  •  Matthew P. J. Ashby 314
  10.6 Aoristic Crime Analysis  •  Jerry H. Ratcliffe 321
  10.7 Social Distance  •  Brian Lockwood 326

Part III Using Crime and Place Research to Inform Policy 331
11 Issues Using Place-Based Experimental Evaluations 333
  11.1 Experiments  •  Lorraine Mazerolle, David Weisburd, David B. Wilson, and Georgia Hassall 333

12 Considerations for Measuring Displacement in Place-Based Studies 354
  12.1 Measuring Displacement  •  Kate Bowers 354
  12.2 Inverse Displacement Quotient  •  Evan T. Sorg 364

13 Defining Units for Place-Based Research 373
  13.1 Defining Hot Spot Areas for Rigorous Place-Based Policing Evaluations  •  Anthony A. Braga and Brandon S. Turchan 373
  13.2 Creating Viewsheds to Evaluate the Effect of CCTV Camera Systems  •  Eric L. Piza, David N. Hatten, and Brandon C. Welsh 382
  13.3 Evaluating an Acoustic Gunshot Detection System in Cincinnati  •  Dennis Mares 396

Contributors 407
Index 415