

Contents

Preface to the second edition xi

Preface to the first edition xv

Chapter 1: Planning maps 1

Designing for map purpose 2

Audience 2

Visual hierarchy in layout 3

Planning a layout 6

Balancing empty spaces 6

Refining a layout 11

Experimentation and critique 15

Map projections in design 16

Shape within layout 16

Projections affect scale 18

Choosing projection properties 19

Chapter 2: Basemap basics 21

Landforms 22

Elevation 22

Terrain shading 24

Curvature 25

Chapter 2 *continued*

Land use 26

- Imagery 26
- Land cover 28
- Property 30

Vector base 32

- Water 32
- Boundaries 33
- Transportation 34
- Point data 34

Customizing base to purpose 35

Mapping through scale 37

- Terrain through scale 37
- Hydro through scale 40
- Place data through scale 40
- Generalization recap 44

Chapter 3: Explaining maps 47

Map legends 48

- Data legends 48
 - Choropleth 48
 - Qualitative area fills 48
 - Dot (density) 49
 - Isolines 49
 - Proportioned symbols 50
 - Segmented symbols 50
- Basemap legends 50
- Customized legends 51

Wise wording 52

- Hierarchy in text content 53
- Describing mapped calculations 57
- Attending to line logic 60

Refining marginal elements 62

- Scale indicators 62
- Direction indicators 64
- Overdoing decoration 64

Chapter 4: Publishing and sharing maps 67

Designing for map media 68

- Resolution 68
- Map size and viewing distance 70
- Color quality 71

Choosing export options 73

- Raster export formats 74
- Vector export formats 76
- Transparency 78

Map images on the web 79

- Tiled maps and caching 79
- Section 508 compliance 80

Copyright in cartography 80

- Original work in cartography 80
- Rights and permissions 81
- Public licenses and open data 82

Chapter 5: Type basics 85

Fonts 86

- Font anatomy 86
- Categories of fonts 87
- Font choice 90
- Type styles and font families 91
- Special characters 92
- Font formats and permissions 93

Label size 94

- Character size 94
- Kerning, tracking, and character spacing 95
- Line spacing 96

Type effects 98

- Callouts 98
- Shadows 99
- Halos 100

Chapter 6: Labeling maps 103

Map text 104

- Graphic map text 104
- Dynamic labeling 106
- Annotation 108

Labels as symbols 109

- Indicators of feature category 109
- Indicators of feature hierarchy 111
- Ambiguity and contradiction in classification with type 113
- Transparency and anti-aliasing 115

Label placement 116

- Point label placement 116
- Line label placement 121
- Area label placement 124
- Dense label placement and trade-offs between rules 127

Chapter 7: Color basics 129

Perceptual dimensions 130

- Hue 130
- Lightness 133
- Saturation 134

Perceptual color systems 138

- Three-dimensional color spaces 138
- Not HSV 140
- Color cubes 142

How to mix color 144

- General guidelines 144
- CMYK mixing 147
- RGB mixing 149

Chapter 8: Color on maps 151

Color schemes for maps 152

- Sequential schemes 152
- Diverging schemes 154
- Qualitative schemes 157

Chapter 8 *continued*

Bivariate color schemes 160

Transparent combinations 160

Sequential-sequential 161

Diverging-diverging 162

Qualitative-sequential 164

Adjusting color selections 165

Unexpected color changes 165

Colors for the color-blind 169

Custom color ramps 174

Chapter 9: Customizing symbols 179

Point symbols 180

Point symbol size 180

Point symbol shapes 183

Point symbol angle 185

Line and area symbols 187

Line symbol size 187

Line symbol patterns 189

Area patterns 192

Eight visual variables 194

Visual variables for ordered data 194

Visual variables for qualitative data 195

Multivariate map symbols 195

Overlaid symbols 196

Bivariate symbols 198

Visual variable pairs 200

Put it all together 204

Appendix 205

Abbreviations 220

Resources 222

About the author 225

Index 227