Preface How to Use This Book

INTRODUCTION: DOCUMENTING GLOBAL CHANGE

xi

xv

15

19

31

40

54

63

78

PART 1: POPULATION

Are We Too Many, or Are We Too Greedy?

THOMAS MALTHUS An Essay on the Principle of Population (1798) COMMENTARY: Björn-Ola Linnér

GEORGE KNIBBS The Shadow of the World's Future (1928) Commentary: Alison Bashford

GEORG BORGSTRÖM "Ghost Acreage" (1962) COMMENTARY: Sverker Sörlin

PAUL EHRLICH The Population Bomb (1968) Commentary: Michael Egan

PART 2: SUSTAINABILITY Are We Limited by Knowledge or Resources?

HANS CARL VON CARLOWITZ Sylvicultura oeconomica (1713) Commentary: Paul Warde

WILLIAM STANLEY JEVONS The Coal Question (1865) Commentary: Paul Warde

101

117

vi

SAMUEL H. ORDWAY JR. "Possible Limits of Raw-Material Consumption" (1956) 89 COMMENTARY: Paul Warde

DONELLA H. MEADOWS, JORGEN RANDERS, AND DENNIS L. MEADOWS FOR THE CLUB OF ROME The Limits to Growth (1972) Commentary: Michael Egan

PART 3: GEOGRAPHIES

Are Human and Natural Futures Determined or Chosen?

ELLSWORTH HUNTINGTON The Pulse of Asia (1907) Commentary: Carole Crumley

GRIFFITH TAYLOR "Nature Versus The Australian" (1920) Commentary: Carolyn Strange

VILHJALMUR STEFANSSON The Northward Course of Empire (1922) Commentary: Sverker Sörlin

PART 4: "THE ENVIRONMENT" How Did the Idea Emerge?

> VLADIMIR I. VERNADSKY * The Biosphere (1926) Commentary: Pey-Yi Chu

> PAUL SEARS Deserts on the March (1935) COMMENTARY: Libby Robin

WILLIAM VOGT Road to Survival (1948) Commentary: Sverker Sörlin

RACHEL CARSON Silent Spring (1962) Commentary: Christof Mauch 134

145

157

161

174

195

PART 5: ECOLOGY How Do We Understand Natural Systems?	-
ALEXANDER VON HUMBOLDT AND AIMÉ BONPLAND Essay on the Geography of Plants (1807) Commentary: Stephen T. Jackson	209
ARTHUR TANSLEY "The Use and Abuse of Vegetational Concepts and Terms" (1935) COMMENTARY: Libby Robin	220
EUGENE P. ODUM Fundamentals of Ecology (1953) COMMENTARY: Stephen Bocking	233
С. S. HOLLING Resilience and Stability of Ecological Systems (1973) Сомментаку: Libby Robin	245
PART 6: TECHNOLOGY Does Technology Create More Problems Than It Solves?	261
EUGÈNE HUZAR The Tree of Science (1857) Commentary: Jean-Baptiste Fressoz	264
ALVA MYRDAL To Choose a Future (1972) Commentary: Arne Kaijser	273
CESARE MARCHETTI AND NEBOJSA NAKICENOVIC "The Dynamics of Energy Systems and the Logistic Substitution Madel"	282
PART 7. CLIMATE	291
JOHN TYNDALL "On the Transmission of Heat" (1859) 2 Сомментаку: Mike Hulme	

vii

303

316

327

viii

SVANTE ARRHENIUS "On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground" (1896) COMMENTARY: Sverker Sörlin

GILBERT T. WALKER "Seasonal Foreshadowing" (1930) COMMENTARY: Neville Nicholls

G. S. CALLENDAR "The Artificial Production of Carbon Dioxide and Its Influence on Temperature" (1938) COMMENTARY: James Rodger Fleming

WALLACE S. BROECKER "Unpleasant Surprises in the Greenhouse?" (1987) and J. R. PETIT, J. JOUZEL, D. RAYNAUD, ET AL. "Climate and Atmospheric History of the Past 420,000 Years from the Vostok Ice Core, Antarctica" (1999) COMMENTARY: Tom Griffiths

PART 8: DIVERSITY

Why Do We Need It, and Can We Conserve It?

CHARLES S. ELTON The Invaders (1958) COMMENTARY: Libby Robin

COUNCIL ON ENVIRONMENTAL QUALITY The Forestry Projections and the Environment: Global-Scale Environmental Impacts (1980) COMMENTARY: Mark V. Barrow Jr.

MICHAEL E. SOULÉ "What Is Conservation Biology?" (1985) COMMENTARY: Libby Robin

RAMACHANDRA GUHA "Radical American Environmentalism and Wilderness Preservation: A Third World Critique" (1997) Commentary: Rob Nixon

337

363

281

391

409

PART 9: MEASURING How Do We Turn the World into Data?	433
JAMES RENNELL An Investigation of the Currents of the Atlantic Ocean (1832) COMMENTARY: Sarah Cornell	437
CARL-GUSTAF ROSSBY "Current Problems in Meteorology" (1957) COMMENTARY: Maria Bohn and Sverker Sörlin	445
GRETCHEN C. DAILY Nature's Services: Societal Dependence on Natural Ecosystems (1997) COMMENTARY: Richard B. Norgaard NICHOLAS STERN The Freemening (Oliveria Oliveria O	
The Economics of Climate Change (2006) Сомментаку: Paul Warde	465
PART 10: THE ANTHROPOCENE How Can We Live in a World Where There Is No Nature Without People?	479
PAUL J. CRUTZEN AND EUGENE F. STOERMER "The 'Anthropocene'" (2000) Commentary: Will Steffen	483
JOHAN ROCKSTRÖM, WILL STEFFEN, KEVIN NOONE, ET A "A Safe Operating Space for Humanity" (2009) Сомментаку: Susan Owens	491
MIKE HULME "Reducing the Future to Climate: A Story of Climate Determinism and Reductionism" (2011) COMMENTARY: Libby Robin, Sverker Sörlin, and Paul Warde	506
Select Bibliography Acknowledgments Commentators Selection Credits Index	527 541 543 549
Index	553

ix