

Contents

List of contributors [x]

Foreword by Sir Robert May, AC, PRS [xiii]

Preface [xvii]

Part I Setting the scene [1]

- 1 Exploitation as a conservation issue [3]

GEORGINA M. MACE & JOHN D. REYNOLDS

- 2 Can we exploit sustainably? [16]

DONALD LUDWIG

Part II Population-based approaches [39]

- 3 The gospel of maximum sustainable yield in fisheries management: birth, crucifixion and reincarnation [41]

ANDRÉ E. PUNT & ANTHONY D.M. SMITH

- 4 Sustainable exploitation of fluctuating populations [67]

RUSSELL LANDE, BERNT-ERIK SÆTHER & STEINAR ENGEN

- 5 The exploitation of spatially structured populations [87]

E.J. MILNER-GULLAND

- 6 The conservation of exploited species in an uncertain world: novel methods and the failure of traditional techniques [110]

PAUL R. WADE

Part III Taxonomic comparisons [145]

- 7 Life histories of fishes and population responses to exploitation [147]

JOHN D. REYNOLDS, SIMON JENNINGS & NICHOLAS K. DULVY

- 8 Mammalian life histories and responses of populations to exploitation [169]

ANDY PURVIS

- 9 Trade of live wild birds: potentials, principles, and practices of sustainable use [182]
STEVEN R. BEISSINGER
- 10 Game vertebrate extraction in African and Neotropical forests: an intercontinental comparison [203]
JOHN E. FA & CARLOS A. PERES
- 11 Lessons from the plant kingdom for conservation of exploited species [242]
CHARLES M. PETERS

Part IV From individuals to communities [257]

- 12 The role of behaviour in studying sustainable exploitation [259]
WILLIAM J. SUTHERLAND & JENNIFER A. GILL
- 13 The Allee effect: a barrier to recovery by exploited species [281]
CHRISTOPHER W. PETERSEN & DON R. LEVITAN
- 14 Life histories and sustainable harvesting [301]
HANNA KOKKO, JAN LINDSTRÖM & ESA RANTA
- 15 Phenotypic and genetic changes due to selective exploitation [323]
RICHARD LAW
- 16 An ecosystem perspective on conserving targeted and non-targeted species [343]
MICHEL J. KAISER & SIMON JENNINGS
- 17 The half-empty forest: sustainable use and the ecology of interactions [370]
KENT H. REDFORD & PETER FEINSINGER

Part V Conservation meets sustainable use [401]

- 18 Sustainable use and pest control in conservation: kangaroos as a case study [403]
GORDON C. GRIGG & ANTHONY R. POPLÉ
- 19 Conservation and resource use in Arctic ecosystems [424]
ANNE GUNN
- 20 Conservation out of exploitation: a silk purse from a sow's ear? [440]
JON HUTTON & BARNEY DICKSON
- 21 Getting the biology right in a political sort of way [462]
STEVEN SANDERSON

Part VI Final thoughts [483]

22 Using 'sustainable use' approaches to conserve exploited populations [485]

JOHN G. ROBINSON

Index [499]

Contributors

STEVEN R. BEISSINGER
Ecosystem Sciences Division
Department of Environmental Science,
Policy & Management
University of California
Berkeley, CA 94720-3110
USA

BARNEY DICKSON
Africa Resources Trust
World Conservation Monitoring Centre
219 Huntingdon Road
Cambridge CB3 0DL
UK

NICHOLAS K. DULVY
Department of Marine Sciences and
Coastal Management
Ridley Building
University of Newcastle-Upon-Tyne
Newcastle-Upon-Tyne NE1 7RU
UK

STEINAR ENGEN
Department of Mathematics and
Statistics
Norwegian University of Science and
Technology
N-7034 Trondheim
Norway

JOHN E. FA
Durrell Wildlife Conservation Trust
Les Augrès Manor
Trinity
Jersey JE3 5BP
UK

PETER FEINSINGER
Department of Biological Sciences
Northern Arizona University
Flagstaff, AZ 86011
USA

JENNIFER A. GILL
School of Biological Sciences
University of East Anglia
Norwich NR4 7TJ
UK

GORDON C. GRIGG
Department of Zoology and
Entomology
The University of Queensland
Brisbane, QLD 4072
Australia

ANNE GUNN
Department of Resources, Wildlife and
Economic Development
Government of the Northwest
Territories
Box 1320
Yellowknife, NT, X1A 3S8
Canada

JON HUTTON

Africa Resources Trust
World Conservation Monitoring Centre
219 Huntingdon Road
Cambridge CB3 0DL
UK

SIMON JENNINGS

Centre for Environment, Fisheries
and Aquaculture Science
Lowestoft Laboratory
Pakefield Road
Lowestoft NR33 0HT
UK

MICHEL J. KAISER

School of Ocean Sciences
University of Wales-Bangor
Menai Bridge,
Gwynedd LL59 5EY
UK

HANNA KOKKO

Department of Zoology
University of Cambridge
Downing Street
Cambridge CB2 3EJ
UK

RUSSELL LANDE

Division of Biology 0116
University of California San Diego
9500 Gilman Drive
La Jolla, CA 92093
USA

RICHARD LAW

Department of Biology
University of York
PO Box 373
York YO10 5YW
UK

DON R. LEVITAN

Department of Biological Science
Florida State University
Tallahassee, FL 32306
USA

JAN LINDSTRÖM

Department of Zoology
University of Cambridge
Downing Street
Cambridge CB2 3EJ
UK

DONALD LUDWIG

Departments of Mathematics and
Zoology
University of British Columbia
Vancouver
British Columbia, V6T 1Z2
Canada

GEORGINA M. MACE

Institute of Zoology
The Zoological Society of London
Regent's Park
London NW1 4RY
UK

ROBERT M. MAY

Zoology Department
Oxford University
Oxford OX1 3PS
UK

E.J. MILNER-GULLAND

Renewable Resources Assessment
Group
T.H. Huxley School of Environment,
Earth Sciences and Engineering
Imperial College
8 Princes Gardens
London SW7 1NA
UK

CARLOS A. PERES

School of Environmental Sciences
University of East Anglia
Norwich NR4 7TJ
UK

CHARLES M. PETERS

Institute of Economic Botany
The New York Botanical Garden
Bronx, NY 10458
USA

CHRISTOPHER W. PETERSEN

College of the Atlantic
105 Eden Street
Bar Harbor, ME 04609
USA

ANTHONY R. POPLÉ

Department of Zoology and
Entomology
The University of Queensland
Brisbane, QLD 4072
Australia

ANDRÉ E. PUNT

School of Aquatic and Fishery Sciences
Box 355020
University of Washington
Seattle, WA 98195-5020
USA

ANDY PURVIS

Department of Biology
Imperial College
Silwood Park
Ascot SL5 7PY
UK

ESA RANTA

Integrative Ecology Unit, Division of
Population Biology
Department of Ecology and Systematics
University of Helsinki
PO Box 17
FIN-00014
Finland

KENT H. REDFORD

International Conservation Programs,
Wildlife Conservation Society
2300 Southern Boulevard
Bronx, NY 10460
USA

JOHN D. REYNOLDS

School of Biological Sciences
University of East Anglia
Norwich NR4 7TJ
UK

JOHN G. ROBINSON

International Conservation Programs
Wildlife Conservation Society
2300 Southern Boulevard
Bronx, NY 10460
USA

BERNT-ERIK SÆTHER

Department of Zoology
Norwegian University of Science and
Technology
N-7034 Trondheim
Norway

STEVEN SANDERSON

Wildlife Conservation Society
2300 Southern Boulevard
Bronx, NY 10460
USA

ANTHONY D.M. SMITH

CSIRO Marine Research
GPO Box 1538
Hobart, TAS 7001
Australia

WILLIAM J. SUTHERLAND

School of Biological Sciences
University of East Anglia
Norwich NR4 7TJ
UK

PAUL R. WADE

Office of Protected Resources, NOAA,
National Marine Fisheries Service,
National Marine Mammal Laboratory
7600 Sand Point Way NE
Seattle, WA 98115
USA