Contents

Part I Introduction

1 Reproductive Science as an Essential Component of Conservation Biology ......................................................... 3
   William V. Holt, Janine L. Brown, and Pierre Comizzoli

2 “Mayday Mayday Mayday”, the Millennium Ark Is Sinking! ........... 15
   Steven L. Monfort

Part II The Big Picture: Can Species Survive and Adapt in a Changing World?

3 Climate Change, Extinction Risks, and Reproduction of Terrestrial Vertebrates ................................................................. 35
   Cynthia Carey

4 Impacts of Endocrine Disrupting Chemicals on Reproduction in Wildlife................................................................. 55
   Emmelianna Kumar and William V. Holt

5 The Role of Genomics in Conservation and Reproductive Sciences ........................................................................ 71
   Warren E. Johnson and Klaus Koepfli

6 The Epigenetic Basis of Adaptation and Responses to Environmental Change: Perspective on Human Reproduction ........................................... 97
   Agustín F. Fernández, Estela García Toraño, Rocío González Urdinguio, Abel Gayo Lana, Ignacio Arnott Fernández, and Mario F. Fraga
7 The Black-Footed Ferret: On the Brink of Recovery? ........................ 119
Rachel M. Santymire, Travis M. Livieri, Heather Branvold-Faber,
and Paul E. Marinari

8 Comparative Reproductive Biology of Elephants.............................. 135
Janine L. Brown

9 The Koala (Phascolarctos cinereus): A Case Study
in the Development of Reproductive Technology in a Marsupial ...... 171
Stephen D. Johnston and William V. Holt

10 Reproduction and Advances in Reproductive
Studies in Carnivores.............................................................................. 205
Katarina Jewgenow and Nucharin Songsasen

11 Methods to Examine Reproductive Biology
in Free-Ranging, Fully-Marine Mammals........................................... 241
Janet M. Lanyon and Elizabeth A. Burgess

12 Amphibian Declines in the Twenty-First Century:
Why We Need Assisted Reproductive Technologies ...................... 275
John Clulow, Vance L. Trudeau, and Andrew J. Kouba

13 The Reality, Use and Potential for Cryopreservation
of Coral Reefs.......................................................................................... 317
Mary Hagedorn and Rebecca Spindler

14 Recent Advances and Prospects in Germplasm
Preservation of Rare and Endangered Species................................. 331
Pierre Comizzoli and William V. Holt

15 Sperm DNA Fragmentation and Its Role
in Wildlife Conservation........................................................................... 357
Jaime Gosálvez, William V. Holt, and Stephen D. Johnston

16 Somatic Cells, Stem Cells, and Induced Pluripotent
Stem Cells: How Do They Now Contribute to Conservation? .......... 385
Gabriela F. Mastromonaco, L. Antonio González-Grajales,
Melissa Filice, and Pierre Comizzoli

17 Biosafety in Embryos and Semen Cryopreservation,
Storage, Management and Transport ................................................... 429
A. Bielanski

18 Fertility Control in Wildlife: Review of Current Status,
Including Novel and Future Technologies .......................................... 467
Deborah Garside, Ayman Gebril, Manal Alsaadi,
and Valerie A. Ferro
Contents

19 Cloning the Mammoth: A Complicated Task
or Just a Dream? ................................................................. 489
   Pasqualino Loi, Joseph Saragusty, and Grazyna Ptak

20 Conclusions: Environmental Change,
   Wildlife Conservation and Reproduction .............................. 503
   William V. Holt, Janine L. Brown, and Pierre Comizzoli

Index ................................................................................................. 515
Reproductive Sciences in Animal Conservation
Progress and Prospects
Holt, W.V.; Brown, J.L.; Comizzoli, P. (Eds.)
2014, XV, 533 p. 49 illus., 34 illus. in color., Hardcover
ISBN: 978-1-4939-0819-6