

# Contents

<b>The Arcus Foundation</b> .....	<b>xi</b>
<b>Notes to Readers</b> .....	<b>xi</b>
<b>Acknowledgments</b> .....	<b>xii</b>
<b>Apes Overview</b> .....	<b>xiv</b>

## Section 1 Disease, Health and Ape Conservation

<b>Introduction</b> .....	<b>1</b>
<b>1. Review of Ape Disease and Health</b> .....	<b>11</b>
Introduction	11
Wild Apes	15
Captive Apes	30
Conclusion	40
<b>2. The Role of One Health at the Human–Ape Interface</b> .....	<b>43</b>
Introduction	43
Ape Conservation, One Health and Sustainable Development	45
A Short History and Core Principles of One Health	46
Globalization of the Principles of One Health	49
One Health and the Human–Ape Interface	51
One Health in Action	58
Conclusion	74
<b>3. The Impact of Tourism and Research Activity on Ape Health</b> .....	<b>77</b>
Introduction	77
Habituation: A Prerequisite for Ape Research and Tourism	80
Risks to Habituated Wild and Captive Apes	90
Managing Disease-Related Risks in Apes	95
Conclusion	103
<b>4. Managing Ape Health: Informing Interventions</b> .....	<b>109</b>
Introduction	109
A Brief History of Ape Health Interventions	112
Reasons to Intervene and Skills Needed to Maximize Effectiveness	118
Ethical Complexities Related to Vaccination	123
Informing Interventions at the Systems Level	127
Conclusion	140
<b>5. Ape Health and Ethics</b> .....	<b>143</b>
Introduction	143
General Ethical Considerations in Ape Care and Conservation	145

Compassionate Conservation and Managing Ape Health	147
Primary Prevention: Conservation and Interspecies Health Policy	150
Secondary Prevention: Responding to Injury	150
Tertiary Prevention: Respect for Autonomy and Care for Wellbeing in Sanctuaries	158
Moral Agency and Moral Courage in Ape Care and Conservation	158
Conclusion	159

## **6. Disaster Management and the Protection of Apes ..... 163**

Introduction	163
Disasters and Apes	166
Managing Risks to Apes	172
The Disaster Management Continuum with a Focus on Apes	178
Community Engagement in Disaster Management	192
Monitoring and Review	193
Conclusion	195

## **Section 2**

### **The Status and Welfare of Great Apes and Gibbons**

#### **Introduction ..... 198**

#### **7. Status of Apes: Impacts of Industrial Development Projects on Apes ..... 201**

Introduction	201
Ape Behavioral and Ecological Characteristics	204
Industries Prevalent in Ape Ranges	205
Impacts on Apes	206
Mitigation Approaches	208
Managing Cumulative Impacts	220
Long-Term Research and Monitoring	221
Moving Forward	224
Conclusion	230

#### **8. The Welfare and Status of Captive Apes ..... 233**

Introduction	233
Section I: Improving Captive Ape Welfare	235
Section II: The Status and Number of Captive Apes	261

#### **Annexes ..... 274**

#### **Acronyms and Abbreviations ..... 314**

#### **Glossary ..... 317**

#### **References ..... 328**

#### **Index ..... 414**