

the return of the unicorns



THE NATURAL HISTORY AND
CONSERVATION OF THE
GREATER ONE-HORNED RHINOCEROS

Eric Dinerstein

COLUMBIA UNIVERSITY PRESS NEW YORK



CONTENTS

FOREWORD BY GEORGE B. SCHALLER IX

PREFACE XIII

INTRODUCTION 1

PART I

Vanishing Mammals, Vanishing Landscapes 7

1. VANISHING MAMMALS:

THE RISE AND FALL OF THE RHINOCEROS 9

2. CULTURE, CONSERVATION, AND THE DEMAND
FOR RHINOCEROS HORN 27

3. VANISHING LANDSCAPES:

THE FLOODPLAIN ECOSYSTEM OF THE TERAJ 34

PART II

The Biology of an Endangered Megaherbivore 59

4. SIZE AND SEXUAL DIMORPHISM IN GREATER
ONE-HORNED RHINOCEROS 61

5. THE BIOLOGY OF AN EXTINCTION-PRONE SPECIES:
FACING DEMOGRAPHIC, GENETIC, AND
ENVIRONMENTAL THREATS 81
6. LIFE ON THE FLOODPLAIN:
SPACING AND RANGING BEHAVIOR, FEEDING ECOLOGY,
AND ACTIVITY PATTERNS 109
7. MALE DOMINANCE, REPRODUCTIVE SUCCESS, AND
THE "INCISOR-SIZE HYPOTHESIS" 134
8. ENDANGERED PHENOMENA:
RHINOCEROS AS LANDSCAPE ARCHITECTS 153

PART III

The Recovery of Endangered Large Mammal Populations and Their Habitats in Asia 179

9. DOES PRIVATELY OWNED ECOTOURISM SUPPORT
CONSERVATION OF CHARISMATIC LARGE MAMMALS? 181
10. MAKING ROOM FOR MEGAFUNA:
PROMOTING LOCAL GUARDIANSHIP OF ENDANGERED
SPECIES AND LANDSCAPE-SCALE CONSERVATION 192
11. THE RECOVERY OF RHINOCEROS AND OTHER LARGE
ASIAN MAMMALS 226

APPENDIX A: METHODS 255

APPENDIX B: MEASUREMENTS AND OTHER PHYSICAL FEATURES OF GREATER ONE-HORNED RHINOCEROS CAPTURED IN ROYAL CHITWAN NATIONAL PARK 271

APPENDIX C: DEMOGRAPHIC AND GENETIC DATA 275

APPENDIX D: SEASONAL HOME RANGE AND DAILY MOVEMENTS 279

APPENDIX E: A PROFILE OF RHINOCEROS BEHAVIOR 283

APPENDIX F: REPRODUCTIVE HISTORIES OF ADULT FEMALE RHINOCEROS 287

REFERENCES 291

INDEX 303