

Preface

GENESIS OF THE SECOND EDITION

When the first edition of *Tigers of the World* was published in 1987, the science of tiger conservation was in its infancy. The biology of tigers was known from only a few field studies and a handful of studies in captivity. In many areas, we had relatively little idea where tigers were located in the wild, or their ecology. The human dimension of tiger conservation was even less understood. Two decades later, we have experienced a revolution not only in what we know about the biology and conservation of this species, but in how we obtain and disseminate this information.

Infra-red camera units, geographic information systems, and genetic analysis are just three scientific tools that were in their infancy then, but today are core technologies for the study of tigers. Tiger Conservation Landscapes, economic compensation programs, anti-poaching teams, and conservation partnerships are examples of conservation tools that have appeared in the intervening years. In this fast-changing world of conservation, there is a need to summarize the vast and current state of the art, to put this in historical perspective, to evaluate what worked and what did not, and to speculate on what yet remains to be done.

Despite the dramatic improvements in what we know about tigers, how we are obtaining this information, and substantial investment in tiger research and conservation,

the challenge facing tigers today is even more daunting than it was twenty years ago—the simple fact is there are fewer wild tigers today than there were two decades ago. Asia is home to some of the world's most populous countries, the world's fastest growing economies, and is experiencing some of the most rapid habitat conversion and industrial development in history. The epicenter of the global debate over nature conservation and economic development is Asia, and the tiger is the dominant and the most emblematic species in this debate.

Tigers in Asia live in differing cultures, climates, and habitats, from the seasonally dry evergreen forests of India, east to Vietnam, north to the temperate Russian taiga, and south to the Indonesian tropical rain forests. The story of the tiger and its plight is as complex as the many languages of the people who live near the forests it inhabits. The one common bond throughout Asia is that the tiger is both awed and feared as a symbol of great power and strength. Now we are in danger of losing this living symbol of the Asian wilderness.

In April 1986, tiger experts from around the world gathered in Minnesota to discuss the status of tiger research and conservation. *Tigers of the World* was the product. Nearly a decade later the 1998 *Year of the Tiger* conference in Dallas (Tilson R, Nyhus P, Jackson P et al. *Securing a Future for the World's Wild Tigers*. Washington, DC: Save The Tiger Fund, National Fish and Wildlife Foundation, 2000) and the *Tigers 2000* conference in London

(Seidensticker J, Christie S, Jackson P, eds. *Riding the Tiger: Tiger Conservation in Human-Dominated Landscapes*. Cambridge, UK: Cambridge University Press, 1999), both watershed events, fostered cross-disciplinary and cross-regional communication among tiger conservationists world-wide.

In 2006, Thane Johnson from the Oklahoma City Zoo put us in touch with Jeri Wachter, CEO and publisher of William Andrew Publishing, who was keen to produce a second edition of *Tigers of the World* for a new series of natural history books. We agreed on the condition that this would not be a 'typical' academic edited volume. Our goal for this book was to provide a useful and accessible document that would compel readers of all kinds, worldwide, to take action. We have aimed to produce an authoritative book by the world's leading tiger experts, but we also wanted it written from authors' personal perspectives on the successes and shortcomings in tiger conservation over the last 20 years. This second edition of *Tigers of the World*, thus, is geared to both the scientific community and the general public in the belief that broad public understanding and support, especially in Asia, will have the most effective long-term positive impact on tigers.

THE TRIBE OF TIGER DEFENDERS

In this second edition of *Tigers of the World* there are seven authors who contributed to the original edition: Peter Jackson, Ullas Karanth, Stephen O'Brien, John Seidensticker, David Smith, Melvin Sunquist, and one of us (RT). Since then, the tribe of tiger conservationists has swelled. The good news is that over time there has been a growing number of Asian biologists recruited, and who are now leading experts in tiger research and conservation in their own countries. It is through the efforts of this new generation of

passionate tiger defenders that the future of wild tigers will be determined.

We asked authors to write chapters that put the science and politics of tiger conservation into perspective; to use minimal scientific jargon but to stay true to the 'state of the art'; and to address important concepts and debates and to balance different perspectives and opinions. It was for many a delicate balancing act. We also encouraged authors to include short anecdotes or examples that would both enliven as well as 'ground' their material so that it was more tangible to readers.

We soon recognized that many of the authors we invited to write these chapters and essays were in fact 'tiger icons,' an eclectic group that, over the years, have assumed personalities not too dissimilar to the very animals they were writing about. We were delighted at their willingness to share their experiences and passion for tigers, and their deep convictions that tigers are vital for keeping the soul of humanity fresh and meaningful.

We could think of no two individuals more fitting than George Schaller and Peter Jackson to contribute the Foreword and introductory chapter. George is the 'father' of tiger research and conservation, and his book *The Deer and the Tiger* (Schaller GB. *The Deer and the Tiger: A Study of Wildlife in India*. Chicago: University of Chicago Press, 1967) set the gold standard that has served as an inspiration to an entire generation of tiger biologists and conservationists, including us. Peter's long and distinguished history as Chairman of the IUCN/SSC Cat Specialist Group and founder of *Cat News* qualifies him like no other to describe the changes he has witnessed in tiger conservation over his career, poignantly expressed in his essay 'Fifty Years in the Tiger World'.

LAYOUT OF THE BOOK

The book is divided into five sections, exploring what tigers are, current information

about major tiger problems and solutions, tools for understanding tigers, and regional reviews of the status of wild tigers and projections for the future.

Before you can save the tiger, you have to know what a tiger is. The first section highlights the most interesting and new information about the biology, ecology,

genetics, and natural history of wild tigers. A surprising amount of new information has emerged over the past two decades to answer a simple yet ultimately important question: What is a tiger? The answer has enormous implications for the science, politics, and conservation of both wild and captive tigers.

ULYSSES SEAL: THE QUINTESSENTIAL MENTOR

Ronald Tilson

Minnesota Zoo

My career with tigers began in December, 1983 on my first day of work at the Minnesota Zoo. There I met a man who was larger than life: Ulysses S. Seal (Ulie), a quintessential mentor who listened to the tiger whispering in his ear.

In his remarkable career, Ulie founded the International Species Information System (ISIS), remembering the Latin name of every animal in the world's zoo collections to do it. He launched the Species Survival Plan (SSP) of the Association of Zoos and Aquariums in 1982 with the tiger as its model. Lastly, as chairman of the IUCN/SSC Conservation Breeding Specialist Group, Ulie fostered a world-wide membership of caring conservationists who work tirelessly trying to find a way to save nature's imperiled animals and plants.

Ulie pioneered tiger immobilization and contraception protocols; characterized the endocrine profiles of male and female tigers; and facilitated the collaborative efforts of David Wildt's reproductive lab at the National Zoo and Doug Armstrong's at Omaha's Henry Doorly Zoo. All of these measures led to the development of assisted reproduction techniques—oocyte and semen collection and

storage, laparoscopic artificial insemination, and *in vitro* fertilization. He encouraged collaboration with Steve O'Brien's laboratory at the National Cancer Institute, which led to the redefinition of tiger phylogeny and many other activities too numerous to list.

Our early years together were spent working on tiger reproduction and how to improve their health and care. This evolved into international collaborations with Asian zoos and their tigers, culminating in field efforts with wild tigers in Indonesia following the first Population and Habitat Viability Analysis workshop for tigers, the drafting of Indonesia's *Tiger Conservation Strategy*, and a ten-year program and commitment to conserve wild tigers in Sumatra. An invitation to journey to China to evaluate and rescue what was left of their tigers followed. Along the way, we edited the first edition of *Tigers of the World*. Ulie greatly influenced the study and conservation of tigers. His tiger footprint was enormous. I am personally indebted to Ulie because he gave me the opportunity of a lifetime: the profound pleasure of spending my life in the company of the most magnificent beast on earth.

The second section explores the problems facing wild tigers and offers strategies to save them. Habitat loss and degradation, illegal harvesting and trade, and human-wildlife conflict are important drivers of tiger decline and extinction. Authors in this section describe novel, unique, and interesting approaches to the conservation and management of tigers to address these challenges. They also provide a historic context and describe the current magnitude of the problems facing tigers, new approaches to educating the public, prioritizing, funding, and disseminating information. This section includes essays on the growth of the IUCN's Cat Specialist Group, the Save The Tiger Fund, the United States Fish and Wildlife Service Rhinoceros and Tiger Conservation Fund, and essays on why zoos have tigers and the function and purpose of US sanctuaries. A final sobering essay discusses how growing non-zoo captive tiger populations threaten wild tiger populations.

The most striking change in tiger conservation over the last two decades is the tools and processes now available to understand tigers and their conservation, the focus of the third section. From molecular tools opening up the history of tiger evolution to remote camera-traps unlocking the secrets of the forest to remote sensing approaches that enable us to take a global approach to viewing tigers and their landscape, we now have a whole new suite of methods available to study and conserve tigers.

The fourth section focuses on regional reviews. There are 14 countries spread across Asia where tigers still persist in the wild. We departed somewhat from tradition by dividing Asia into four geographic subsets: South Asia, Southeast Asia including Indonesia, with Russia and China as stand-alone sections. In this section, leading tiger experts

provide substantive reviews that evaluate the status of tigers in these regions. Most frame their essays with a historical perspective while providing an update and future projection of tigers and tiger conservation in their respective areas.

The first edition included numerous chapters devoted to tiger physiology and husbandry. Much of this information remains relevant, although how we manage tigers in zoos has changed in important ways. Hallmarks of captive management today include a greater focus on exhibit design emphasizing visitor immersion; graphics based on field science; improved medical health, especially in disease control, vaccinations, and medical procedures; and improved diets and growing emphasis on enrichment and humane treatment. One telling performance indicator suggesting these changes are effective is that captive tigers often now live into their early twenties, an average increase of nearly six years since the first edition of *Tigers of the World*. Today, there are numerous websites where much of this information can be found—such as a tiger husbandry manual and standardized guidelines for exhibits and management. Captive tigers, by and large, are doing just fine; it is their wild brethren who face extinction and who we devote the space and time in this edition.

We end this second edition of *Tigers of the World* with some concluding remarks addressing the future of tigers, beginning with a chapter by Eric Wikramanayake and his colleagues on 'How Will the Next Decade End for Wild Tigers?' and following with our own 'The Next Twenty Years of Tiger Science, Politics, and Conservation'. Before we put our first words on paper, our vision for this book was to discuss recent advances in the science of tiger conservation, to discuss the

broad challenges and threats to the future survival of tigers, and to highlight compelling policy debates and opportunities for managing tigers in the wild and in captivity. Did we achieve what we started out to do? Perhaps that question can be one of the topics for the third edition of *Tigers of the World* twenty years from now. It would be comforting if the next edition was a forum to

discuss these topics rather than a requiem for wild tigers.

Ronald Tilson
Conservation Department,
Minnesota Zoo

Philip Nyhus
Environmental Studies Program,
Colby College