



CRANES:

*Their Biology,
Husbandry, and
Conservation*

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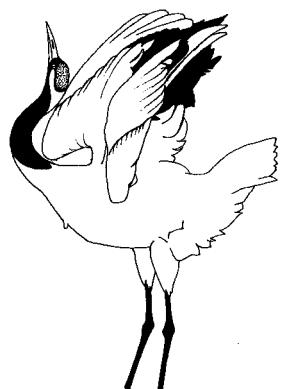
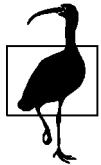
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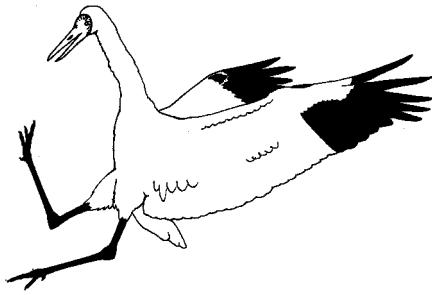
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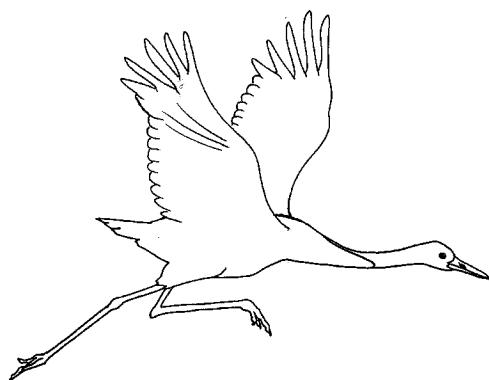
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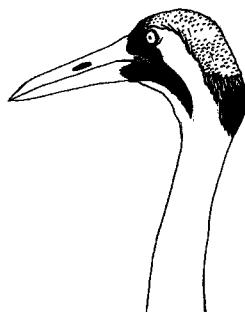
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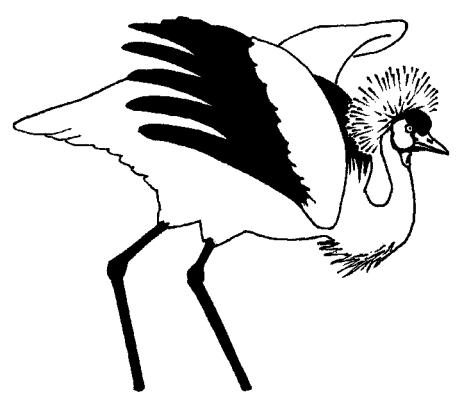
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Foreword

Captive Management and Conservation

Worldwide, extinction of our flora and fauna is proceeding at catastrophic rates. We humans are fouling our planetary nest and making it uninhabitable both for many thousands of wild species and ultimately for ourselves. For utilitarian, aesthetic, and ethical reasons, we must do all that we can to prevent extinction. The most important conservation strategy for most species is habitat preservation. This almost always means trying to prevent or to reverse man-caused changes in the environment.

While habitat conservation is the key, captive breeding sometimes plays a crucial role. It may then be possible to release captive-bred animals once their habitat has been rescued, as has so successfully been achieved with the Arabian Oryx in Oman and Jordan, and with the Hawaiian Geese bred at the Wildfowl Trust. Even if no immediate prospect of release can be foreseen, endangered species must be maintained in captivity to prevent extinction and in hopes that habitat will one day be available.

Captive management is not only a vital conservation tool in helping to prevent extinction, but there are also many spin-off benefits. The worldwide effort to propagate and conserve cranes is a shining example. Not only have there been many successes in rearing endangered cranes, but there has also developed an international spirit of cooperation between individuals and institutions in a dozen nations around the world. In addition to fostering international good-will in this way, the captive cranes provide many opportunities for research, answering questions that would be impossible to resolve in the field.

*Sir Peter Scott, CH CBE DSC FRS
Slimbridge
October 10, 1988*

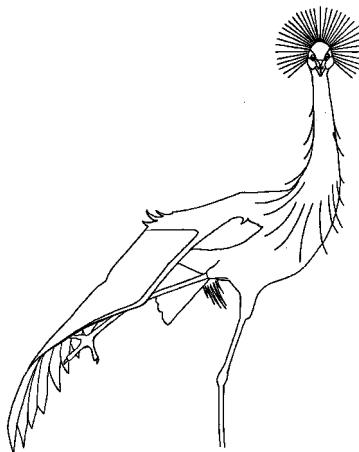
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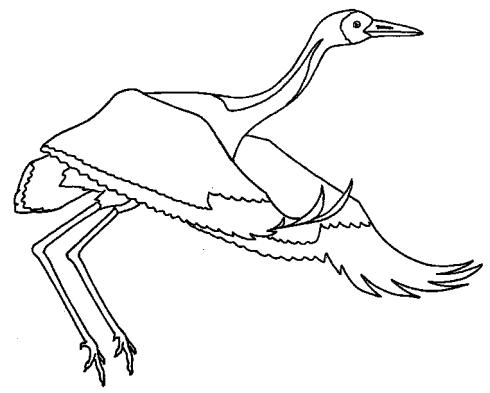
The natural world lost a premier advocate when Sir Peter Scott died on 29 April 1989 at age 79. His thoughts on endangered species, conservation in general, and crane propagation in particular, continue to ring true.

The first published reference to crane husbandry is probably Marco Polo's account of several species of cranes (some of which were more likely phasianids) in the gardens of Kublai Khan in the late 13th Century. With more than two decades of propagation research behind us at the International Crane Foundation (ICF) and nearly three at the Patuxent Wildlife Research Center (Patuxent), crane husbandry for most species is now operational. It is finally time to collect the best of crane avicultural science and husbandry between two covers.

Experimentation with crane reintroduction techniques over the last two decades allows us to also include a section on this culminating aspect of crane conservation.

David H. Ellis





Preface

Unbridled, mankind is unique in having the ability to erase the cranes, one or all, from our world. Ironically, it is also within the power of man to recognize the beauty and worth of something not our kin (or stated more correctly, to recognize our kinship to a dissimilar species), to recognize and revere. This book is dedicated to these lovely creatures, and to those persons living, remembered, and yet unborn who will continue the struggle to ensure a world rich with cranes.

In the paragraphs that follow, we will cite some of those whose contributions were greatest in completing this volume and in supporting our husbandry efforts. Others will be mentioned in photo captions and text. However, this act (i.e., citing our fellow workers) should not, in any way, diminish our awareness of, and appreciation for, the true inspiration for this volume, namely, the 15 species of cranes that grace our planet. This book is a celebration of the magnificence of these creatures and of man's efforts to ensure survival of each species and each race of this resplendent group.

As we, the editors, complete the eight year ordeal that culminates in publication of this volume, it is our pleasure to look back and thank those who gave of their time in reviewing the chapters, those who devoted months (often without salary) to rearing chicks or caring for adults, and most of all we thank those who created and maintained our programs at ICF and Patuxent. In particular, Dr. Ray C. Erickson and Dr. Ronald T. Sauvey deserve our deep appreciation. Ray's foresight led to the creation of Patuxent's endangered species program in the late 1960's. Ron's dedication was essential in

the creation of ICF in 1973. Without the efforts of these two and of Dr. George W. Archibald, much of the information encompassed in this book would be as yet unassembled. We also wish to acknowledge Dr. H. Randolph Perry, Jr. and Mr. James Harris who have shouldered much of the administrative load through the years and thereby provided the opportunity for us to create this volume.

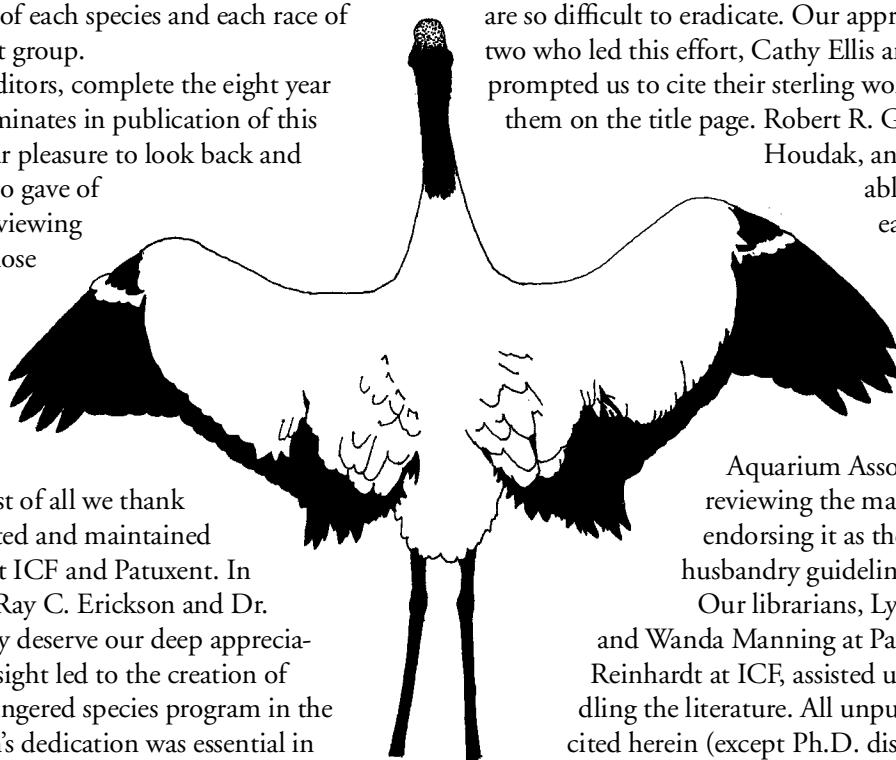
As editors, we appreciate the work of the authors of each chapter. Their patience was often exemplary as they worked with us in shaping and honing the text. Several gave selflessly in preparing tables, graphics, or even writing text for chapters not their own. Dozens participated in review of the book and preparation of the materials, and all have been thanked personally. Here we wish to acknowledge those whose contributions were extensive. Marie Childress, Cathy Ellis, Jennifer Gieg, Kathleen O'Malley, and Lorie Shaull spent many hours reviewing chapters and proofing tables, always in quest of the erroneous minutia that are so difficult to eradicate. Our appreciation for the two who led this effort, Cathy Ellis and Lorie Shaull, prompted us to cite their sterling work by including them on the title page. Robert R. Gabel, Sandy

Houdak, and Linda J. Miller
ably assisted in the
early reviews.

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reviewing the manual toward
endorsing it as the official
husbandry guidelines for cranes.

Our librarians, Lynda Garrett
and Wanda Manning at Patuxent and Annie
Reinhardt at ICF, assisted us greatly in han-
dling the literature. All unpublished reports
cited herein (except Ph.D. dissertations



produced in the U.S. which are available through University Microfilms, Box 1764, Ann Arbor, MI 48106) are on file at the Ron Sauvey Memorial Library at ICF.

Although we will not cite here all who contributed to each chapter, we wish to make special mention of Milford Muskett for preparing the maps gratis, Kinnard Boone for his computer graphics assistance in several chapters, Lyena Romanova for her computer programming efforts towards automating the Patuxent records system, Dr. David H. Thompson for help with the photographs, and Kathleen O'Malley for composing forms and entering data for the records chapter.

Other significant contributions were made by those who provided the photographs and illustrations for the text. Most gave without reimbursement. In particular we thank David Rankin (who supplied the end sheet/dust jacket painting at cost), Billi Wagner (who provided the crane line drawings with black zones) and Paul Triatak (who provided the crane line drawings without black zones, gratis).

Inasmuch as crane conservation has become a banner cause in conservation around the globe, it is a fitting, if somewhat belated, act to produce this "how to" volume on raising cranes, something that has been done haphazardly for some species for centuries and has become operational for most species during the last two decades.

The Editors

