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THE RÍO CHAGRES, PANAMA

A Multidisciplinary Profile of a Tropical Watershed

edited by

RUSSELL S. HARMON

Army Research Office,
Research Triangle Park, NC, U.S.A.

Springer
Dedication

This book is dedicated to Lance Vander Zyl, Eric Nicolsen, and Thomas Exenberger - colleagues and friends without whose dedicated support the upper Rio Chagres basin fieldwork of 2002, which provided the foundation for much of the research described in this volume, would not have been possible.
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Preface

This book calls the attention of the scientific community, government organizations and non-government agencies, and the general public, to arguably one of the most important and complex of the world’s tropical rainforest regions – the greater Panama Canal Watershed. The Río Chagres basin is the primary source for water to operate the Panama Canal, and also supplies water for electricity generation and potable water for municipal use, but this important national resource is largely unstudied from a scientific standpoint. The broad objective of the book is to characterize and understand the physical and ecological components of an isolated and largely pristine tropical rainforest and describe how the different natural components of a tropical rainforest interact with one another. The majority of the 23 papers contained in the volume are based upon presentations made at an international scientific symposium of the same title held at the Gamboa Rainforest Resort and Conference Center in Gamboa, Panama on 24-26 February 2003. In turn, most of the symposium presentations arose from research undertaken during a multidisciplinary field study conducted in the upper Río Chagres watershed in 2001 by an international group of scientists. Convened under sponsorship of the Autoridad del Canal de Panama, Smithsonian Tropical Research Institute, Universidad Tecnológica de Panama and US Army Yuma Proving Ground Tropic Regions Test Center, this conference brought together some 50 scientists, engineers, and government officials from the international community. The papers in this book follow two perspectives, regional-scale studies of the greater Panama Canal Watershed and more focused papers that consider specific aspects of the upper Río Chagres basin. The book begins with regional geographic overviews of Panama (Ch. 1) and the Panama Canal Watershed (Ch. 2-3). This is followed by two geological papers (Ch. 3-4), the first which describes the geological developmental history of Panama and the second of which presents the geological framework of the upper Río Chagres basin. The next ten papers (Ch. 6-15), forming the central portion of the volume, address the geomorphology, hydrology, and hydrometeorology, and biology of this largely pristine tropical rainforest. The final eight papers (Ch. 16-23) return to the broader perspective, considering similar issues from a regional perspective. A large amount of supplemental material, including a digital elevation model for Panama, species lists from the biological studies, the hydrologic rating curve report for the Rió Piedras, geological field notes and pictures, and other information are available to the interested reader on the web site: http://skagit.meas.ncsu.edu/~helena/riochagres/. A special thanks is due to Brendan Harmon, without whose useful proofreading and editorial assistance the timely preparation of this volume would not have been possible.

RSH
The Upper Rio Chagres, Panama
Part I: Setting the Scene