

# Preface

## Why Another Multi-Authored Evolution Book

This volume includes the collection of some of the most significant lectures that well-known experts presented at our two international “summits on evolution” (2005, 2009) as updated and revised chapters. The meetings took place on one of the large islands of the Galapagos archipelago (San Cristobal) at GAIAS (*Galapagos Institute for the Arts and Sciences*) of the Universidad San Francisco de Quito (*USFQ*), Ecuador. The chapters are ordered chronologically from the past to present Earth eons; they start from the origins of life and come towards the present concerns of mammalian evolution and recent ecological problems.

Modern life sciences comprise a vast subject broken up and taught as academic disciplines with a poor, sometimes non-existent record of integration. Different kinds of organisms at scales from the monstrous to the microbe come within its purview. Most evolution meetings reflect this fragmentation; they concentrate on certain modern forms of life and usually ignore both the fossil record of these and many other cognate, relevant issues. Ultimately all life shares common ancestry, as Darwin so perceptively described, and the diversity of the living evolved in similar ways in response to environmental, including climate, change. Yet organisms assignable to different domains (subphyla and phyla) exhibit evolutionary peculiarities. The role of lateral gene transfer, for example, is easily documented among prokaryotes whereas it seems far less conspicuous in animals. Yet the ultimate eukaryotic ancestors of the later evolved themselves by a massive horizontal gene transfer process recognisable as “genome acquisition”. The study of some evolutionary processes like symbiosis have been neglected and even ignored by many interested in natural history. We believe that our integrative approach is necessary for a coherent view of the grand sweep of the evolution of life that is so entwined with the Earth’s geological history.

The main goal of the two *Galapagos Summits on Evolution* has been to bring together scientists and graduate students engaged in the study of evolution, from life’s origin to its current diversity. Due to their historical significance, the Galapagos are a unique venue for promoting comprehensive research on evolution and ecology and to make the research results available to students and teachers everywhere, but

especially from developing countries. As shown by the enthusiastic attendance at both summits and the many suggestions to keep them continuing, our meetings have opened new opportunities for students from Ecuador and other Latin American countries to be inspired by some of the most brilliant minds in evolutionary science. We hope to publish in English to make this work available to the widest possible readership and to distribute the documentary film.

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