

## Principal Bios

### Dr. Gordon H. Sato

Dr. Sato was born on 17 December 1927 in Los Angeles, California, the son of an "Isei" (Japanese-born immigrant) father and a "Nisei" (2nd generation or American-born Japanese) mother. His father taught him the generic techniques of gardening and how to cultivate things under a wide variety of conditions. He graduated from Manzanar High School, Manzanar, CA in 1944. He attended Central College, Pella, Iowa for a year before enlisting in the US Army. Supported by the GI bill, he was trained as an undergraduate in biochemistry at the University of Southern California and obtained a Ph.D. degree at the California Institute of Technology in Biophysics in 1955 under Nobel Prize winner Max Delbrück.

After post-doctoral training with Gunther Stent at the University of California-Berkeley and Theodore Puck in Genetics at the University of Colorado Medical School, he was a professor of Biochemistry at Brandeis University, Boston, MA from 1958-1969. Dr. Sato joined the Department of Biology at University of California-San Diego where he was professor from 1970 through 1983. He was director of the W. Alton Jones Cell Science Center, Lake Placid, NY from 1983 to 1992.

As a member of the National Academy of Sciences and an Adjunct and Honorary Professor at many universities throughout the world, Dr. Sato has authored or co-authored over 150 publications in cell and molecular biology. Dr. Sato is best known for his contribution to the understanding of the multiple factors required for the culture and husbandry of mammalian cells outside the body.

Dr. Sato has been instrumental in founding multiple biotechnology ventures including Collaborative Research, Inc. and Hana Biologics. With Dr. W.L. McKeegan, his Assistant Director at the W. Alton Jones Cell Science Center, Dr. Sato co-founded Upstate Biotechnology, Inc.(UBI). He has trained a long list of students in Cell and Molecular Biology and more recently in aquaculture and silvaculture.

The Manzanar Mangrove Initiative, with the objective to create whole new forests of mangrove trees in vast areas of the world where mangrove trees do not grow, was started by Dr. Sato. This project has the objective to alleviate poverty in coastal areas of the world by creating a renewable resource - mangrove trees, which produce valuable timber, and enrich the fish populations of adjacent seas. The Manzanar Project is named after a relocation camp in central California where Dr. Sato was interned during the Second World War and first began thinking of producing food in the desert. His groundbreaking work on the Manzanar Initiative was published in the journal *Wetlands*:

“A Novel Approach To Growing Mangroves On The Coastal Mud Flats Of Eritrea With The Potential For Relieving Regional Poverty And Hunger”, Gordon Sato, Robert Riley, et al. *Wetlands*, The Society of Wetland Scientists, Volume 25: 776–779, September 2005.

Dr. Sato is currently working full time on a Mauritanian (West Africa) hunger and poverty project, similar in scope to the Manzanar project. Dr. Sato's duties include the broad based project planning and establishing the international relations needed for project implementation.

In 2002, Dr. Sato was named a recipient of the Rolex Award for Enterprise and the 2005 Blue Planet Award and he is the subject of *The Mangrove Man* distributed on DVD internationally as well as programs aired on the topic in Japan.

## **Robert W. Riley, Jr.**

Graduating with an MA in Economics from the University of Central Florida, Orlando, where he worked as a graduate research and teaching assistant, Mr. Riley began his career as a Program Manager for communications systems manufacturer Harris Corporation, Melbourne, Florida. Motivated as an entrepreneur Mr. Riley helped found and was a principal in several technology startups in the late 1990's.

In the mid 1990's, Mr. Riley worked in a consulting capacity for NASA at the Kennedy Space Center in Cape Canaveral, Florida, on an initiative to adapt Internet based technologies to STS Shuttle processing. During this period, he began research in mangrove ecosystems and into the failure modes that ubiquitously characterized mangrove restoration projects. He ultimately developed Riley Encased Methodology<sup>®</sup> (REM) for the successful long-term establishment of mangroves in non-native environments. The findings of his research have been published in peer-review journals, which include the research that challenged commonly held conventions in accepted practices and limits of mangrove restoration:

“Riley encased methodology: principles and processes of mangrove habitat creation and restoration”, Robert W. Riley, Jr & Chandra Salgado Kent, *Mangroves and Salt Marshes* 3: 207-213, Kluwer Academic Publishers, December 1999.

Applications of his methodologies in Afforestation have also been successfully applied in humanitarian efforts to establish economic base where indigenous coastal populations are in poverty and suffer due to a lack of natural resources. This groundbreaking development is now a model for sustainable economic development targeted at impoverished regions of the world:

“A Novel Approach To Growing Mangroves On The Coastal Mud Flats Of Eritrea With The Potential For Relieving Regional Poverty And Hunger”, Gordon Sato, Robert Riley, et al. *Wetlands, The Society of Wetland Scientists*, Volume 25: 776–779, September 2005.

Subsequent research guided Mr. Riley in patenting REM methods and technology. These innovative methods for planting mangroves enable the reliable and long-term establishment of reproductively mature, self-sustaining mangroves and mangrove forests. Applications include high-energy shorelines, seawalls, revetments, bulkheads and non-native environments. The technology has particular applicability in areas destroyed or degraded, or where topography and hydrology has been artificially changed, such that physical conditions are no longer favorable for natural mangrove recruitment.

The environmental TV program *Geoambiente* produced a half-hour show featuring the application of REM<sup>®</sup> in the ecological restoration project at Cabo Rojo, Puerto Rico.

In 1996, Mr. Riley established *mangrove.org*<sup>®</sup> with a mission to conduct research and development, promote education and implement REM technology in mangrove afforestation, habitat creation and restoration, shoreline stabilization and erosion control applications.

## **S. M Boris Robinson**

Mr. Robinson grew up in England and after moving at a young age to Princeton, New Jersey, became engrossed in the study of science. Focusing on Physics studies at Indian University in Bloomington, Mr. Robinson worked several part-time work/study projects with Physicist Dr. Wolfgang Grill in Bloomington, and Raymond Lepore at the Fermi National Accelerator Laboratory in Chicago. Under work/study at the Indian University Department of Optometry, Mr. Robinson designed and supported hardware and software for two projects, one with Dr. Arthur J. Afanador and another with Dr. Lee Guth under a Varilux grant.

After moving to Boston in 1981, Mr. Robinson worked as a test engineer at Teradyne Corporation, co-establishing a second-shift test and de-bug group. Mr. Robinson invented a dry-gas mass flowmeter transducer and then in 1983 founded Sirris Flow Technology, Inc., along with a partner who was an electrical/aero engineering student at The Massachusetts Institute of Technology. In 1987 a patent was received on the flowmeter design (US Patent 4,648,270). The fast-measuring low-flow technology was applied in many fields from leak detection to micro-sized transducers and flow controllers for the NASA STS Shuttle program.

Moving to Florida in 1988, Mr. Robinson pursued many interests including flying and restoring and building airplanes. In 1990, he began working part-time as a technical writer and Certified Commercial Real Estate Appraiser eventually specializing in large-scale residential development and financial analysis.

In 1996, he acquired his Certified Instructor rating from the FAA and founded the non-profit Mid-Florida Soaring Association with a mission of providing free/subsidized flight training for young people.

Mr. Robinson has been working with *mangrove.org*® since 2003, providing support for international educational programs and contributing in the areas of research and development. Mr. Robinson has more recently taken on the role to organize and develop *mangrove.org*® as an NGO (US Non-Profit), which will facilitates participation in a wider range of domestic and international projects.