Biography of
Dr. Rodrigo Gamez Lobo

He was born in Esparza, Puntarenas, in 1936, but he has spent most of his life in Heredia. He is the second child of a household of educators (Uladislao Gamez and Consuelo Lobo), and since he was little he had a special affinity with nature. Don Rodrigo fondly remembers his time as a Boy Scout, where he learned to love forests, rivers and landscapes of his country. Once he completed his High School studies at Liceo de Heredia, the young Gamez chose the Agronomy major because there was no Biology major at that time. In 1954 he joined the Faculty of Agriculture of the University of Costa Rica (UCR) and there he found his "niche" in the field of plant virology. "I decided to do my thesis on plant viruses, a topic that no one had worked before in Costa Rica", he said. He earned his Master of Science (M.Sc.) at the University of Florida, USA. Then he pursued post-graduate studies at the University of London, England, and completed his doctorate (PhD) in virology at the University of Illinois, USA, in 1967. On his return, he continued his work at UCR. At this institution, he was the first director of the School of Plant Science, the first Vice Chancellor for Research, and a member of the first Council of Post-Graduate Studies System and the Electronic Microscopy Unit. At that time, he also actively participated in the creation of the National Council of Scientific and Technological Research (CONICIT) and State Distance Education University (UNED). But his main contribution was the creation of a virology laboratory, which later became the current Molecular and Cellular Biology Research Center (CIBCM) at UCR, of which he was first director in 1976. In 1983, he was awarded the Dr. Bernard Houssay Inter-American Science Prize, by the Organization of American States (OAS), for his contribution to the scientific development of Costa Rica. In a pleasant coincidence, his father, Uladislao Gamez, was awarded the Andres Bello prize by the OAS at the same time, for his contributions to education. In 1986, Rodrigo Gamez was named presidential adviser on natural resources and biodiversity. "I realized there was little Science on managing national parks in Costa Rica and that more knowledge was needed on biodiversity", he said. Two years later, he coordinated the Planning Commission of the National Biodiversity Institute, which recommended the government to create a state biodiversity institute that would have a high degree of autonomy. However, the government was unable to implement the idea, reason for which Dr. Gamez and other members of the committee chose to make it happen themselves and created a private non-profit association. This way, the National Biodiversity Institute (INBio) was born, an institution to which Rodrigo Gámez has dedicated 15 years of his life as Director General and President. His tireless work towards learning, conserving and sustainably using the biodiversity of Costa Rica has earned INBio numerous awards, including the Sir Peter Scott Award for Conservation Merit by the International Union for Conservation of Nature (IUCN, 1992), the Song to All Creatures Award by the Franciscan Center for Environmental Studies in Italy, the Prince of Asturias Prize in Science and Technology (1995), and the Tech Museum Award in 2003. "Our real goal is to make the society come to the understanding that, because of being something that directly affects quality of life, materially, intellectually and spiritually, we must preserve at all costs the rich biodiversity of the country", he says in his book "On Biodiversity, People and Utopias" (1999). Dr. Rodrigo Gamez currently lives in San Francisco, Heredia, with his wife, Olga Marta Hernandez. They have four children: Rodrigo and Yamileth, Silvia and Luis Carlos, and four grandchildren: Joseph David, Valeria, Maria del Mar and Fiorella.

Scientific Work

The scientific task and work of Dr. Rodrigo Gamez have focused on three major themes: plant virology, biodiversity and institutional, scientific and academic development.

Plant virology. He was in charge of starting the development of this scientific discipline in Costa Rica. His research focused mainly on the study of genera, such as *Marafi virus*, *Potyvirus*, *Tobamovirus*, *Potexvirus*, *Polerovirus*, *Potexvirus*, *Comovirus*, *Sobemovirus*, *Phytoreovirus*, *Begomovirus* and *Bromovirus*, in basic food crops such as maize, beans, potatoes, tomatoes, rice and peppers. His work included various aspects of the study of plant viruses, including their identification, characterization, biological transmission, structure and biochemical composition, vector control and viral diseases, and the biology and ecology of the virus-insect-plant interactions. His research led to the discovery of several viruses and vector insects, as well as virus-vector biological relationships new to Science. The discovery, characterization and description of the characteristics and biological properties of the *rayado fino* maize virus, a small RNA virus capable of replicating in corn plants and in their insect vector, the leafhopper *Dalbulus maidis*, gave basis to the creation of a new family of viruses, *Marafi viridae*, and is one of his main scientific contributions. Nearly 100 scientific publications support the cited research. As a pioneer in the scientific discipline of plant virology, he was in charge of undertaking the development of a virus laboratory, furnished with the right equipment for the application of biochemical, serological, ultracentrifugation, cell culture, plant cultivation and electron microscopy techniques. This process took place initially at the School of Plant Science, Faculty of Agronomy, and then expanded and completed with the creation of CIBCM and the Electron Microscopy Unit at UCR. Dr. Rodrigo Gamez was Plant Virology Professor at the Faculty of Agronomy and the Post-Graduate Studies System of UCR for several decades, guiding numerous undergraduate and postgraduate students in research on various aspects of virology.

Biodiversity. His interest on the topic of biological diversity and its conservation developed during his student and researcher years, accentuating by his links as representative of UCR, the Organization for Tropical Studies (OTS), and with American scientists working in the country.

Between 1986 and 1990 he served as a consultant in Natural Resources and Biodiversity at the newly created MIRENEM (Ministry of Natural Resources, Energy and Mines), as mentioned above. In 1989, he undertook the development of INBio, as an information and knowledge generating entity on the country's biodiversity and protected areas.

To that end, and with a clear strategy of teamwork, he promoted a gradual institutional capacity building in disciplines such as taxonomy in areas like entomology, botany, mycology, malacology, nematology, as well as conservation biology, bioinformatics, chemistry, molecular biology, microbiology and other scientific disciplines related to biodiversity.

Social communication of biodiversity science, and in particular the role of education on biodiversity, have become topics of particular interest. Some 50 articles in journals, books and newspapers as well as a similar number of conferences, summarized the work of Dr. Gamez in biodiversity.

Organizational Development. Due to the clear need to promote institutional development that would enable conducting the required scientific research in the country, Dr. Gamez was in charge of personally leading –or participating along with other colleagues- the creation of the Laboratory of Viruses and the Plant Science School of the Faculty of Agronomy (UCR), the CATIE-UCR Post-Graduate Studies Program, the Vice Chancellorship of Research of UCR, CONICIT, the UCR Post-Graduate Studies Program, the Electronic Microscopy Unit (UCR), UNED, and INBio (Director General 1989-2004).

Acknowledgements

Because of his scientific work and institutional development, Dr. Rodrigo Gamez Lobo has received nearly 30 awards from scientific, professional and community organizations, both national and international, including:

Dr. Bernard Houssay Inter-American Science Prize. Organization of American States. For his basic research in maize and legume viruses, and for contributing to the scientific development of Costa Rica. 1983.

Banesto Recognition of Honor. Banesto Cultural Foundation of Spain. For his contribution to nature conservation, sustainable development and leadership in the conceptualization and implementation of INBio. 1992.

Distinguished Costa Rican Award. Costa Rican Institute of Hispanic Culture. For his outstanding work in science and conservation of natural resources. 1993.

Green Globe Award. The Rainforest Alliance. For his contributions to the knowledge and conservation of biodiversity. 1997.

Medal of Honor. Association of Space Explorers. For his extensive Trajectory and concern for biodiversity. 1997.

Professor Emeritus. University of Costa Rica. 2010.

Award for International Cooperation. Forest Service USA. For their significant efforts to conserve birds, bats and butterflies. 2011.

MAGON National Cultural Award. Ministry of Culture and Youth of Costa Rica. 2011.

Pax Natura Award. Pax Natura Foundation of America. 2012.

Thoughts of Dr. Rodrigo Gamez

"Paradoxically, at a time when science advances faster towards understanding the diversity of life, we face the problem of the greatest mass extinction of species known in Earth history, as a result of the way humans treat nature". *Diversity we have to care, El Financiero Newspaper, 7-7-03*

"The thinking of Baba Dioum, a Senegalese conservationist, makes sense. He said that 'in the end, we conserve only what we love, we love only what we understand and we understand only what we have been taught'. Then, maybe the tragedy of the loss of biodiversity we face today derives from the fact that humans, at least most of them, do not love nature because they do not understand it, because their meaning has not been taught to them".
We preserve what we love, La Vanguardia (Spain), *20-7-03*

"It seems that part of the challenge we now face is to look for development opportunities on the environment subject, rather than looking at environmental considerations as obstacles to such development. Starting with the case of our biodiversity, the question to ask ourselves is how we can use it while wisely conserving it".
Biodiversity and development, El Financiero Newspaper, 15-9-03

"It is essential that we are aware of our relationship and dependence on the natural world, and that we have a real

understanding of goods we get from plants and animals, and environmental services that ecosystems provide. Without those goods and services, no living being could survive".
Biodiversity Day, La Nacion Newspaper, 22-5-04

"Crises are opportunities to do things better."
Twentieth Anniversary Speech INBio, 10-29-2009

"We can turn on an axis nature of our culture, of our educational model, our endeavors," for our own sake, for that of humanity, and of all living beings with whom we share the planet"
Prize acceptance speech Magon, 17-05-2012