



UG Lecturer Dr. Dillon Husbands engages in pioneering research on Macrofungal Diversity in Guyana's Rainforest

...Hopes Research would shed light on the amazing fungal diversity within the Guyanese rainforest

University of Guyana's Lecturer, Dr. Dillon Husbands, who is presently attached to the Faculty of Agriculture and Forestry, is currently conducting research in the area of Macrofungal Diversity in Guyana's Rainforest and is hoping that her work will assist in the preservation and sustainability of the country's Rainforest Ecosystem.

As a child, Dr. Husbands was drafted into agriculture as her parents farmed crops and reared livestock to subsidize other income streams. Her Father was a building contractor, and her mother was a homemaker, and agricultural activities were a central part of their livelihood. According to Dr. Husbands, at a tender age, she developed a love for agriculture.

Though Dr. Husbands hails from a family of builders and farmers with limited academic qualifications, she is one of several first-generation scholars in her family to acquire tertiary education. She found the zeal to break the generational barriers, and after completing secondary school, enrolled at the Guyana School of Agriculture to further her studies.

Upon completing her studies at the GSA, she joined the Ministry of Agriculture Fisheries Department as a Fisheries Officer. Dissatisfied



Dr. Dillon Husbands



with the wages she was earning then, Dr. Husbands chose higher education as a means of economic and academic advancement.

In 1999, Dr. Husbands applied to the University of Guyana (UG) to read for a Bachelor of Science Degree in Agriculture. From her exposure at UG, she understood several fundamental facets of life. “My campus life experience taught me many important life skills, which I would probably not have acquired anywhere else.”

As an agricultural student, she also developed a fascination for forestry as many of her close friends were members of the forestry department. She was one of two agricultural students that would attend forestry field trips. The lessons learned, and the friendships gleaned are still invaluable.

After completing her studies at the University of Guyana, Dr. Husbands returned to her *alma mater* to serve as Research Centre Manager in 2005. At this point, she developed an innate desire and appreciation for agricultural research and development

Her work responsibilities as the Research Centre Manager included coordinating and managing staff and student research activities within the Faculty.

The Faculty of Agriculture and Forestry has always supported and encouraged staff training and academic advancement. As such, the then Dean, Dr. P.A. Francis, encouraged her to participate in research and training on mushroom cultivation. It was there that her interest in fungi developed.

Dr. Husbands subsequently completed a Post Graduate Diploma in Education and a MSc. in Forestry Biology at the University of Guyana, followed by a MSc. and Ph.D. in Botany and Plant Pathology from Purdue University. These higher degrees allowed her the opportunity to work alongside Dr. Terry Henkel from Humboldt State University and Professor M. Catherine Aime from Purdue University, who are both world-renowned mycologists and specialists in tropical mycology.

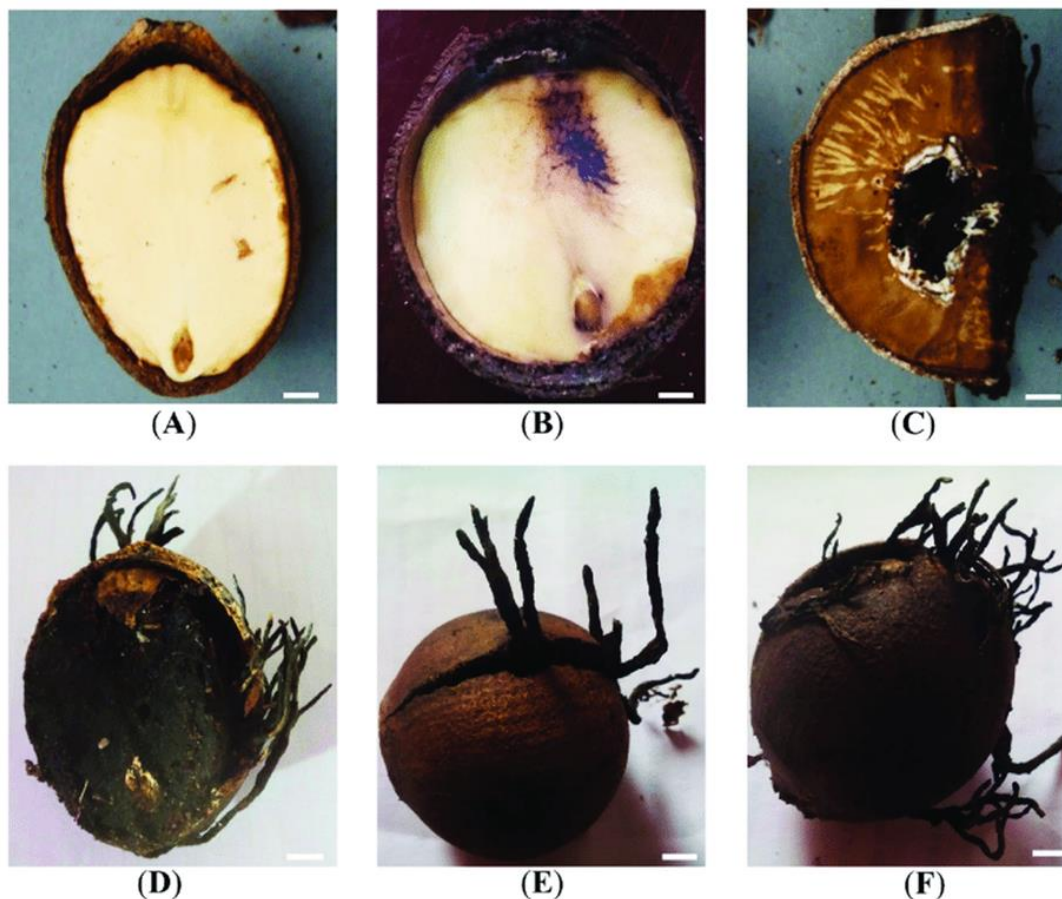
All of her research work centered on discovering and documenting macrofungi from the Guyanese rainforest with particular emphasis on members of the genera *Xerocomus* and *Xylaria*.



After seven and a half years of field expeditions and research, the team Dr. Husbands worked with collected and documented over eighty (80) species of fungi from the genus *Xylaria*, along with several new fruit and seed-inhabiting species. Central to Dr. Husbands work is the fungus *Xylaria karyophthora*, a putative pathogen associated with the mortality of dispersed greenheart seeds.

Dr. Husbands explained: “Until 1997, Greenheart was the largest contributor to gross and export revenue from timber sales. Today, it remains one of the most merchantable timber products as it is world-renowned for its exceptional qualities. Greenheart is durable, resistant to biodegradation under saline conditions, impervious to damage by termites and marine crustaceans, and resistant to fire. For these reasons, Greenheart wood is especially valuable in numerous maritime applications and a wide range of other uses such as the construction of housing, heavy furniture, turnery, and fishing rods.”

Additionally, Dr. Husbands noted that given the importance of Greenheart to the Guyanese economy, any threat to this species is also a threat to the Guyanese economy. Dr. Husbands’ work in this area is ongoing. Therefore, the activities of *X. karyophthora* presents a direct threat to germination and seedling recruitment for greenheart in Guyana. Work to further understand the biology and ecology of this fungus as well as measures to combat this new disease, is ongoing. Dr. Husbands, in her publications “Emerging Forest Diseases: A Case Study of Greenheart *Chlorocardium* spp Lauraceae and the Newly Described Fungus *Xylaria karyophthora*” published in 2018, and “[Xylaria karyophthora: a new seed-inhabiting fungus of Greenheart from Guyana](#)” published in 2020, highlighted her findings on the research.



Visual representation of a healthy greenheart seed (A) early stages of X. Karyophthora infection showing necrosis (B, C), the emergence of X. karyophthora fruiting bodies from greenheart seeds (D, E, F). Bar = 10 mm.

To partially assist with funding these expeditions, Dr. Husbands was awarded an International Tropical Timber Organisation (ITTO) Fellowship to further conduct research in the epidemiology and population structure of *Xylaria karyophthora*.



According to Dr. Husbands, the Fellowship was made possible through the contributions of the Governments of Japan, the United States of America, and the Netherlands. Further, Dr. Husbands was also awarded the Forest Carbon Partnership Facility (FCPF-REDD+) Project for financial assistance to support ongoing data collection for scientific research into the newly discovered killer fungus of greenheart seeds in Guyana.

Dr. Husbands credits her success to the tremendous support of her family and friends, too numerous to mention, the current and past Deans and staff of the Faculty of Agriculture, staff of the Guyana Forestry Commission, Mr. Joslyn Mckenzie (Ministry of Natural Resources), Mr. Clayton Hall (Former Advisor to the Minister of Natural Resources), support staff and colleagues at Purdue University and last but not least, M. Catherine Aime, to whom she owes a plethora of gratitude. According to Dr. Husbands, “it took a village” to ensure this level of success.

(Feature by Department of Events, Conferences and Communication, Office of the Vice-Chancellor, University of Guyana)

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UG IN BRIEF

The University of Guyana, now in its 60th year, was founded in October 1963. “UG” as it is fondly referred to offers 150 programmes plus in over 60 disciplines in online, face-to-face or blended formats. UG delivers in a Guyana-based system across eight campuses. It is the largest, oldest, most advanced and only state University in Guyana with a student population of over 10,000.

“UG” has provided education, training and research for over 50,000 alumni over its 60-year history. UG’s national and global impact and footprint are significant. Its graduates have risen to populate the commanding heights of national, regional and international organisations of repute in over 150 different disciplines. The mission of the University is to discover, generate, disseminate and apply knowledge of the highest standard for the



service of the community, the nation, and all mankind within an atmosphere of academic freedom, innovation and universal respect.

UG's forward-thinking Blueprint 2040 is currently setting the course for the University's future design and institutional response to the changing needs of Guyana, the region and the world. UG is currently celebrating its 60th anniversary and is stepping up its focus on becoming one of the leading and most sought-after educational institutions in the world for both staff and students.