DAVID WARD ROUBIK
-CURRICULUM VITAE-

Personal Data

Birth Date:	3 October 1951
Birth Place:	Schenectady, New York, USA
Marital Status:	married, four children
Present Position:	since 1979 —research entomologist, GS-15, Permanent Scientific Staff, STRI
Present Address:	Smithsonian Tropical Research Institute, APDO 0843-03092, Balboa, Ancón, Republic of Panama
e-mail:	roubikd@si.edu

Education

1965-69:	University High School, Minneapolis, Minnesota
1968-69:	University of Minnesota, Minneapolis; advanced Spanish
1969-71:	Macalester College, Saint Paul, Minnesota; Humanities
1972:	University of Washington, Seattle; Liberal Arts
1973-75:	Oregon State University, Corvallis; B.S. in Entomology
1975-79:	University of Kansas, Lawrence; Ph.D. in Entomology

Active Professional Memberships

Kansas Entomological Society
Association for Tropical Biology and Conservation

Language Competency

Spanish, Portuguese, French, English

Editing Responsibilities

Editorial Board: Psyche, Insect Conservation and Diversity, Annals of Botany

Committee Responsibilities

Assembly of Delegates, Organization for Tropical Studies, Smithsonian Representative (1996-present)
STRI Animal Care and Use Committee (IACUC) (2005-2010)

Education Responsibilities

Adjunct Professor, Chinese Academy of Sciences, XTBG (2006-2008); Adjunct Professor (McGill University (2003-2006); Scientific Board, Silvolab, Guyane [European Union] (2000-2003).

Academic Honors, Grants, Awards

1970:	Academic Achievement Award Macalester College ($100)
1975:	Honorable Mention, National Science Foundation Fellowship
1976:	National Science Foundation Doctoral Dissertation Grant ($1650):‘Competitive interactions between neotropical pollinators and Africanized honey bees in South America
1978:	Dissertation Travel Grant, University of Kansas ($680)

1979-83: Scholarly Studies Grants (2), Smithsonian Institution ($111,529): ‘Biology of invading Africanized honey bees in Panama: Ecological impact on pollinators and plants’

1980: Fluid Research Award, Smithsonian Institution ($1852): ‘Continuing study of native highly social bees and African honey bees in French Guiana and the Amazon’

1982: Fluid Research Award, Smithsonian Institution ($2,500): ‘Study of the bee fauna of Malagasy and Equatorial Africa (declined)

1983: Republic of Panama, Institute of Agrarian Research and USAID ($19,945): ‘Study of floral resource use by the honey bee in Panama’

1983: Walcott Botanical Endowment of Smithsonian Institution ($18,000): ‘Pollen and spores of Barro Colorado Island, Panama’

1983: Foreign Currency Program (PL-480), Smithsonian Institution ($6,000): Participation in the centenary symposium of the Bombay Natural History Society

1984: Walcott Botanical Endowment of Smithsonian Institution ($8,000): ‘The pollen diet of the African honey bee in Panama’

1984: Research Opportunities Award, Smithsonian Institution ($4,000): ‘Study of the bee fauna and plant-pollinator relationships of Madagascar’ (declined)

1985: Research Opportunities Award, Smithsonian Institution ($4,000): ‘Social behavior and diversity of stingless bees in Panama- with Dr. Marinus J. Sommeijer,University of Utrecht (May-July), and Professor J.M.F. Camargo, Universidade de São Paulo (August)

1986: Scholarly Studies Grant, Smithsonian Institution ($12,000): ‘Diet specialization in the highly eusocial bees’

1987: Directorate of International Activities, Smithsonian Institution: ($3,000): Collaborative study of native and Africanized honeybees and pollen flora at two Mexican Biosphere reserves and Panama

1987: Scholarly Studies Grant, Smithsonian Institution: ($56,000): ‘Bee biology in two Mexican Biosphere Reserves: Combined Basic Research and Monitoring of Africanized honey bee impact’ (with R. McGinley, USNM)

1989: Research Opportunities Fund, Smithsonian Institution ($2,500): Research on Africanized bees and native bees in French Guiana and Brazil

1990: Research Opportunities Fund, Smithsonian Institution ($2,500): Participation in the V International Congress of Ecology, Yokohama, Japan

1994: Research Opportunities Fund, Smithsonian Institution ($2,000): Research on pollination by African honeybees and native bees in French Guiana

1995: ‘Best Educational Natural History Film of the Year’ Award for the "Beeman" Film of Oxford Scientific Films-National Geographic (Awarded at the International Wildlife Film Festival, Tokyo)

1996: Mellon Foundation Grant ($48,000) ‘Palynology of a tropical cloud forest (Fortuna, Panama)’

1998: Research Opportunities Fund ($2,500) studies of feral honey bees in Australia

2000: Research Opportunities Fund ($2,000) studies of African honey bee impact in French Guiana

2006-08 Member, Chinese Academy of Sciences, Adjunct Professor (Xishuangbanna Tropical Botanical Garden- Yunnan);
Session Chairman: ‘Dissemination of scientific knowledge for biodiversity conservation” 50th Anniversary Symposium of XTBG

2008: IABIN ($15,000) databasing of the Roubik Neotropical bee collection

2009: SENACYT ($5000) illustrated guide and biology of 215 Neotropical bees

2009: SENACYT ($45,000) Automontage photomicrograph system for STRI

2010: Chinese Academy of Sciences, Key Laboratory of Tropical Forest Ecology grant: ‘Forest pollinator dynamics and ecology: social and solitary bees’ ($10,000/year, 3 years)

2010: BREAD proposal (Gates foundation and NSF) ‘Increasing Food Production and Income for Smallholder Farmers in East Africa through Innovations with Stingless Bee and Native Bee Management and Conservation’ ($1.7 million, not funded)

2016: WellcomeTrust (UK) pre-proposal submitted “Human Health and Pollinators under Climate Change” ($10.2 million, pending in April for full submission approval)

2016: Pontífica Universidad Católica del Ecuador (PUCE) “Biodosel” [canopy biology studies at Yasuní Scientific Station] ($10,440, within a 250K total, preliminary approval granted, pending full approval, May)

Taxa: It has come to my attention that *Trigonisca roubiki* and *Meliponula roubiki* have been published (Neotropical and African meliponines), *Euglossa roubiki*, along with the bee mite genus *Roubikia,* and mutillid wasps, *P. roubiki*, in the Neotropics…

Research and Professional Experience

1967-68: Insect systematics studies-supervised by Dr. K. C. Kim, University of Minnesota
1971: Insect ecology studies and collection, Associated Colleges of the Midwest program for tropical biology, San Jose, Costa Rica
1972: Insect distribution studies and collection, independent study, Macalaster College, Panama, Colombia, Venezuela, Peru, Ecuador
1972: Participant, International Biological Project, University of Washington
1973: Assistant to the Curator, Oregon State University Entomological Museum
1973: Feeding ecology of aquatic macroinvertebrates: laboratory and field studies prepared for Dr. N. H. Anderson, Oregon State University
1974-75: Field assistant to Dr. P. O. Ritcher, Oregon State University: Population dynamics of the alfalfa weevil and collection of scarabaeoid beetle larvae
1974-75: Population genetics and ecology of the flour beetle Tribolium castaneum : laboratory studies prepared for Dr. P. S. Dawson, Oregon State University
1975-76: Research Assistant, State Biological Survey of Kansas: Taxonomy and collection of aquatic beetles
1976-77: Research Assistant, University of Kansas: Population biology of the Africanized Honey bee in Brazil, Venezuela and French Guiana- Dr. O. R. Taylor, KU
1976: Apicultural consultant: Venezuelan Ministry of Agriculture, Caracas
1977-78: Teaching Assistant, University of Kansas, general and honors biology
1978: Studies of bee foraging behavior in Costa Rica
1979- Staff Entomologist, Smithsonian Tropical Research Institute, Balboa, Panama
1981: Visiting Scientist at INPA, Manaus, Brazil and continuing study of bees in French Guiana
1982: Visiting Scientist at Emiliano Goeldi Museum, Belem, Brazil, and the University of Maranhão, São Luis, Brazil, and continuing study of bees in French Guiana
1983: Visiting Scientist: Hokkaido University, Japan; Chiang Mai University, Thailand; Bombay Natural History Society, India; French Institute, Pondichery, India; Wau Ecology Institute, Papua New Guinea; Sumatra Nature Study, Padang, Sumatra
1983: Instructor: Organization for Tropical Studies field program, Costa Rica
1984: Instructor: Tropical Field Ecology Course, University of Panama and STRI
1984: visiting Scientist: Kyoto University, Japan
1985: Workshop on the bees of Mexico, Chamela Reserve, Mexico
1986: Workshop on the bees of Mexico, Sian Ka'an Biosphere Reserve, Mexico
1986: field studies: Amacayacu National Park, Amazonas, Colombia
1987: Field studies on the diet of a pan-neotropical stingless bee: Yucatan, Mexico
1985-87: visiting Staff Scientist: National Museum of Natural History, Washington
1988: Field studies on native bees, Africanized honey bees and pollination, Yucatan
1989: visiting Curator, Goeldi Museum, BelŽm, Brazil (Apoidea)
1989: field studies on competitive interactions of Africanized honey bees, French Guiana
1989: Instructor, Biology of Mexican bees workshop, Chamela Reserve, Jalisco
1989: Field studies on native bees and Africanized honey bees in Yucat‡n, Mexico
1989: Visiting Professor, Catholic University of Valpara’so, Chile
1990: Instructor, Biology of Mexican Bees workshop, Hermosillo, Mexico
1990: Visiting Professor, Andhra Pradesh University, Waltair, India
1990: Visiting Curator, National Museum of Brunei Darussalam, Brunei
1990: Field studies on Japanese honey bees, Kyoto, Japan
1990: Field studies on native bees in Brunei, Borneo

1990: Visiting Curator, American Museum of Natural History
1990: Visiting Curator, National University of Singapore, Entomology
1990: Visiting Curator, National Entomological Institute, Santiago, Chile
1990: Consultant, Regional Meliponiculture Project, Heredia, Costa Rica
1990: field studies on native bees and honey bees, Chile
1991: Instructor, advanced course in Hymenoptera, National Institute of Biodiversity, Costa Rica
1991: Visiting Curator, National Institute of Biodiversity, Costa Rica
1991: field studies on stingless bees, native bees and Africanized honey bees, Yucatan, Mexico
1991: Visiting Curator, Snow Entomological Museum, University of Kansas
1991: Visiting Curator, Catholic University of Ecuador, Quito, Entomology
1991: Visiting Curator, Brunei Museum
1991: Participant, Brunei Rainforest Project
1992: Instructor, advanced topics in plant systematics and ecology, Univ. Puerto Rico
1992: Visiting Curator, Catholic University of Ecuador, Quito, Entomology
1992-93 Visiting Scientist and Curator, Bee Biology and Systematics Laboratory, Utah State Univ.
1993: Field studies in Gabon, W. Africa
1993: Visiting Curator, Kenya Museums, Nairobi
1993: Field studies using canopy access system, Sarawak, Malaysia
1994: Visiting Curator, N. Kempff Mercado Museum of Natural History; National Institute of Studies on Flora and Fauna, Bolivia
1994: Field studies in Bolivia
1995: Field studies using canopy access system, Sarawak, Malaysia
1995: Field studies in Venezuelan Andes and Amazon
1995: Visiting Curator, Forest Sciences Institute, Univ. of the Andes, Merida, Venezuela
1995: Visiting Curator, University of Maracay, Agricultural Institute, Venezuela
1995: Field studies on pollination and bees, Makandé Research Station, Gabon (project on forest Biology with Univ. Rennes, France)
1996: Instructor, Organization for Tropical Studies, Costa Rica (in Spanish)
1996: Visiting Curator, University of Costa Rica, Entomological Museum, San Jose
1996: Field studies on pollination and bees, Makande Research Station, Gabon (project on forest biology with Univ. Rennes, France)
1996: Field studies on honey making bees and wasps in the Bolivian Andes
1997: Study of coffee pollination by forest reserves in western Panama
1997: Laboratory and field studies of palynology in the Fortuna cloud forest reserve, Panama
1997: Field studies on canopy foraging and bees, Lambir Hills Field Station, Sarawak
1997: Visiting professor, Kyoto University, Japan
1997: Visiting Curator, Brunei Museum
1997: Studies of *Bixa* pollination ecology, Costa Rica
1997: Studies of avocado pollinators: Mexico (Michoacan)
1998: Laboratory and field studies of palynology in the Fortuna cloud forest reserve, Panama
1998: Studies on avocado pollinators: Mexico (Veracruz)
1998: Studies on pollination of achiote *(Bixa orellana*): Costa Rica
1998: Studies on bees and pollination ecology in the Yasuní reserve, Ecuador
1998: Workshop on the conservation and sustainable use of pollinators in agriculture, with emphasis on Bees, São Paulo, Brazil
1998: Visiting curator, Pontifical University of Ecuador, Quito
1998: Studies on native bees and pollination ecology in the Yasuni reserve, Ecuador (November)
1998: Studies of *Bixa* pollination ecology, Costa Rica
1999: Participant, Gordon Conference on Floral Scents, Oxford University
1999: Laboratory and field studies of palynology in the Fortuna cloud forest reserve, Panama
1999: Studies on avocado pollination: California
1999: Studies on native bees in Java, Bali, Lombok, Indonesia
1999: Visiting Scientist, University of Bonn, Germany
1999: Workshop on ‘Declines in pollinators’ National Center for Ecological Analysis and

Synthesis, Santa Barbara
1999: Studies of *Bixa* pollination ecology, Costa Rica
1999: Consultant, Introduction of tropical stingless bees to Japanese Greenhouses for pollination, Tajima Foods, Japan
2000: Studies of pollen viability, pollination ecology, native bees and African bees in Darien (with A. Dafni, Univ. Haifa, S. Sakai, Kyoto Univ.)
2000: Visiting Curator, Embrapa, Belém, Brazil
2000: Visiting Curator, USNM.
2000: Participant, workshop on genetic conservation in managed Amazonian forests, Belem, Brazil
2000: Studies on native bees and African honey bees in French Guiana
2000: Preliminary studies on coffee pollination and habitat conservation, Costa Rica and W. Panama
2000: Studies on pollination ecology of *Bixa* in Costa Rica (CATIE)
2001: Studies on maximum coffee pollination potential by African and native bees in W. Panama
2001: Studies on euglossine species/individual community structure, Yasuni Reserve, Ecuador
2001: Studies on euglossine species/individual community structure, central Panama
2001: Studies on native bee, African honey bee pollination of *Hybanthus*, BCNM, Panama
2001: Visiting Curator, Noel Kempff Mercado Natural History Museum, Santa Cruz, Bolivia
2001: Consultant, native bees used by rural communities in Bolivia
2001: Studies on euglossine species/individual community structure, French Guiana
2002: Studies on population biology of trap-nesting solitary bees in the Sian Ka'An Biosphere Reserve, Yucatan Peninsula, Mexico
2002: Studies of native bees and meliponiculture in Bolivia (March and September; N. La Paz Province, Santa Cruz Province (Chaco) area, supported by Wildlife Conservation Society
2002: Visiting Curator, National Zoological Museum of Brazil, Rio de Janeiro
2002: Studies on euglossine species/individual community structure, French Guiana
2002: Studies on coffee pollination in Rattanakiri Province, Cambodia
2002: Native bee species richness in Cambodian forest preserves, supported by Wildlife Conservation Society
2003: Studies on native bees in French Guiana
2003: Studies on native honey-making bees and honey composition in Bolivia
2003: Visiting Curator, PUCE (Quito, Ecuador), USNM.
2003: Visiting Scientist, University of Bonn (Apicultural and Bee Biology Institute) Germany
2004: Studies of native bees in the Maya reserve "Montes Azules" in Chiapas, Mexico
2004: Studies on pollination and fruit production of rambutan in Chiapas, Mexico, using hived stingless bee colonies (with M. Rincon, Univ. of Chiapas)
2004: Studies of native bees and honey palynology of African honey bees in French Guiana
2004: Visiting curator, Goeldi Museum, Belem, Brazil
2004: Studies on euglossine bee population size in a cloud forest reserve, Cerro Campana, Panama
2004: Studies of nesting biology and populations of native bees in CTFS plot, Yasuni, Ecuador
2004: Studies of bee nesting biology and pollen use, and 20-year re-census of stingless bee nests in CTFS plot, BCI, Panama (with R. Harrison)
2004: Studies on stingless bee and honey bee nest abundance, and resource use in the CTFS southern Thailand Plot, Khao Chong, Thailand (with R. Harrison)
2004: Studies on stingless bee and honey bee nest abundance in Chiquitano forest, northeastern Bolivia
2005: Studies on native and introduced bee interactions with native flora in New Zealand
2005: field work in Quintana Roo, Yucatan, on impact of African honey bees on native solitary bees, and meliponiculture (with R. Villanueva, ECOSUR)
2005: Studies at CTFS Khao Chong, Thailand, Botanical garden and forest plot on population dynamics of stingless bees (with R. Harrison).
2005: CTFS-suported field work with R. Harrison on seed biomass production at BCI, Pasoh, and Lambir

2005: Studies of outcrossing pollination influence on seed mass, eastern Ghats, India (with P. Davidar).
2005: Instructor (entomology, bees, pollination) CTFS international field course, Khao Chong, Thailand
2005: Guest of Chinese Academy of Sciences at XTBG, Kunming and Jinghong, Yunan, China, on bee studies
2005: Studies on honey chemistry and antimicrobial properties, with Panamanian colleagues-STRI and Ciudad del Saber
2005: Studies on giant honey bee nesting mechanisms and site recognition experiments, and studies on nectar phenolics and bee foraging behavior; Jinghong, Yunnan, China (with F. Liu)
2005: Studies on coffee pollination III: Does outcrossing affect flavor? Chiriqui, Panama
2005: Studies on the acoustic properties of stingless bee nests, and on the communication of distance using sound playbacks, BCI, Panama (with J. Nieh and F. Contrera)
2005: Studies on the pollen diet and flexibility in pollen choice according to locale and genotype in *Melipona panamica*, Panama, with J. E. Moreno (STRI)
2005: A 20-year nest pollen record for the aggressive stingless bee, *Trigona corvina* (with J. E. Moreno, Panama)
2006: A nine year record of pollen use by solitary bees before and after African honey bee arrival and in severe hurricane years in the Yucatan peninsula (with R. Villanueva, Ecosur, Quintana Roo)
2006: Studies of Bolivian native bees used by indigenous groups and their year to year survival in 50-ha forest plots: Tucavaca, Yuqui, Pampa Grande, Bolivia (with E. Stierlin)
2006: Orchid bees as environmental studies subjects, pilot study and taxonomic guide, in central Suriname, Bakhuis concession (with B. De Djin, Suriname)
2006: The orchid bees of French Guiana, completion of a 30-year survey, with continuing observations of honey bee abundance and impact
2006: Co-evolutionary interactions between *Coryanthes* orchids and *Euglossa mixta* bees (with J. Knudsen, Sweden)
2006: Collaborative studies on giant honey bees, native bee-flower interrelationships, and chemical ecology of nectar feeding by bees (with F. Liu, Chinese Academy of Sciences, Yunnan)
2007: Visiting scientist, National University of Ecuador, Loja
2007: Field work on native bees at Las Cuevas Field Station, Belize
2007: International workshop in honey tasting and melissopalynology, Merida, Venezuela
2007: Center for Tropical forest Science, Animal-Plant Interaction Workshop, Panama
2007: Long-term Monitoring in Tropical forests Workshop, La Selva Field Station, Costa Rica
2007: Workshop on tropical honey evaluation, Merida, Venezuela
2008: Euglossines of the Guiana Shield: transect studies
2007-10: Coiba Island bee and orchid studies, compared to mainland conspecifics
2008-10: Web versions of Pollen and Spores of Barro Colorado Island; Euglossines of Central America and Mexico; Type *Euglossa* of the United States National Museum of Natural History, euglossines of the world (stri.org/photos), Discover Life (Orchid bees of French Guiana)
2008-10 Observations on colony biology and pollen use in nests of *Euglossa imperialis* and *Eulaema meriana* in a Panamanian rain forest
2009: Euglossines of Suriname: field studies
2010: IABIN: Neotropical bees, Roubik collection data (ca. 30,000 entries)
2010-11: Scale-hive and trap nest population studies of Mexican bees of the Sian ka'an biosphere reserve, Mexico
2010-11: Scale-hive and trap nest population studies of honey bees and native bees at Blandy Experimental Farm, Virginia
2011: Monitoring, pollen and biological studies of tropical Chinese bees: XTBG, Yunnan
2011: Field studies of island bees off the Caribbean and Pacific coasts of Panama
2012: Visiting curator, Utah State University-USDA melittological collection, Logan, Utah
2012: Floral specialization by a rainforest bee, *Duckenathidium*, in Panama

2012: Descriptions of new species of euglossine and meliponine bees from Central America and Ecuador (performed mainly at USU-USDA Bee Systematics and Biology Laboratory, Logan, Utah)
2012: A key to the females of *Euglossa* species (delayed)
2012: Scale-hive studies of *Melipona beecheii* in two Mexican forests
2013: Studies on the Caribbean island bee fauna: Jamaica, Roatán Island (Honduras)
2013: Site visits to Global Pollination Project case studies in Africa and Brazil (e.g. seed crops, apples, cashew)
2013: Visiting Curator: AMNH, USNM, Bee Collections of: Pretoria-South Africa, Utah- BBSL-ARS, KU-Lawrence, Kansas
2016: Visiting Curator: PUCE (Quito, Ecuador)
2016: Field studies of stingless bee and honey bee foraging behavior and competition (Sian Ka'An Biosphere Reserve, Quintano Roo, Mexico)
2016: Field studies of the bee biota and foraging behavior in Yasuní Biosphere Reserve,Ecuador —March, October

Radio, Television and Educational Films

1976: 'On the invading Africanized honey bees in Venezuela' radio and TV
1980: 'Arrival of the Africanized honey bee in Colombia' radio
1980: 'Impending arrival of the Africanized honey bee in Panama' radio
1981: 'Round-table discussion on the Africanized honey bee in Panama' TV
1982: 'On the biology of vulture bees discovered in Panama' National Public Radio, USA
1983: 'Bee research in Panama' TV magazine in Panama
1983: 'Questions and answers on the Africanized honey bee' TV, Panama
1984: Africanized honey bees in the Americas' TV- NBC First Camera, USA [Panama]
1984: 'Africanized honey bees in the Americas' TV- ABC Nightline, USA [Panama]
1984: 'Africanized honey bees in the Americas' TV- BBC Nature, England [Panama]
1984: 'Biology of honey-making wasps and flesh-eating bees' Oxford Scientific Films [Pan]
1985: 'Chemical communication in bees' Harcourt Films, England [Panama]
1985: 'Biology of tropical bees' Fuji Films (TV documentary) Japan [Panama]
1989: 'Trials of Life' with David Attenborough, BBC: stingless bees, animal architecture
1989: 'Tropical Insects' with Field Life Films (TV documentary) Japan [Panama]
1992: 'The African Honeybee In Panama' (TV documentary, Southern Command Network)
1993: 'Canopy' (TV documentary, Japan) [Panama]
1994: 'The African honey bee in the Americas' radio, La Paz, Bolivia
1994 'Bee Man' (Oxford Scientific Films for National Geographic Explorer) [Panama, Mexico]
1994: 'Panama Wild' (Special Documentary, National Geographic & OSF) [BCNM]
1994: 'Planet of Life' (TV documentary, NHK, Japan) [Panama]
1994: 'The Private Life of Plants'; Insects (TV documentaries, BBC, Bristol) [Panama]
1995: 'Social bees in the tropics' Fuji Films, (TV documentary, Japan) [Sarawak]
1996: 'The Africanized honey bee in the Americas' (the Learning Channel) [Brazil]
1996: 'The World of Clones' (TV Documentary, France) [BCI]
1998: 'Communication by stingless bees' (Scientific American Frontiers, with Alan Alda) [BCI]
2000: 'Pollinators in Peril' (TV Documentary with Peter Fonda, TBS) [Panama]
2001: ''Bugworld', Discovery Channel [Tucson, on Africanized honey bees]
2001: 'The hazard of bees and stinging insects, especially in Central Africa (BBC travel channel "Don't go there") [Costa Rica, La Selva Field station]
2002: 'Canopy research' (Daily Planet, Canadian Broadcasting Science Program) [Panama]
2002: 'Killer Jobs' (Animal Planet) [Panama]
2003: 'Operation Jungle' (BBC, Tania Dorrity, producer) [Panama]
2004: 'African honey bee honey' (BBC, Andrea's Challenge [childrens' program]) [Panama]
2005: 'Deep Jungle' National Geographic and PBS channels [Peru and Panama]
2006: 'Was Darwin Wrong?' National Geographic Channel (Naked Science)
2008: 'Wings of Life' Disney feature motion picture, premier 2011
2009: National Geographic: contributor to 1 video and two articles, all on bees and pollination

2010: 'Pollen and Bees' (Daily Science and Environment Radio Program, WALO, Puerto Rico (in Spanish)
2011: MIT 'Arcade' and Smithsonian Institution online game 'Vanished', Public Relations and Science, three 'youtube' videos
2012: "Ask a biologist" Arizona State University project, filmed on BCI- regarding bees, pollination. Africanized honeybees.
2013-15: 'Secrets of the Hive' Smithsonian TV, writing and acting, in Virginia and Panama
2014: 'Smithsonian's Bee Man Delivers Up Some Advice for Dealing with Colony Collapse Disorder' Smithsonian Magzaine
2016: 'Saving the Mayan honey bee' Ensia Magazine (twittered for STRI)
2016: 'Perils of Wild Vanilla Pollination" Scieneline (review done, article in preparation)

Invited Papers and International Symposia

1978: IV International Symposium on Pollination; Washington, D.C.
1980: International Symposium on Social Insects in the Tropics; Morelos, Mexico
1980: The Africanized honey bee in Colombia; Cali, Colombia
1981: IV Symposium on Agricultural Parasitology; Monterrey Institute of Technology, Mexico, keynote address
1982: Congress of the International Union for Study of Social Insects; Boulder, Colo.
1983: Central American Congress on the Africanized Honey Bee; San Pedro Sula, Honduras
1983: Regional Action Planning Committee for the control of Africanized honey bees in Central America and Mexico; San Jose, Costa Rica
1983: Centenary Symposium of the Bombay Natural History Society; Bombay, India
1984: Third National Biological Sciences Conference, University of PanamA
1984: Symposium on the future of Africanized honey bees in the Americas; Entomological Society of America national meetings, San Antonio, Texas
1984: Symposium on Pollination Efficiency on Native and Crop Plants; Entomological Society of America national meetings, San Antonio, Texas
1985: First National Symposium on the Africanized honey bee; Managua, Nicaragua, organized by CARE International
1985: First cooperative workshop on the Mexican bee fauna; Jalisco
1986: American Farm Bureau Symposium on the Africanized honey bee in the Americas; Atlanta
1986: Second cooperative workshop on the Mexican bee fauna; Quintana Roo, Mexico
1986: National Science Foundation Colloquium: 'Beekeeping and the Environment' Wash. DC
1986: Interciencia (American Academies of Sciences) Symposium on Introduced Species; Panama
1987: International Conference on Africanized honey bees and bee mites; Ohio State Univ.
1987: Griswold Entomology Lecture, Cornell University
1987: Departmental Seminars: University of Vermont, Rutgers University, Johns Hopkins Univ, University of Maryland, University of Miami
1988: American Association for the Advancement of Science: Ecology & Ecosystems; Biology and Impact of the Africanized Honeybee: Implications for the United States:'Learning to live with the Africanized honeybee: a tropical scanario'
1988: XVIII International Congress of Entomology; Symposium on chemical communication in sexual and social selection:'Evidence for reproductive competition among male stingless bees'
1989: INTECOL: First Latin American Ecology Congress, Montivideo, Uruguay 'Bee-cycling in tropical forests' (Ecology of Tropical Insects Symposium)
1990: IUSSI Meetings, XI International Congress, Bangalore, India (invited speaker in six Symposia, subjects: biogeography, Africanized honey bees, bee defenses, pollination and palynology, kin recognition, social insects in ecosystems)
1990: Andhra Pradesh University, Waltair, India (Social bees and pollination)
1990: INTECOL: V International Congress of Ecology, Yokohama, Japan (Symposium on Resource Distribution and Animal-Plant Interactions)

1990: XII National Entomology Congress, Valparaiso, Chile (keynote address,'Coevolution')

1991: Ecological Impact of Invading Honeybees, Loose Niches in Tropical Communities, Current studies on the Apidae (Entomology Seminars, University of Kansas)

1991: IGBP International Symposium, Kyoto, Japan (Diversity and Flexibility of Biotic Communities in Fluctuating Environments)

1992: International Workshop on Non-*Apis* bees and their role as crop pollinators (Utah State University, Logan, Utah) 'ENSO events and pollinator populations'

1993: International Symposium on Pollination in the Tropics (Indian Institute of Sciences, Bangalore, India) three papers: on the role of *Apis* in the neotropics; canopy foraging by bees in the neotropics and southeast Asia; Population dynamics of pollinators

1993: International Conference on Tropical Rainforest Research: Current Issues (University of Brunei);'Rapid assessment of bee diversity and foraging behavior in equatorial forests'

1994: International Union for the Study of Social Insects (IUSSI) X Congress, Paris (invited speaker and organizer, subjects: 'Robber bees as Army Ants','Evolution of Trigona Behavior','Communication Behavior in Melipona')

1994: International Symposium on Stingless Bees (University of Utrecht, the Netherlands)'The impact of African honey bees on Neotropical *Melipona'*

1995: Tropical Bees and the Environment (University of Malaysia),'Diversity in the real world: tropical forests as pollinator reserves'

1995: Conserving Europe's Bees (Linnean Society, London),'On long-term trends of bee populations and their interpretation'

1996: Second Symposium on Bees at Ribeirao Preto, Brazil (sponsored by the International Union for the Study of Social Insects, and the University of Sao Paulo) 'Order and Chaos in Tropical Bee Communities'

1996: Sixth International Symposium on Tropical Bees: Conservation and Management (Heredia, Costa Rica)' The de-flowering of Central America: A current perspective','Male bee dynamics in a lowland tropical forest', 'Pollen data on generalization and specialization by stingless bees'

1998: Reunion Anual de Investigadores de ECOSUR (Chiapas, Mexico) 'Biodiversidad de las abejas y sus implicaciones globales' Charla Magesterial

1998: International Workshop on the Conservation and Sustainable Use of Pollinators in Agriculture, with Emphasis on Bees, Sao Paulo, Brazil 'Feral African bee augment neotropical coffee yield'

1999: International Union for the Study of Social Insects (IUSSI) XI Congress, Adelaide, Australia, invited speaker and congress organizer, 'Behavioral ecology of stingless bees', 'ecological impacts of exotic honey bees'

1999: Causes and Extent of Declines Among Native Invertebrate Pollinators: Detection, Evidence and Consequences (National Center for Ecological Analysis and Synthesis, Santa Barbara, California) paper published: http://www.consecol.org/vol5/iss1/art2

1999: International Botanical Congress, St. Louis, Poster with F. Gattesco 'Anthophilous thrips in two Panamanian forests'

1999: Population Ecology Symposium (keynote address: 'Tropical Ecology from A to Bees', Japan Society for Population Ecology, Kyoto)

2000: Departmental Seminar, State University of New York at Stonybrook 'Global ecology of honey bees: a never-ending story?'

2000: International Symposium on modeling and experimental research on genetic processes in tropical and temperate forests (Kourou, French Guiana, Silvolab), session chairman and presenter of two talks 'Bee colonies and pollen dispersal' and, with B. Degen 'Genetic impact of animal pollination in tropical tree populations: simulation study with ECO-GENE'

2000: Washington Entomological Society, Smithsonian Institution, invited talk 'What we know about pollinator population dynamics"

2000: 'Ecological impact of African honey bees in the Americas', National Geographic Television, interview with Karen Gilmour, Washington, DC

2001: invited speaker and symposium organizer, IUSSI Japan, 2002; ATB Bangalore, 2001; Exotic Species Workshop, Costa Rica, 2001 (declined)

2001: invited keynote address and workshop, Brazil, Sao Luis Maranhao, 'Diversity and conservation of tropical bees' (October, 2001, declined)

2001: invited speaker, second Mexican seminar on stingless bees, Merida, Yucatan (November, 2001 declined)

2002: invited speaker, ECOSUR (Mexico, Chetumal, QR) 'African honey bees and coffee in the Neotropics' (March, 2002)

2002: Association for Tropical Biology, annual meeting, Panama, Republic of Panama: 'Tropical phylogeography and orchid bees (Euglossini)'; 'The honeybee curse? Neotropical studies of an invasive insect'; 'Long-term cycles in flowering, fruiting and pollinator populations in Central Panama'

2002: invited speaker in symposium entitled: New Frontiers in Biodiversity Science- From Microbes to Landscape; Center for Ecological Research, Kyoto University 'Pollinators, outcrossing and the bridge to biodiversity'

2003: Association for Tropical Biology and British Ecology Society annual meeting, Aberdeen, UK: 'A taste of honey: botanical and chemical properties of tropical honeys'

2003: invited speaker, pollinator conservation and diversity, University of Sao Paulo, October

2003: invited speaker, two talks- Biotechnology symposium, and III Mesoamerican Seminar on Stingless bees; Chiapas, November

2004: invited speaker, two talks- International Workshop on Solitary Bees and their role in pollination, Fortaleza, Ceará, Brazil: ' Long-term studies of solitary bees: what the orchid bees are telling us', 'Pollen sources of long-tongued solitary bees (Megachilidae) in the biosphere reserve of Quintana Roo, Mexico'

2005: cruse ship lecturer, Radisson Seven Seas, Los Angeles to Auckland: 5 talks on African honey bees, pollination, introduced species, honey, and orchid bees

2006: invited speaker, BCI seminar 'euglossines: guilding the orchid', and Princeton field biology course 'Pollination ecology and the rain forest', Panama

2006: invited speaker, two talks, XVI Congress of Brazilian Apiculture and II Brazilian Meliponiculture Congress; plenary lecture 'Resource competition between *Apis* and native bees in natural habitats', and 'Meliponiculture in Latin America

2006: invited speaker "What coffee and orchids have in common", Chinese Academy of Sciences, Yunnan

2007: invited speaker "Ecologia y taxonomia de abejas tropicales, en especial meliponinos" National University of Ecuador, Loja

2007: invited speaker, Departmental Seminar, Integrative Biology, University of Texas at Austin "Guilding the orchid; evolution and ecology of euglossine bees"

2008: invited speaker, UN "COP-9" international conference on biodiversity, Bonn, Germany "Little bees with a big job: holding up biome diversity"

2008: Association for Tropical Biology and Conservation, Paramaribo, Suriname, "Melittopalynology and the tropical biome: examples of habitat and bee ecology"

2008: National University of Colombia, Bogota, keynote speaker (LABUN) "Ecological impact on native bees by the invasive Africanized honey bee"

2009: Biodiversity Conservation: Research Imperatives for Scientific Institutions (Chinese Academy of Sciences, Xishuangbanna Tropical Botanical Gardens, Yunnan), session chairman 'Dissemination of scientific knowledge for biodiversity'

2009: Utah State University (bee biology and systematics laboratory): "Three neotropical forests and bee dynamics over 17 years: Does *Apis* matter?"

2009: Apimondia 2009 (Montpellier, France) "The win-win ecology of honey bee introductions"; "Temporal changes in morphometric variability of Africanized bees in Panama after 24 years of Africanization"

2009: 9th International Conference, North American Pollinator Protection Campaign (EPA, Arlington, VA).

2010: Brazilian Zoological Congress, Belem, keynote address and one additional talk "Honey bee ecology revisited: the long-term community behavior of populations", "The euglossine niche"

2010: BREAD (NSF and Gates Foundation) grant writing workshop II, Nairobi, Kenya

2010: 10th Ibero-Latinamerican Apicultural Congress, invited speaker “Meliponiculture in Latin America”, “The Africanized honey bee and its impact as a competitor with native bees”, Natal, RN, Brazil

2011: Chinese Academy of Sciences, Xishuangbanna Tropical Botanical Garden, seminar: ‘Competition among pollinators: a long-term study of the African honey bee in the New World’

2011: 10th International Pollination Symposium, Puebla, Mexico; oral presentation by R. Villanueva ‘Africanized honey bee impact on native bees in the biosphere reserve of Sian ka’an, Yucatan’

2011: Ecology Center, Utah State University, seminars: ‘What goes on in tropical nature, as far as bees and ecology are concerned’, ‘Orchid bees and Charlie D—an analysis of how science progresses’

2011: Life Sciences, Arizona State University, seminar: ‘Orchid bees and Charlie D—How science progresses’

2012: Association for Tropical Biology, Asia Chapter meeting, Yunnan, China: “The future of taxonomy”

2012: Fifth European Conference on Apidologie, Halle, Germany, plenary lecture, “The natural history of bee success”

2012: Departmental Biology lectures, “Orchid bees since Darwin” (Bochum University), “The impact of an invasive tropical pollinator, the Africanized honey bee, in the Neotropics” (University of Dusseldorf)

2012: First ApiEcoFlora Symposium, Republic of San Marino, “Seven ways to be a bee”

2013: INOMEP Ecology Symposium, Brasilia, “Are Pollinators Sustainable, and Who Cares?”

2014: First International Symposium on Orchid Bees, Costa Rica, keynote speaker “Giant orchid bee mating biology and 100 years of baiting studies with *Eufriesea*”

2014: Conference on Pollinator Conservation and Utilization, Sri Lanka, keynote speaker and symposium organizer “Searching for sustainable pollinators”

2014: First Brazilian Pollinator Symposium, São Paulo, keynote speaker “The brave new world and crop pollinators”

2015: Dwyer Annual Lecture, Missouri Botanical Garden and St. Louis University “Orchid bees and islands: a win-win for Darwinians”

2015: Visiting Curator, Smithsonian Institution, USNM (May and October)

2015: Field studies of Africanized honeybee and stingless bee foraging, Quintana Roo, Mexico

2016: Field studies of bees and curation at PUCE/Yasuní Scientific Station, Ecuador

2016: Field studies of orchid and meliponine bees at Piedras Blancas Field Station, Costa Rica

2016: Curation of bee collection, La Selva Field Station, Costa Rica

2016: Smithsonian Botany Symposium, USNM (June, 2016) “Whose bees are these? Pollen taxonomy and pollination ecology”

2016: Colegio de La Frontera Sur, Chetumal, Mexico, Annual Research Conference, Keynote Address: “Interacción plantas - polinizadores: los beneficios y el potentical para la humanidad”

Responsibilities

Staff entomologist; research coordinator, international collaborator in diverse entomological, pollination, palynological, ecological and bee biology studies in Panama and elsewhere. General entomology and ecology consultant to researchers at STRI, and elsewhere. Reviewer of grant applicants, scientific journal articles, and candidates for promotion in science in the United States, Latin America, Australia, Europe, etc. Charter member of the National Council for Control and Management of the Africanized honey bee in Panama. General adviser to journalists, film crews, and scientific visitors at STRI. Consultant (gratis) to regional native bee research and taxonomic support of inventory projects (Mexico, Colombia, Ecuador, Costa Rica, Brazil, Bolivia, Suriname, French Guiana, Africa). Continued field research on the long-term dynamics of bees in Panama, Mexico and South America, especially honey bees, euglossines and meliponines, and the general biology and

pollination ecology of tropical bees, in agro-ecosystems and protected natural habitats; technical advisor: Global Pollination Project (FAO, UNEP, GEF).

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5. 1979b. ___. Africanized honey bees, stingless bees and the structure of tropical plant-pollinator communities. pp 403-417 In: D. Caron, editor, Proceedings Vth International Symposium on Pollination. Maryland Agricultural Experimental Station Miscellaneous Publication No. 1 College Park, Maryland.
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