

## CURRICULUM VITAE

### **Roberto Barrera, Ph.D.**

**Current professional address:** Chief, Entomology and Ecology Activity, Dengue Branch, Centers for Disease Control and Prevention. 1324 Calle Cañada, San Juan, Puerto Rico 00920-3860

**Education:** *Biologist* (Ecology Department), School of Sciences, Central University of Venezuela 1978. (Thesis on urban mosquito ecology). *Ph.D. in Ecology*, School of Sciences, The Pennsylvania State University, USA 1988. (Thesis on factors structuring natural communities of mosquitoes and associated aquatic insects). *Postdoctoral*, Entomology and Nematology Department, University of Florida. 1994/95. (Research on the nature of interactions among container-inhabiting mosquito vectors determining species displacement and invasions).

**Other technical training:** *Training in Remote Sensing*, Center for Health Applications of Aerospace Related Technologies (CHAART), Ames Research Center, NASA, California 1997 - *Geographical Information Systems and Remote Sensing*, Training in Public Health Application of Geographic Information Systems (GIS), Centers for Disease Control and Prevention (CDC) / Division of Parasitic Diseases - Medical Entomology Research & Training Unit, Guatemala 1995 - *Geographical Information Systems and Remote Sensing*, University of Florida, Gainesville, Florida 1994

**Other training:** *Management of Scientific Research Centers*. San Jose, Costa Rica, UNESCO 1992 – *Negotiation strategies and techniques*. Central University of Venezuela, Caracas, Venezuela 1991 - *Strategic planning*, Latin American Institute of Social Sciences, Central University of Venezuela, Caracas, Venezuela 1990.

### **Awards:**

- Honor Award, Centers for Disease Control and Prevention (CDC), 2011
- Award of Excellence – Health Equity Award, Centers for Disease Control and Prevention (CDC), 2008.
- Nakano Citation Award, Centers for Disease Control and Prevention (CDC), 2007.
- Research Performance Award, Centers for Disease Control and Prevention (CDC). 2006.
- Commendation from the Secretary of the State of Puerto Rico for outstanding performance, 2003.
- Commendation as meritorious Professor, Central University of Venezuela, National Committee to Recognize the Merits of Faculty in the Public University System of Venezuela, the National Federation of University Professors, and the National Council of Universities, 1998.
- Postdoctoral Fellowship, National Council of Science and Technology, Venezuela 1994. Doctoral Scholarship, Scientific and Humanistic Development Council, Central University of Venezuela, 1983.

- Honor mention, Annual award, Biological Sciences, National Council of Science and Technology, Venezuela, 1984.

**Employment history:** Chief, Entomology and Ecology Activity, Dengue Branch, Centers for Disease Control and Prevention (CDC) 2003/present. *Professor, Associate Professor, Assistant Professor, Instructor*, Central University of Venezuela 1978/2002 - *Teaching Assistant*, Department of Biology, The Pennsylvania State University 1986/1987.

**Academic positions:**

- *Adjunct Professor*, School of Medicine, University of Puerto Rico 2009 – present.
- *Professor (retired)*, Central University of Venezuela 1978-2002.
- *Graduate Commission*, Graduate Schools in Ecology and Parasitology, Central University of Venezuela 1994/2002
- *Chairman*, Biology and Environment Committee, National Council of Science and Technology, Venezuela 1996/2000
- *Director*, Tropical Zoology Institute, Central University of Venezuela 1990/1993 - *other Faculty assignments*.

**Teaching/training experience:** *Under- and Graduate courses* in Ecology, Community Ecology, Vector Biology, Biostatistics. *Training* of professionals in Biology and Control of Insect Vectors, and Application of Geographical Information Systems and Remote Sensing to Vector-borne, Tropical Diseases.

**Research interests:** *Ecology of populations and communities, Vector ecology and control, Application of GIS and Remote sensing of the environment, Eco-epidemiology of vector-borne diseases.*

**Journal reviewer / editor:**

*Subject Editor* – Journal of Medical Entomology 2007- present.  
*Associated Editor* - PLoS Neglected Tropical Diseases – 2009 – present.

*Reviewer:* The Lancet, Emerging Infectious Diseases, American Journal of Tropical Medicine and Hygiene, Journal of Medical Entomology, Journal of Vector Ecology, PLoS Neglected Tropical Diseases, PLoS One, Journal of the American Mosquito Control Association, Acta Tropica, Tropical Medicine & International Health, Health Future Medicine, Caribbean Journal of Science, Biomedica, Interciencia, International Journal of Environmental Research and Public Health, Boletín de Malariología y Saneamiento Ambiental

**Consultant / training experience:**

- Dengue outbreak investigation / training in Mombasa, Kenya in collaboration with personnel from the Kenya Medical Research Institute (KEMRI), the Entomology Branch, Walter Reed Army Institute of Research (WRAIR), and the Ministry of Health. 2013.

- Caribbean Sub-regional Training Workshop: Introducing the new guidelines Preparedness and Response for Chikungunya Virus Introduction in the Americas in the context of Dengue. Pan American Health Organization. Kingston, Jamaica. 2012.
- Task Force. Gates Foundation, Carlos Sims Foundation, Spanish Cooperation Agency, IsGlobal, and PAHO: Mesoamerican Strategy for the Integrated Prevention and Control of Dengue. 2011.
- CDC Foundation / Tahija Foundation. Field trip to Yogyakarta to consult on the project Combating Dengue Fever in Yogyakarta. January 2011.
- Ministry of Health of Haiti / CDC. Post-earthquake recovery evaluation on site of the dengue and malaria control programs. 2010.
- Ministry of Health, Dominican Republic. Training of professional vector control personnel on Integrated (dengue and malaria) Vector Control. 2010.
- Gates Foundation, Carlos Sims Foundation, Spanish Cooperation Agency, and PAHO. Reviewed the proposal: Mesoamerican Strategy for the Integrated Prevention and Control of Dengue. 2010.
- Secretariat of Public Health, Cali, Colombia. Reviewed and made recommendations on the Contingency Plan for the Detection and Control of Dengue in Cali, Colombia.
- CDC Foundation / Tahija Foundation. Field trip to Yogyakarta to consult on the project Combating Dengue Fever in Yogyakarta. January 2010.
- *World Bank* (Evaluation of dengue and malaria research projects) Colombia 2009-11.
- TDR/WHO. Dengue control project's follow up trip to Thailand 2009.
- Scientific Advisory Committee, Tropical Disease Research Council, BL5, *World Health Organization* 2009 – present.
- *World Bank* (Evaluation of dengue control programs in Brazil 2008 – Review of Project Reports 2006 -2009)
- *OEPA/The Carter Center Inc.* (Onchocerciasis Elimination Program for the Americas), Workshop on the use of GIS to control Onchocerciasis in the Venezuelan Amazon. Development of a GIS for the control of human onchocerciasis 2001
- *EHP/USAID*, Integrating malaria surveillance data and GIS methodology to improve malaria prevention and control in Malawi, Africa 1999/2001. Feasibility of using Bti and other pesticides for dengue control in the Dominican Republic 1999
- *PAHO/OMS*, Data processing and analysis on the Biology of *Anopheles albimanus* and malaria in Central America (contract to Dr. C.E. Machado-Allison). Evaluation of the *Aedes aegypti* situation in Venezuela 1994. World Bank, Review and make recommendations to a large project on dengue and malaria control in South America.

**Organization of scientific meetings:** *President*, V Latin American Congress of Entomology, Margarita Island, Venezuela 1993. *President Scientific Committee*, II International Meeting for the control of *Aedes aegypti*: Why can't we control *Aedes aegypti*? Current status and future perspectives, Panama City, Panama 2013.

**Patents:**

- The CDC Passive Mosquito Adult Trap for the Surveillance and Control of *Aedes aegypti* adults (EIR I- 018-11) 2011
- The CDC Autocidal Gravid Ovitrap, a novel tool for the control and surveillance of *Aedes aegypti* (EIR I- 018-11) 2011

**Publications:**

1. Barrera R, Amador M, Acevedo V, Caban B, Felix G, Mackay AJ. 2014. Use of the CDC Autocidal Gravid Ovitrap to Control and Prevent Outbreaks of *Aedes aegypti* (Diptera: Culicidae). *Journal of Medical Entomology* 51: 145-154.
2. Mackay AJ, Barrera R, Amador M. 2013. An autocidal gravid ovitrap for the control and surveillance of *Aedes aegypti*. *Parasites and Vectors* 6:225  
<http://www.parasitesandvectors.com/content/6/1/225>.
3. Barrera R, Mackay AJ, Amador M. 2013. An improved trap to capture adult container-inhabiting mosquitoes. *Journal of the American Mosquito Control Association* 29: 358-368.
4. Barrera R, Mackay AJ, Amador M. 2013. A novel autocidal ovitrap for the surveillance and control of *Aedes aegypti*. *Journal of the American Mosquito Control Association* 29: 293-296.
5. Barrera R, Bingham AM, Hassan HK, Amador M, Mackay AJ, Unnasch TR. 2012. Vertebrate hosts of *Aedes aegypti* and *Aedes mediovittatus* (Diptera: Culicidae) in rural Puerto Rico. *Journal of Medical Entomology* 49: 917-921.
6. Cohnstaedt LW, Rochon K, Duehl AJ, Anderson JF, Barrera R, Su NY, Gerry AC, Obenauer PJ, Campbell JF, Lysyk TJ, Allan SA. 2012. Arthropod Surveillance Programs: Basic Components, Strategies, and Analysis. *Annals of the Entomological Society of America* 105: 135- 149.
7. Barrera R, Amador M, Mackay AJ. 2011. Population dynamics of *Aedes aegypti* and dengue as influenced by weather and human behavior in San Juan, Puerto Rico. *PLoS Neglected Tropical Diseases* 5(12): e1378. doi:10.1371/journal.pntd.0001378.
8. Barrera R. 2011. Spatial stability of adult *Aedes aegypti* populations. *American Journal of Tropical Medicine and Hygiene* 85(6): 1087–1092.
9. Somers G, Brown J, Barrera R, Powell J. 2011. Genetics and morphology of *Aedes aegypti* in septic tanks in Puerto Rico. *Journal of Medical Entomology* 48(6): 1095-1102.

10. Barrera R, Amador M, Young G, Komar N. 2011. Mosquito (Diptera: Culicidae) blood meal sources during a period of West Nile virus transmission in Puerto Rico. *Journal of Medical Entomology* 48: 701-704.
11. Little E, Barrera R, Seto KC, Diuk-Wasser M. 2011. Co-occurrence patterns of the dengue vector *Aedes aegypti* and *Aedes mediovitattus*, a dengue competent mosquito in Puerto Rico. *EcoHealth* DOI: 10.1007/s10393-011-0708-8.
12. Barrera R. 2010. Dengue and *Aedes aegypti* dynamics in Puerto Rico. *Revista Biomedica (Mexico)* 21: 179-195 [Spanish].
13. Burke R, Barrera R, Kluchinsky T, Lewis M and Claborn DM. 2010. Examination of a Miniaturized Funnel Trap for *Aedes aegypti* (Diptera: Culicidae) Larval Sampling. *Journal of Medical Entomology* 47: 1231-1234.
14. Barrera R, Mackay A, Amador M, Vasquez J, Smith J, Diaz A, Acevedo V, Caban B, Hunsperger EA, Munoz-Jordan JL. 2010. Mosquito vectors of West Nile virus during an epizootic outbreak in Puerto Rico. *Journal of Medical Entomology* 47: 1185-1195.
15. Burke R, BARRERA R, Lewis M, Kluchinsky T, Claborn D. 2010. Septic tanks as larval habitats for *Aedes aegypti* in Playa-Playita, Puerto Rico. *Medical and Veterinary Entomology* 24: 117-123.
16. Frank JH and BARRERA R. 2010. Natural history of *Belonochus* Nordmann spp. And allies (Coleoptera: Staphylinidae) in *Heliconia* L. (Zingiberales: Heliconiaceae) flower bracts. *Insecta Mundi* 0110:1-12.
17. Grillet ME, BARRERA R, Martínez JE, Berti J, Fortin MJ. 2010. Disentangling the effect of local and global spatial variation on a mosquito-borne infection in a neotropical heterogeneous environment. *American Journal of Tropical Medicine and Hygiene* 82: 194-201
18. Grillet ME, Martínez JE, BARRERA R. (2009). Hot spots of malaria transmission: Implications for effective, informed control in Venezuela. *Boletín de Malariología y Salud Ambiental* 49:7-22.
19. Mackay AJ, Amador M, Diaz A, Smith Josh and BARRERA R. (2009). Dynamics of *Aedes aegypti* and *Culex quinquefasciatus* (Diptera: Culicidae) in septic tanks in Southern Puerto Rico. *Journal of the American Mosquito Control Association* 25:409-416.
20. BARRERA R. 2009. Geospatial studies of the ecology and control of mosquito vectors and dengue transmission. In: *Approaches and current themes in entomology*. Arrivillaga

- J, El Souki M, Herrera B. eds., Editorial Astrodata, Caracas, Venezuela. (in Spanish)
21. Hunsperger EA, McElroy KL, Bessoff K, Colón C, BARRERA R, Muñoz-Jordán JL. 2009. West Nile Virus Presence in Human, Equine, Avian and Mosquito Species in Puerto Rico, 2007. *Emerging Infectious Diseases* 15:1298-1300.
  22. BARRERA R. 2009. Simplified *Aedes aegypti*'s pupal-surveys for entomological surveillance and dengue control. *American Journal of Tropical Medicine and Hygiene* 81: 100-107.
  23. Smith J, Amador M, BARRERA R. 2009. Seasonal and Habitat Effects on Dengue and West Nile Virus Vectors in San Juan, Puerto Rico. *Journal of the American Mosquito Control Association* 25: 38-46.
  24. BARRERA R, Amador M, Diaz A, Smith J, Munoz-Jordan JL, Rosario Y. 2008. Unusual productivity of *Aedes aegypti* in septic tanks and its implications for dengue control. *Medical and Veterinary Entomology* 22:62-69
  25. BARRERA R, Hunsperger E, Munoz-Jordán, Amador M, Diaz A, Smith J, Bessoff K, Beltran M, Vergne E, Verduin M, Sun W. 2008. First isolation of West Nile virus in the Caribbean. *Journal of Tropical Medicine and Hygiene* 78:666-669
  26. Farrar J, Focks D, Gubler D, Barrera R, Guzman MG, Simmons C, Kalayanarooj S, Lum L, McCall PJ, Lloyd L, Horstick O, Dayal-Drager R, Nathan MB, Kroeger A. 2007. WHO/TDR Dengue Scientific Working Group. Towards a global dengue research agenda. *Tropical Medicine and International Health*. Jun;12(6):695-9
  27. Navarro JC, Liria J, Piñango H, BARRERA R. 2007. Biogeographic area relationships in Venezuela: A Parsimony analysis of Culicidae–Phytotelmata distribution in National Parks. *Zootaxa* 1547:1-19.
  28. Cox J, Grillet ME, Ramos OM, Amador M, BARRERA R. 2007. Habitat segregation of dengue vectors along an urban environmental gradient. *American Journal of Tropical Medicine and Hygiene* 76: 820-826.
  29. Bosch I, Herrera F, Navarro JC, Lentino M, Dupuis A, Maffei J, Jones M, Fernández E, Pérez N, Pérez-Emán J, Guimarães AE, BARRERA R, Valero N, Ruiz J, Velásquez G, Martínez J, Comach G, Komar N, A Spielman, Kramer L. 2007. West Nile Virus, Venezuela. *Emerg Infect Dis*,; 13:651-3.
  30. Focks DA, Alexander N, Villegas E, BARRERA R, et al. 2006. Multicountry study of *Aedes aegypti* pupal productivity survey methodology: findings and recommendations. World Health Organization, Special Programme for Research and Training in Tropical

Diseases. TDR/IRM/Den/06.1.

[http://www.who.int/tdr/publications/publications/pdf/aedes\\_aegypti.pdf](http://www.who.int/tdr/publications/publications/pdf/aedes_aegypti.pdf)

31. BARRERA R., Amador M, and Clark GG. 2006. Sample-size requirements for developing targeted control strategies for dengue using the pupal / demographic survey. *Annals of Tropical Medicine and Parasitology* 100 Supplement 1: 33 - 43
32. Alexander N, Lenhart A, Romero-Vivas C, Barbazan P, Morrison A, BARRERA R, Arredondo-Jimenez I, and Focks D. 2006. Entropy for Sample Size Estimation for Identifying Subsets of Compositional Data, Applied to the Distribution of Dengue Vector Pupae between Container Types. *Annals of Tropical Medicine and Parasitology* 100 Supplement 1: 1 - 12
33. BARRERA R., Amador M, and Clark GG. 2006. Ecological factors influencing *Aedes aegypti* productivity in artificial containers in Salinas, Puerto Rico. *Journal of Medical Entomology* 43: 484 - 492
34. BARRERA R., Amador M, and Clark GG. 2006. Application of the *Aedes aegypti* (Diptera: Culicidae) pupal survey technique in Puerto Rico. *American Journal of Tropical Medicine and Hygiene* 74: 290-302
35. Alfonzo D, Grillet ME, Liria J, Navarro JC, Weaver SC, BARRERA R. 2005. Ecological Characterization of the Aquatic Habitats of Mosquitoes (Diptera: Culicidae) in Enzootic Foci of Venezuelan Equine Encephalitis Virus in Western Venezuela. *Journal of Medical Entomology* 42(3): 278-284.
36. BARRERA R, Amador M, Clark GG. Bleach as a larvicide. *Journal of the American Mosquito Control Association*. 2004. 20: 444 -448.
37. Torres J. R., Russell K., BARRERA R., Vasquez C., Watt D. Family Outbreak of Mayaro Fever in Venezuela. *Emerging Infectious Diseases*. 2004. 10: 1304 -1306
38. Arrivillaga, J. and BARRERA, R. Food as a limiting factor for *Aedes aegypti* in water-storage containers. *Journal of Vector Ecology*. 2004. 29: 11-20
39. Weaver S.C., Ferro C., BARRERA R., Boshell J., Navarro J.C. Venezuelan Equine Encephalitis. *Annual Review of Entomology*. 2004. 49: 141-174
40. Botto C, BARRERA R, Delgado L, Escalona M, Villamizar N, Coronel P, Grillet ME, Basanez MG, Simancas M, Vivas-Martinez S, Cortes J, Frontado H. Geographical patterns of Onchocerciasis in Southern Venezuela. In: Mas-Coma S. (Ed.). *Multidisciplinary for Parasites, vectors and Parasitic Diseases: Proceedings of the IX European Multicolloquium of Parasitology, Valencia, Spain*. Medimond S.r.l. 2: 447-451.

2004

41. BARRERA, R., Delgado, N., Jiménez, M. and Valero, S. Eco-epidemiological factors associated with Hyperendemic Dengue Haemorrhagic Fever in Maracay City, Venezuela. *Dengue Bulletin*. 2002. 26: 84-95
42. BARRERA R., Ferro C., Navarro JC, Freier J, Liria J, Salas R, Ahumada M, Vásquez C, González M, Boshell J and Weaver SC. Contrasting Sylvatic foci of Venezuelan Equine Encephalitis virus in northern South America. *American Journal of Tropical Medicine and Hygiene*. 2002. 67: 324-334
43. BARRERA, R., Torres, N., Freier, J.E., Navarro, J.C., García, C.Z., Salas, R., Vasquez, C., Weaver, S.C. Characterization of enzootic foci of Venezuelan Equine Encephalitis virus in Western Venezuela. *Vector Borne and Enzootic Diseases*. 2001. 1:219-230.
44. Liria, J., BARRERA, R., Navarro, J.C. New records of *Psorophora* Robineau-Desvoidy, 1827 (Diptera: Culicidae: Aedini) in Venezuela. *Entomotropica* 2001. 16: 197-198.
45. Méndez, W., Liria, J., Navarro, J.C., García, C.Z., Freier, J.E., Salas, R., Weaver, S.C., R. BARRERA. Spatial dispersion of adult mosquitoes (Diptera: Culicidae) in a sylvatic focus of Venezuelan Equine Encephalitis Virus. *Journal of Medical Entomology* 2001. 38: 813-821.
46. Moncayo, A.C., Medina, G., Kalvatchev, Z., Brault, A.C., BARRERA, R., Boshell, J., Ferro, C., Freier, J.E., Navarro, J.C., Salas, R., de Siger, J., Vasquez, C., Walder, R., S.C. Weaver. Genetic diversity and relationships among Venezuelan equine encephalitis virus field isolates from Colombia and Venezuela. *American Journal of Tropical Medicine and Hygiene*. 2001. 63: 738-746.
47. Salas, R.A., García, C.Z., Liria, J., BARRERA, R., Navarro, J.C., Medina, G., Vasquez, C., Fernández, Z., Weaver, S.C. Ecological studies of enzootic Venezuelan Equine Encephalitis in North-Central Venezuela. *American Journal of Tropical Medicine and Hygiene* 64(1): 84-92. 2001.
48. BARRERA, R., Delgado, N., Jiménez, M., Villalobos, I., Romero, I. Stratification of a Hyper Endemic Dengue Hemorrhagic Fever City. *Pan American Journal of Public Health* 8:225-233. 2000.
49. BARRERA, R., Grillet, M.E., Rangel, Y., Berti, J., Aché, A. Temporal and spatial patterns of malaria reinfection in northeastern Venezuela. *American Journal of Tropical Medicine and Hygiene* 61(5):784-790. 1999.
50. Wang, E. BARRERA, R., Boshell, J., Ferro, C., Freier, J., Navarro, J.C., Salas, R.,



Weaver, S.C. Genetic and phenotypic changes accompanying emergence of epizootic subtype IC VEE viruses from an enzootic subtype ID progenitor. *Journal of Virology* 73:4266-4271.1999.

51. BARRERA, R., Grillet, M.E., Rangel, Y., Berti, J., Aché, A. Eco-epidemiological Study of Malaria Re-infestation in Northeastern Venezuela with the Aid of Geographical Information Systems and Remote Sensing. *Bulletin of Malariology and Environmental Health* 38:14-30. 1998.
52. Rodríguez, J.P., Pearson, D.L., BARRERA, R. A test for the adequacy of bioindicator taxa: Are tiger beetles (Coleoptera: Cicindelidae) appropriate indicators for monitoring the degradation of tropical forests in Venezuela ? *Biological Conservation* 83: 69-76. 1998.
53. M.E. Grillet & R. BARRERA. Spatial and temporal abundance, substrate partitioning and species co-occurrence in a guild of Neotropical blackflies (Diptera: Simuliidae). *Hydrobiologia* 34:197-208. 1997.
54. BARRERA, R., Avila, J.L., Navarro, J.C. Population Dynamics of *Aedes aegypti* (L.) in Urban Centers with Water Supply Deficiency. *Acta Biológica Venezuéllica* 16(4):23-35. 1996.
55. BARRERA, R. Species concurrence and the structure of a community of aquatic insects of treeholes. *Journal of Vector Ecology* 21(1): 66-80. 1996.
56. BARRERA, R. Competition and resistance to starvation in larvae of container-inhabiting *Aedes* mosquitoes. *Ecological Entomology* 21: 117-127. 1996.
57. BARRERA, R.& Medialdea, V. Development time, and resistance to starvation, of mosquito larvae. *Journal of Natural History* 30: 447-458. 1996.
58. BARRERA, R., Navarro, J.C., Mora, J.D., Domínguez, D. and González, J. Public Service Deficiencies and *Aedes aegypti* in Venezuela. *Bulletin of the Pan American Health Organization* 29(3): 193-205. 1995.
59. Grillet, M.E., BARRERA, R., Conn, J. *Simulium metallicum* cytospecies E larval habitat characterization in the Altamira focus of onchocerciasis, northern Venezuela. *Medical and Veterinary Entomology*. 9:195-201. 1995.
60. Grillet, M.E., Botto, C., Basañez, M.G., BARRERA, R. Vector competence of *Simulium metallicum* s.l. (Diptera: Simuliidae) in two endemic areas of Human Oncocerciasis in Northern Venezuela. *Journal of Tropical Medicine and Hygiene*. 88: 65-75. 1994.

61. BARRERA, R. & S. Villalba. Mosquito Species Succession in Fallen Palm Spates in a Tropical Cloud Forest. *Acta Biológica Venezuéllica*. 15:25-37. 1994.
62. BARRERA, R., Avila, J., González-Télez, S. Unreliable supply of potable water and elevated *Aedes aegypti* indices: A causal relationship ? *Journal of the American Mosquito Control Association* 9: 189-195. 1993.
63. BARRERA, R., Avila, J., Valenzuela, G. Biting activity of *Aedes aegypti* and other Culicidae in Puerto Píritu and Clarines, Anzoátegui State. *Bulletin of Malariology and Environmental Health*. 32: 1-9. 1992.
64. BARRERA, R., Fish, D., Machado-Allison, C.E. Ecological patterns of aquatic insect communities in two *Heliamphora* pitcher-plant species of the Venezuelan Highlands. *Ecotropicos* 2: 31-44. 1989.
65. Machado-Allison, C.E., BARRERA, R., Delgado, L., Gomez-Cova, C., Navarro, J.C. Mosquitoes (Diptera: Culicidae) of Phytotelmata in Panaquire, Venezuela. *Acta Biológica Venezuéllica* 12: 1-12. 1988.
66. Machado-Allison, C.E., BARRERA, R., Frank, J.H., Delgado, L., Gomez-Cova, C. Mosquito communities in venezuelan phytotelmata. In: *Ecology of Mosquitoes. Proceedings of a Workshop*. Florida Medical Entomology Laboratory. Vero-Beach, Florida, USA pp. 79-94. 1985.
67. Machado-Allison, C.E., Rodriguez, D.J., BARRERA, R., Gomez-Cova, C. The insect community associated with inflorescences of *Heliconia caribaea* Lamarck in Venezuela. In: *Phytotelmata: Terrestrial Plants as hosts for aquatic insect communities*. Plexus Publishing Inc. pp. 247-270. 1983.
68. BARRERA, R., Machado-Allison, C.E., Bulla, L., Strong, D.R. Mosquitoes and mourning at Caracas Cemetery. *Antenna (London)*. 6:250-252. 1982.
69. Seifert, R.P. & BARRERA, R. Cohort studies on mosquito (Diptera: Culicidae) larvae living in the water-filled floral bracts of *Heliconia aurea* (Zingiberales: Musaceae). *Ecological Entomology* 6:191-197. 1981.
70. BARRERA, R., Machado-Allison, C.E., Bulla, L. Persistence of aquatic habitats, succession and population regulation in three urban Culicidae. *Acta Científica Venezolana* 32: 386-393. 1981.
71. BARRERA, R., Machado-Allison, C.E., Bulla, L. Aquatic habitats, larval density, and niche segregation in three urban Culicidae (*Culex fatigans* Wied., *Culex corniger* Theo. and *Aedes aegypti* L.). *Acta Científica Venezolana* 30: 418-424. 1979.

### Other publications:

- ❑ Preparedness and Response Plan for Chikungunya Virus Introduction in the Caribbean sub-region. Chikungunya Caribbean sub-regional meeting in Kingston, Jamaica 2012.
- ❑ Guidelines for Chikungunya virus introduction preparedness and response in the Americas. Pan American Health Organization/CDC. 2011.  
([http://new.paho.org/hq/index.php?option=com\\_content&task=view&id=3545&Itemid=2545&lang=es](http://new.paho.org/hq/index.php?option=com_content&task=view&id=3545&Itemid=2545&lang=es)).
- ❑ WHO Dengue Guide 3<sup>rd</sup> Edition. 2009. Collaborator.
- ❑ Report of the Scientific Working Group on Dengue. Geneva, 1-5 October 2006.  
[http://www.who.int/tdr/publications/publications/swg\\_dengue\\_2.htm](http://www.who.int/tdr/publications/publications/swg_dengue_2.htm)
- ❑ BARRERA, R. Dengue prevention and *Aedes aegypti* control. In: National plan for the prevention of dengue and control of *Aedes aegypti*. Ministry of Health and Social Development, Venezuela. Monography 1993.
- ❑ BARRERA, R. Vector studies in Venezuela. In: Reservoirs and Vectors of Metaxenic Diseases. Ed. J.V. Scorza. Research Center “Jose Witremundo Torrealba”. Universidad de los Andes. Talleres 1:53-63. 1992.
- ❑ BARRERA, R. Science and technology in the control of medically important insects. Boletín de la Sociedad Venezolana de Entomología 7: 87-182. 1992.
- ❑ BARRERA, R. Factors and interactions determining the insect community structure of treeholes. (Spanish) Monography. Universidad Central de Venezuela 1988.
- ❑ BARRERA, R. Ecology of the insect community associated with bracts of *Heliconia caribaea* Lamarck in Venezuela (Spanish). Monography. Universidad Central de Venezuela 1983.

### Invited Conferences / Meetings / Webinars:

- ◆ Spatial planning, release and monitoring programs. Meeting on Area-wide Control of Mosquitoes Using Novel Technologies. Foundation National Institutes of Health. Holiday Isle, St. Augustine Beach, Florida. December 2013.
- ◆ Vector ecology and dengue prevention. A Critical Assessment of Vector Control for Dengue Prevention. Partnership for Dengue Control (PDC). Washington, DC. November 2013.

- ◆ Advances in vector surveillance methods and their use in control programs. II International Meeting for the control of *Aedes aegypti*. Why can't we control *Aedes aegypti*? Current status and future perspectives. Panama. November 2013.
- ◆ How *Aedes aegypti* was eradicated from the Americas but it is now so difficult to control? II International Meeting for the control of *Aedes aegypti*. Why can't we control *Aedes aegypti*? Current status and future perspectives. Panama. November 2013.
- ◆ Climate variability and dengue in Puerto Rico. Caribbean Division for the American Association for the Advancement of Science (AAAS), San Juan, Puerto Rico. September 2013.
- ◆ Webinar. Surveillance and Control of *Aedes aegypti*. California Mosquito Control Districts. July 2013.
- ◆ Dengue Vector Surveillance Tools: the Good, the Bad, and the Ugly. Third Pan American Dengue Research Network. Cartagena, Colombia. September 2012.
- ◆ What is not working in dengue control? Workshop on the Prevention and integrated control of dengue in Mesoamerica. Panama City, Panama. February 2011.
- ◆ Geospatial studies on the ecology and control of mosquito vectors and dengue transmission. XXI Venezuelan Congress of Entomology. Caracas, Venezuela. July 2009
- ◆ Dengue control paradigms. Third Meeting of the Scientific Advisory Committee of the TDR BL5. Buenos Aires, Argentina. 30 March – 02 April 2009
- ◆ Challenges on dengue control in the 21st century. Universidad Interamericana de Puerto Rico. San Juan, Puerto Rico. December 2007
- ◆ 18<sup>th</sup> Latin American Congress of Parasitology. Margarita Island, Venezuela 2007. Barrera R. Is there a need to change dengue control paradigms? October 2007
- ◆ 18<sup>th</sup> Latin American Congress of Parasitology. Margarita Island, Venezuela 2007. Barrera R. A Geospatial perspective on dengue. October 2007
- ◆ Sigma-Xi Conference: Environmental determinants of dengue transmission in Puerto Rico. University of Puerto Rico, San Juan, Puerto Rico. May 2007
- ◆ Lectures on Medical Entomology. Graduate School. University of Puerto Rico. March 2007
- ◆ Training on Medical Entomology. Graduate School. Yale University. February 2007
- ◆ Chair of Vector Biology and Control. Scientific Working Group (SWG) on Dengue. World Health Organization / Tropical Disease Research Council (WHO/TDR). Geneva, Switzerland. October 2006.
- ◆ Host-parasite interaction and vector biology. Application of GIS and Remote Sensing to

vector-borne infectious diseases. International Course – American Society of Microbiology – Venezuelan Institute of Scientific Research (IVIC) – Caracas, Venezuela, 12-15 September, 2006.

- ◆ Defining the Challenges for *Aedes aegypti*-Borne Disease Prevention. Source reduction. Gates and Melinda Foundation – CDC. Ft. Collins, Colorado, May 2006.
- ◆ Geo-spatial analyses of vector-borne diseases. Graduate Seminar. School of Medicine. University of Puerto Rico. San Juan, Puerto Rico. October 2005.
- ◆ Workshop on Intersectional Focus for the Prevention and Control of Vector Transmitted Diseases. Buenos Aires, Argentina. September 3-9, 2005.
- ◆ Final Workshop on the Multi-country Validation Study of *Aedes aegypti* Pupal Productivity Survey Methodology. Universidad de los Andes, Bogotá, Colombia 16 – 18 February 2005
- ◆ Workshop on West Nile Virus. Puerto Rican Pest Control Association / Department of Health, Puerto Rico 2004.
- ◆ Environmental Management for Dengue Prevention. Meeting on Dengue Prevention. Ministry of Health. San José, Costa Rica 2004.
- ◆ Dengue in Central and South America. Symposium: The Great Endemic Diseases – Entomological Considerations. Entomological Society of America, 51<sup>st</sup> Annual Meeting. Cincinnati, USA 2003.
- ◆ West Nile Virus: Its presence in the Americas 1999 - 2003. XXXVIII Mexican Congress of Entomology. Ixtapa, México 2003.
- ◆ Dengue in the Americas. XXXVIII Mexican Congress of Entomology. Ixtapa, México 2003.
- ◆ Eco-epidemiology of Transmissible Diseases. Center for Research and Control of Tropical Diseases in the Amazon. Puerto Ayacucho, Venezuela 2002.
- ◆ Ecology of Emergent Vector-borne Diseases. Ecology Research Center. Venezuelan Institute of Scientific Research. Caracas, Venezuela 2001.
- ◆ Eco-epidemiology and Control of Dengue. Workshop: Current Status of Dengue in Venezuela. Venezuelan Society for the Advancement of Science. School of Medicine, Central University of Venezuela. Caracas, Venezuela 2001.
- ◆ Factors determining emergence of Venezuelan Equine Encephalitis Institute of Experimental

Biology, Central University of Venezuela. Caracas, Venezuela 1999.

- ◆ Factors influencing malaria transmission in Santa Fe, Sucre State. Foundation for the Advancement of Science and Technology, Sucre State, Venezuela 1999.
- ◆ Actual and potential enzootic foci of Venezuelan Equine Encephalitis in southwestern Venezuela. Centers for Epidemiology and Animal Health, USDA. Fort Collins, USA 1999.
- ◆ Vectors and Dengue in Venezuela. Workshop: Dengue ¿What to know and how to control it? Central University of Venezuela. Caracas, Venezuela 1999.
- ◆ Vector Control. Workshop on Dengue. Carabobo State University. San Carlos, Venezuela 1998.
- ◆ Vector Control. Workshop on Dengue. School of Medicine, Central University of Venezuela. Caracas, Venezuela 1998.
- ◆ Ecology and Control of Aedes aegypti. Workshop on Laboratory Techniques for the Diagnostic of Dengue. Institute of Biomedicine. Caracas, Venezuela 1997.
- ◆ Use of Remote Sensing in Studies of Vectors. Course/Workshop: The Biology and Control of Mosquitoes. Florida Medical Entomology Laboratory, Vero Beach, Florida USA 1997.
- ◆ Current Trends in the Urban Ecology of Aedes aegypti and implications for control. Pan American Health Organization (PAHO/WHO). Caracas, Venezuela 1997.
- ◆ Mosquitoes as Vectors. XIII Latin American Congress of Microbiology – VI Venezuelan Congress of Microbiology. Caracas, Venezuela 1996.
- ◆ Population Dynamics of Aedes aegypti: Implications for control. Symposium: Population Dynamics of Arthropods Vectors of Human Diseases. Pan American Health Organization / Florida Medical Entomology Laboratory - IFAS. VI Latin American Congress of Entomology. Mérida, México 1996.
- ◆ Competition between Aedes aegypti and Aedes albopictus. Department of Entomology and Nematology, University of Florida, Florida, USA 1994.
- ◆ Ecological succession in larval mosquito communities. XXVI Annual Conference of the Society of Vector Ecology. Gainesville, Florida, EEUU. 1994.
- ◆ Ecology of larvae and adults of mosquitoes. Workshop: The Biology and Control of Mosquitoes. Florida Medical Entomology Laboratory, Vero Beach, Florida, EEUU. 1994.

- ◆ Current Trends in Vector Ecology in Venezuela. Los Andes University. Trujillo City, Venezuela 1990
- ◆ Science and Technology in the Control of Vector-Borne Diseases. XII Venezuelan Congress of Entomology. Mérida, Venezuela. 1991
- ◆ Biology and Control of Dengue Vectors. II International Symposium on Dengue Prevention and Control of Aedes aegypti. Ministry of Health and Social Services. Maracay, Venezuela 1993.
- ◆ Current Situation Aedes aegypti Production in Venezuela. Venezuelan Society of Entomology, Chapter Aragua. Maracay City, Venezuela 1993.
- ◆ Ecological Strategies of Immature Mosquitoes. Department of Entomology. The University of Florida, Gainesville, USA 1993.
- ◆ Importance and Application of the Concept of Ecological Niche. Venezuelan Ministry of the Environment and Natural Resources. Caracas, Venezuela 1992.
- ◆ Ecology and Control of Dengue and Dengue Hemorrhagic Fever. Annual Lecture, Association of Professors - Researchers. Central University of Venezuela. Caracas, Venezuela 1990

#### **Presentations at Scientific meetings:**

- ◆ 62th Annual Meeting. American Society of Tropical Medicine and Hygiene. Washington DC. Roberto Barrera, Manuel Amador Veronica Acevedo, Gilberto Felix. 2012. Effective control of *Aedes aegypti* using CDC Autocidal Gravid Ovitrap.
- ◆ 79th Annual Meeting of the American Mosquito Control Association. Atlantic City, NJ. Roberto Barrera, Manuel Amador, Veronica Acevedo, Gilberto Felix, Belkis Caban, Andrew J. Mackay. 2013. Preventing outbreaks of *Aedes aegypti*.
- ◆ 79th Annual Meeting of the American Mosquito Control Association. Atlantic City, NJ. Roberto Barrera, Manuel Amador, Veronica Acevedo, Gilberto Felix, Belkis Caban, Andrew J. Mackay. 2013. The CDC Autocidal Gravid Ovitrap: a new surveillance tool for *Aedes aegypti*.
- ◆ 61th Annual Meeting. American Society of Tropical Medicine and Hygiene. Atlanta, GA. Roberto Barrera, Andrew J. Mackay, and Manuel Amador. 2012. Increased capture rates of

adult specimens of *Aedes aegypti*, *Aedes mediovittatus*, and *Culex quinquefasciatus* through modification of the BG-Sentinel trap.

- ◆ 78th Annual Meeting, American Mosquito Control Association. Austin, TX. Roberto Barrera. 2012. Advances in entomological surveillance and control of container-inhabiting mosquitoes.
- ◆ 78th Annual Meeting, American Mosquito Control Association. Austin, TX. Andrew J Mackay, Manuel Amador, Roberto Barrera. 2012. Development of a passive trap for the control and surveillance of *Aedes aegypti* in and around the home.
- ◆ 60th Annual Meeting. American Society of Tropical Medicine and Hygiene. Philadelphia, PA. Roberto Barrera, Andrew J Mackay, Manuel Amador. 2011. An improved autocidal gravid ovitrap (CDC-AGO) for the control and surveillance of *Aedes aegypti*.
- ◆ 60th Annual Meeting. American Society of Tropical Medicine and Hygiene. Philadelphia, PA. Andrea M. Bingham, Hassan K. Hassan, Manuel Amador, Thomas R. Unnasch, Roberto Barrera. 2011. Blood Feeding Patterns of *Aedes aegypti* and *Aedes mediovittatus* in Puerto Rico.
- ◆ 60th Annual Meeting. American Society of Tropical Medicine and Hygiene. Philadelphia, PA. Eliza Little, Roberto Barrera, Karen C. Seto, Maria Diuk-Wasser. 2011. Co-occurrence patterns of the dengue vector *Aedes aegypti* and *Aedes mediovittatus*, a potential native dengue vector in Puerto Rico.
- ◆ 60th Annual Meeting. American Society of Tropical Medicine and Hygiene. Philadelphia, PA. Edward Walker, Gabriel Hamer, Manuel Amador, Andrew McKay, Michael Kaufman, Roberto Barrera. 2011. Stable isotope analysis of *Aedes aegypti* and *Culex quinquefasciatus* reveals larval habitat sources of adult mosquitoes in Puerto Rico.
- ◆ A Re-Emerging Challenge in the Americas: Opportunities for Dengue Research Collaboration. National Institute of Allergies and Infectious Diseases (NIAID). San Juan, PR. 2011. Roberto Barrera, Manuel Amador, Belkis Caban, Veronica Acevedo, Gilberto Felix, Andrew MacKay. Population dynamics of *Aedes aegypti* and dengue as influenced by weather and human behavior in San Juan, Puerto Rico.
- ◆ A Re-Emerging Challenge in the Americas: Opportunities for Dengue Research Collaboration. National Institute of Allergies and Infectious Diseases (NIAID). San Juan, PR. 2011. Andrew Mackay, Manuel Amador, Belkis Caban, Gilberto Felix, Verónica Acevedo and Roberto Barrera. Novel Tools for Surveillance and Control of Dengue Vectors in Puerto Rico.



- ◆ 77th Annual Meeting, American Mosquito Control Association. Anaheim, CA. 2011. Roberto Barrera, Manuel Amador\*, Andrew Mackay, Belkis Cabán, Verónica Acevedo, Gilberto Félix. Co-occurrence of *Aedes aegypti* and *Aedes mediovittatus* in aquatic habitats in southeastern Puerto Rico.
- ◆ 77th Annual Meeting, American Mosquito Control Association. Anaheim, CA. 2011. Roberto Barrera. Why is vector control not controlling dengue?
- ◆ 77th Annual Meeting, American Mosquito Control Association. Anaheim, CA. 2011. Andrew J. MacKay, Gilberto Félix, Belkis Cabán, Verónica Acevedo, Manuel Amador, Roberto Barrera. Evaluation of chlorine bleach formulations as ovicides for the control of *Aedes aegypti*.
- ◆ 59<sup>th</sup> Annual Meeting. American Society of Tropical Medicine and Hygiene. Atlanta, GA, 2010. Roberto Barrera, Andrew Mackay, Manuel Amador, Belkis Caban, Verónica Acevedo, Gilberto Felix. Field trials of a new gravid-ovitrap for integrated area-wide control of *Aedes aegypti* in Puerto Rico.
- ◆ 58<sup>th</sup> Annual meeting of the Entomological Society of America. San Diego, CA. 2010. Roberto Barrera. Advances in *Aedes aegypti* surveillance. Symposium “Advancements in arthropod monitoring technology, techniques, and analysis”.
- ◆ 59<sup>th</sup> Annual Meeting. American Society of Tropical Medicine and Hygiene. Atlanta, GA, 2010. Roberto Barrera, Andrew Mackay, Manuel Amador, Belkis Caban, Verónica Acevedo, Gilberto Felix. Development of a gravid-ovitrap for collecting *Aedes aegypti*.
- ◆ 2009 National Conference. West Nile Virus “Ten years later”. Savannah, Georgia. 2009. Jorge L Munoz-Jordan, Kate McElroy, Kovi Bessoff, Roberto Barrera, Candimar Colon, Manuel Amador, Elizabeth Hunsperger. Endemic West Nile detected in human, bird, horse, and mosquito in Puerto Rico.
- ◆ 75th Annual Meeting, American Mosquito Control Association. New Orleans, LA. 2009. Roberto Barrera and Manuel Amador. *Aedes aegypti* dynamics in northern Puerto Rico.
- ◆ 2009 National Conference. West Nile Virus “Ten years later”. Savannah, Georgia. 2009. Roberto Barrera, Elizabeth Hunsperger, Jorge L Munoz-Jordan, Manuel Amador, Annette Diaz, Belkis Caban, Veronica Acevedo, Andrew MacKay, Nicholas Komar. Ecology of West Nile virus in Puerto Rico.
- ◆ 58<sup>th</sup> Annual Meeting. American Society of Tropical Medicine and Hygiene. Washington DC, 2009. Roberto Barrera, Manuel Amador, Belkis Caban, Annette Díaz, Verónica Acevedo, Gilberto Felix, Andrew MacKay. Spatial stability of *Aedes aegypti* populations.

- ◆ 74th Annual Meeting, American Mosquito Control Association. Reno, Nevada. 2008. Roberto Barrera, Mary Hayden, Manuel Amador, Annette Diaz, Joshua Smith. Dry season investigation of *Aedes aegypti* in a dengue endemic area.
- ◆ 74th Annual Meeting, American Mosquito Control Association. Reno, Nevada. 2008. Roberto Barrera, Manuel Amador, Annette Díaz, Joshua Smith, Elizabeth Hunsperger, Jorge L Munoz-Jordán, Kovi Bessoff, Manuela Beltrán, Edgrado Vergne, Mark Verduin, and Wellington Sun. First WNV isolations from mosquitoes in the Neotropics.
- ◆ 57<sup>th</sup> Annual Meeting. American Society of Tropical Medicine and Hygiene. New Orleans, Louisiana. 2008. Roberto Barrera. Simplified *Aedes aegypti*'s Pupal-surveys for Entomological Surveillance and Dengue Control.
- ◆ 57<sup>th</sup> Annual Meeting. American Society of Tropical Medicine and Hygiene. New Orleans, Louisiana. 2008. Andrew MacKay, Manuel Amador, Roberto Barrera. *Aedes aegypti* Production in Septic Tank Habitats in Southeastern Puerto Rico.
- ◆ 56<sup>th</sup> Annual Meeting. American Society of Tropical Medicine and Hygiene. Philadelphia, Pennsylvania 2007. BARRERA R, Hunsperger E, Muñoz-Jordán JL, Amador A, Diaz A, Smith J, Bessoff K, Beltran M, Vergne E, Verduin M, Sun W. Active Surveillance of West Nile virus in Puerto Rico
- ◆ 56<sup>th</sup> Annual Meeting. American Society of Tropical Medicine and Hygiene. Philadelphia, Pennsylvania 2007. Hunsperger E, Jordan-Munoz JL, BARRERA R, Bessoff K, Beltran M, Vergne E, Verduin M, Lambert A, Lanciotti R, Sun W. Detection and Isolation of West Nile Virus (WNV) in Puerto Rico in 2007
- ◆ 73rd Annual Meeting, American Mosquito Control Association. Orlando, Florida 2007. BARRERA R, Amador M, Diaz A, Smith J. Highly productive, cryptic aquatic habitats of *Aedes aegypti* in Puerto Rico.
- ◆ 73rd Annual Meeting, American Mosquito Control Association. Orlando, Florida 2007. Amador M, BARRERA R, Rosario Y, Diaz A, Smith J. *Aedes aegypti* adults produced in septic tanks are bigger.
- ◆ 73rd Annual Meeting, American Mosquito Control Association. Orlando, Florida 2007. Smith J, BARRERA R, Amador M. Comparing novel and standard mosquito collection and detection methods.
- ◆ 72<sup>nd</sup> Annual Meeting, American Mosquito Control Association. Detroit, Michigan 2006. BARRERA R., Smith J, Amador M., Biggerstaff BJ, Cox J, Clark GG. Predicting the distribution of dengue vectors in an urban area.

- ◆ 72<sup>nd</sup> Annual Meeting, American Mosquito Control Association. Detroit, Michigan 2006. Smith J, BARRERA R, Amador M., Biggerstaff BJ, Cox J, Clark GG. Distribution and abundance of potential West Nile virus vectors in San Juan, Puerto Rico.
- ◆ Annual Meeting of the Entomological Society of America. Ft. Lauderdale, Florida. 2005. **Barrera R.**, Amador M., Clark GG. Ecological factors influencing *Aedes aegypti* (Diptera: Culicidae) productivity in artificial containers in Salinas, Puerto Rico
- ◆ 2005 National Conference on West Nile Virus in the United States. San Jose, California 2005. Entomological Surveillance Following First Evidence of Local WNV Transmission in Puerto Rico.
- ◆ 71<sup>st</sup> Annual Meeting, American Mosquito Control Association. Vancouver, Canada 2005. BARRERA, R., Amador, M., Clark GG. Application of the *Aedes aegypti* Pupal Survey Technique in a Puerto Rican Town.
- ◆ 71<sup>st</sup> Annual Meeting, American Mosquito Control Association. Vancouver, Canada 2005. BARRERA, R., Amador, M., Clark GG. Sequential Sampling the *Aedes aegypti* Pupal Population.
- ◆ Annual Meeting Society for Vector Ecology, Reno, Nevada. 2005. Komar, N, M.E. Morales-Betoulle, D. Alvarez, R. BARRERA, S. Mattar. West Nile Virus in the American Tropics.
- ◆ XVII Congreso of the Latin American Federation of Parasitology. Mar del Plata, Argentina. 2005. Botto C., **Barrera R.**, Suarez L., Grillet M.E., Behm V., Delgado L., Escalona M., Simancas M., Villamizar N., Coronel P., Cortés J., Vivas S., Basañez M.G. Landscape Epidemiology and Onchocerciasis Transmission in the South Focus of Venezuela.
- ◆ 36th Annual Conference, Society of Vector Ecology. 2004. Cox. J., Grillet, ME, Fish, D., BARRERA, R. Direct Gradient Analysis of Mosquitoes in Metropolitan San Juan, Puerto Rico. Boston, Massachusetts.
- ◆ IX European Multicolloquium of Parasitology. 2005. C. Botto, R. BARRERA, L. Delgado, M. Escalona, M.E. Grillet, M.G. Basanez, M. Simancas, S. Vivas-Martinez, N. Villamizar, P. Coronel, J. Cortes, and H. Frontado. Geographical patterns of onchocerciasis in southern Venezuela. Valencia, Spain.
- ◆ 70<sup>th</sup> Annual Meeting, American Mosquito Control Association. 2004. BARRERA, R., Amador, M., Clark, GG. Household Control of *Aedes aegypti*: Bleach as a larvicide. Savannah, Georgia.
- ◆ 69<sup>th</sup> Annual Meeting, American Mosquito Control Association. 2003. BARRERA, R., Delgado, N., Jiménez, M. and Valero, S. Eco-epidemiological factors associated with hyper

endemic dengue hemorrhagic fever (DHF) in Maracay City, Venezuela.

- ◆ Third International Congress of Vector Ecology. Barcelona, Spain 2001. BARRERA, R., Delgado, N., Jiménez, M., Villalobos, I., Romero, I., Valero, S. Ecology of Aedes aegypti and hyperendemic dengue hemorrhagic fever.
- ◆ IV Venezuelan Congress of Ecology. Mérida, Venezuela 2001. Alfonzo, D., Grillet, ME., Navarro, JC., Liria, J., Weaver, SC., Salas, R., Freier, J. and BARRERA, R. Community Structure of Immature Mosquitoes in Forests and Open Areas in the Catatumbo River Basin Zulia State.
- ◆ 66<sup>th</sup>. Annual Meeting of the American Mosquito Control Association, Atlantic City, NJ, USA 2000. BARRERA, R., Delgado, N., Jiménez, M., Villalobos, I. and Romero, I. Dengue stratification of a hyper-endemic city using a Geographical Information System.
- ◆ XV International Congress of Tropical Medicine and Malaria, Cartagena, Colombia 2000. Salas, R.A., BARRERA, R., Boshell, J., Freier, J., Powers, A., Navarro, J.C., Ferro, C. and Weaver, S.C. Venezuelan Equine Encephalitis: Epidemic Re-emergence in Venezuela.
- ◆ XV International Congress of Tropical Medicine and Malaria, Cartagena, Colombia 2000. Weaver, S.C., BARRERA, R., Boshell, J., Bowen, R., Ferro, C., Freier, J., Navarro, J.C., Powers, A., Salas R.A., Vasquez, C. and Wang, E. Genetic Studies of Venezuelan Equine Encephalitis Emergence in South America.
- ◆ XV International Congress of Tropical Medicine and Malaria, Cartagena, Colombia 2000. Alfonzo, D., Grillet, M.E., Liria, J., Navarro, J.C., Torres, N., Freier, J., Salas, R.A., Weaver, S.C. and BARRERA, R. Linking Epizootic and Enzootic Cycles of Venezuelan Equine Encephalitis: The Preadult Mosquito Interphase.
- ◆ 65<sup>th</sup> Annual Meeting of the American Mosquito Control Association, St. Louis, Missouri, USA. 1999. BARRERA, R., S.C. Weaver, J.E. Freier, N. Torres and Salas, R. Actual and potential foci of enzootic Venezuelan Equine Encephalomyelitis (VEE) in southwestern Venezuela.
- ◆ XVI Venezuelan Congress of Entomology, Coro, Falcón State, Venezuela 1999. Delgado, N., BARRERA, R. and Jiménez, M. Urban Vector Ecology the Dengue Vector, Aedes aegypti L., in Metropolitan Maracay City, Aragua State, Venezuela.
- ◆ XVI Venezuelan Congress of Entomology, Coro, Falcón State, Venezuela 1999. BARRERA, R., Delgado, N. and Jiménez, M. A Geographical Information System to Investigate the Urban Ecology of Dengue and its Vector, Aedes aegypti L.
- ◆ XVI Venezuelan Congress of Entomology, Coro, Edo. Falcón, Venezuela 1999. BARRERA,

R., Weaver, S.C., Salas, R.A., Freier, J., Grillet, M.E., Navarro, J.C., Liria, J. and Torres, N. Mechanisms of Emergence of Venezuelan Equine Encephalitis.

- ◆ XVI Venezuelan Congress of Entomology, Coro, Edo. Falcón, Venezuela 1999. Liria, J., Navarro, J.C., Weaver, S.C., Salas, R.A., Freier, J. and BARRERA R. Daily Activity and Distribution of Mosquitoes (Diptera: Culicidae) in an Enzootic Focus of Venezuelan Equine Encephalitis in the Catatumbo River Basin, Zulia State.
- ◆ UNISPACE III. United Nations. Vienna, Austria. 1999. BARRERA, R. Seminar on Global Health. NASA's training and research applications on public health.
- ◆ Annual Meeting of the American Society of Tropical Medicine and Hygiene. Washington, USA 1999. Weaver, S.C., Bowen, R.A., Salas, R.A., BARRERA, R., Freier, J., Navarro, J.C., Kang, W. and Vásquez, C. Infection of horses with subtype IC VEE viruses from a 1992 Venezuelan outbreak and closely related ID strains.
- ◆ III International Meeting on Molecular Epidemiology and Evolutionary Genetics. Rio de Janeiro, Brazil. 1998. BARRERA, R., Advantages and limitations of using Geographical Information Systems (GIS) and Remote Sensing (RS) in studies of emerging, vector-borne diseases.
- ◆ 64<sup>th</sup> Annual Meeting of the American Mosquito Control Association, Sparks, Nevada, USA. 1998. Navarro, J.C., J. Liria and BARRERA, R., Mosquito-phytotelmata biogeography in Venezuela using parsimony analysis of endemicity.
- ◆ LXIII Annual Meeting of the American Mosquito Control Association. Salt Lake City, Utah. EEUU. 1997. BARRERA R. A geographical information system (GIS) to assess the risk of malaria transmission by *Anopheles aquasalis* in northern Venezuela.
- ◆ V Scientific Meeting "Dr. Arnoldo Gabaldón", School of Malariology and Environmental Health, Maracay, Venezuela 1997. BARRERA, R. Eco-epidemiology of Malaria Transmission in Santa Fe, Sucre State, through the Use of Remote Sensors and Geographical Information Systems.
- ◆ II International Congress of Vector Ecology. Orlando, Florida, USA. 1997. BARRERA, R., Using GIS in studies of Vector Invasions.
- ◆ VI Latin American Congress of Entomology. Mérida, México. 1996. BARRERA, R., Avila, J.L. and Navarro, J.C. Factors Determining the Distribution and Abundance *Aedes aegypti* (Diptera: Culicidae) in Water Storage Devices.
- ◆ XIV Venezuelan Congress of Entomology. Barquisimeto, Venezuela 1995. BARRERA R. Perspectives for the Invasion of *Aedes albopictus* (SKUSE) to Venezuela.

- ◆ XIV Venezuelan Congress of Entomology. Barquisimeto, Venezuela 1995. Navarro, J.C., and BARRERA R. Preliminary Characterization of the Mosquito Fauna (Diptera: Culicidae) in National Parks and Protected Areas.
  
- ◆ LXI Annual Meeting of the American Mosquito Control Association. Portland, Oregon, EEUU. 1995. Navarro, J.C., Ingunza, J., Fernandez, S. and BARRERA, R. Mosquito-bromeliad: selectivity species-specific patterns in the northern coast and southern Guayana Shield of Venezuela.
  
- ◆ LX Annual Meeting of the American Mosquito Control Association. San Diego, California, EEUU. 1994. BARRERA, R., Arrivillaga, J. and Navarro, J.C. Predation and food limitation in preadult Aedes aegypti in metal drums used for water storage in urban habitats.
  
- ◆ LX Annual Meeting of the American Mosquito Control Association. San Diego, California, EEUU. 1994. Grillet, M.E., BARRERA R., Conn, J. and Botto, C. A multidisciplinary study of Simulium metallicum (Diptera: Simuliidae) in northern Venezuela.
  
- ◆ XLIV Annual Meeting of the Venezuelan Association for the Advance of Science. Coro, Falcón, Venezuela 1994. Arrivillaga, J.C., BARRERA, R., and Navarro, J.C. Food Limitation and / or Intraspecific Competition as Determinants of the Phenotype of Aedes aegypti (Diptera: Culicidae) Growing in Metal Drums in an Urban Area.
  
- ◆ LIX Annual Meeting of the American Mosquito Control Association. Fort Myers, Florida, EEUU. 1993. BARRERA, R., Avila, J.L. and Navarro, J.C. Seasonal fluctuations in Aedes aegypti prevalence in two Venezuelan coastal towns.
  
- ◆ LIX Annual Meeting of the American Mosquito Control Association. Fort Myers, Florida, EEUU. 1993. BARRERA, R., Navarro, J.C., Mora, J.D., Dominguez, D., and Gonzalez, J. The impact of substandard piped water supply on Aedes aegypti density in Venezuela.
  
- ◆ V Latin American Congress of Entomology. Porlamar, Venezuela 1993. Grillet, M.E. and BARRERA, R. Spatial and Temporal Distribution of blackfly larvae in two mountain streams in northern Venezuela.
  
- ◆ IV Latin American Congress of Tropical Medicine. Guayaquil, Ecuador. 1993. Grillet, M.E., Botto, C., Basañez, M.G. and BARRERA, R. Vector Competence in Two Populations of Simulium metallicum in northern Venezuela.
  
- ◆ I International Congress of Vector Ecology. San Diego, California, USA. 1993. Grillet, M.E. and BARRERA R. Ecological characterization of Simulium metallicum (Diptera: Simuliidae), Principal vector of Onchocerciasis in northern Venezuela.

- ◆ XLIII Annual Meeting of the Venezuelan Association for the Advance of Science. Mérida 1993. BARRERA, R. and Navarro, J.C. Structure of the Aquatic Insect Community Associated with the Insectivorous Bromeliad Brocchinia hectioides.
- ◆ XLIII Annual Meeting of the Venezuelan Association for the Advance of Science. Mérida 1993. Arrivillaga, J. and BARRERA, R. Resistance to starvation as an Indicator of the Nutritional Reserves of Aedes aegypti (Diptera: Culicidae) larvae.
- ◆ XLIII Annual Meeting of the Venezuelan Association for the Advance of Science. Mérida 1993. Navarro, J.C., BARRERA, R. and Ingunza, J. Composition of Mosquito Species (Diptera: Culicidae) in Phytotelmata of a Cloud Forest in the Central Coastal Cordillera, Aragua State.
- ◆ XLIII Annual Meeting of the Venezuelan Association for the Advance of Science. Mérida 1993. Navarro, J.C., BARRERA, R., Liria, J., Méndez, W. and Piñango, H. The Insect Community Associated with the Plant Calathea lutea (Zingiberales, Marantaceae) in the Rancho Grande Cloud Forest, Aragua State.
- ◆ I Venezuelan Congress of Ecology. Caracas, Venezuela 1991. BARRERA, R. and V. Medialdea. Strategies of Immature Development in Immature Mosquitoes.
- ◆ XII Venezuelan Congress of Entomology. Mérida 1991. BARRERA, R. and J. Avila. Urban Ecology of Aedes aegypti I: Seasonal Fluctuations and Its Causes.
- ◆ XII Venezuelan Congress of Entomology. Mérida 1991. BARRERA, R., J. Avila and S. González-Téllez. Urban Ecology of Aedes aegypti II: Water Supply Deficiency and Its Impact on Mosquito Vector Levels.
- ◆ XII Venezuelan Congress of Entomology. Mérida 1991. Avila, J. and R. BARRERA. Daily Biting Activity of Aedes aegypti and other Culicidae in Puerto Píritu and Clarines, Anzoátegui State.
- ◆ XII Venezuelan Congress of Entomology. Mérida 1991. Grillet, M.E. and BARRERA, R. Ecology of Simulium metallicum, Main Vector of Onchocerciasis in Northern Venezuela.
- ◆ III Latin American Congress of Tropical Medicine. I Symposium on the Biology and Control of Vectors of Tropical Diseases. México City, México 1990. BARRERA, R., L. Delgado and C.E. Machado-Allison. Coexistence in Three Urban Mosquitoes.
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**Professional societies:** American Society of Tropical Medicine and Hygiene, Entomological Society of America, American Mosquito Control Association.

**Languages:** Spanish, English.

January 2014