

## Tributo a María Cristina Ferro (q.e.p.d.)

James Montoya Lerma\*

En julio del año pasado, en Medellín, en pleno congreso de Socolen fuimos tristemente sorprendidos por la noticia del fallecimiento temprano, totalmente inesperado de nuestra colega María Cristina Ferro (Figura 1). Un gran sentimiento de pena embargó a quienes tuvimos la fortuna de conocer de cerca a tan grata y excelsa científica. Hace poco su entrañable amigo, **Víctor Olano**, escribió una semblanza de la fructífera vida profesional de Cristina (Biomédica\_2015; 35: 44-5), dos *in memoriam* fueron escritos, el primero por **Ligia Lugo Vargas**, colega amiga quien compartió la última etapa de la vida laboral de Cristina, para el Curso Nacional de Entomólogos, Instituto Nacional de Salud, agosto de 2015 en Bogotá, y otro por el Dr. **B. Tesh** presentado en el congreso de la American Society of Tropical Medicine and Hygiene en Filadelfia en noviembre de 2015. Con el ánimo de sumar y rendir un homenaje póstumo que permitiera conocer a Cristina en otras facetas y otros detalles, algunos anecdóticos, pero no por ello menos importantes, decidí reunir comentarios de colegas que tuvimos la suerte de compartir con ella este tipo de vivencias.

Este tributo escapa un poco el formalismo de un obituario y busca ir más allá de expresar la gran tristeza de no haber dicho en vida lo que Cristina se merecía. Este espacio reúne los pensamientos de varios de sus amigos y colegas basados en experiencias de laboratorio, campo y en eventos de diversa índole. Agradezco a todos ellos el responder a este llamado... Lamentablemente, a pesar de los múltiples esfuerzos, no nos fue posible ubicar a **David G. Young**, figura cimera en la taxonomía de flebotomos en Colombia y con quien Cristina mantuvo una larga y productiva interacción. No obstante, estoy seguro que sus palabras serían de afecto y admiración para con ella. Él, en colaboración con el Dr. **Alberto Morales**, describieron una nueva especie de *Lutzomyia* del Norte de Santander (*L. ferroae*), en su honor.

Incapaz de garantizar una traducción pura, fidedigna y univalente, decidí dejar que las palabras fluyesen en el idioma original... Hice, desde ya presento excusas, pequeños ajustes de carácter editorial y espero haber respetado el espíritu con que cada cual las escribió.

**Robert (Bob) Tesh** (John S. Dunn Distinguished Chair in Biodefense Department of Pathology, Center for Biodefense and Emerging Infectious Diseases University of Texas Medical Branch): Cristina Ferro a dear friend and valued colleague. I worked with Cristina for about 8 years in Colombia, during the 1980's on field projects on sandfly-transmitted viruses and leishmaniasis. In addition to her work with arboviruses, Cristina was an expert on sandfly taxonomy and biology as well as the epidemiology of visceral leishmaniasis.

**Scott Weaver** (John Sealy Distinguished University Chair in Human Infections and Immunity, Director, Institute for Human Infections and Immunity Scientific Director,



**Figura 1.** Guajira proyecto: Evaluación de riesgo urbanización de los subtipos IC y ID agentes causales de encefalitis equina venezolana (Togaviridae: Alphavirus) en humanos.

Galveston National Laboratory Interim Chair, Department of Microbiology & Immunology, University of Texas Medical Branch): I had the pleasure of working with Cristina Ferro from 1996-2007 on ecological studies of enzootic Venezuelan equine encephalitis virus (VEEV) in the Magdalena Valley of Colombia. Cristina was a consummate field biologist and vector ecologist who had a major impact on our understanding of several vector-borne diseases. Although her prior interests were mainly in sand flies and leishmaniasis, Cristina adapted seamlessly to studying the *Culex (Melanoconion)* vectors of VEEV in the forests near Puerto Boyacá. The project involved difficult and hazardous work trapping mosquitoes, exposing sentinel hamsters in "coquito" enclosures pioneered by her VEEV predecessors **Hernando Groot** and **Carlos Sanmartín**, and trapping rodent reservoir hosts in the forest. Despite challenges ranging from the challenging group of mosquitoes to highly venomous snakes to paramilitaries shooting rifles into the forest, Cristina always collected the data needed and maintained a cheerful, "can-do" attitude in the

\* Profesor Asociado, Departamento de Biología, Universidad del Valle, Cali - Colombia. [james.montoya@correounivalle.edu.co](mailto:james.montoya@correounivalle.edu.co).

field. I recall many delightful days in the forest and evenings at run-down hotels when Cristina, **Jorge Boshell** and I would enjoy humor and stories of field adventures. Cristina was equally productive in her laboratory in Bogotá, becoming an international expert in the systematics and ecology of *Culex (Melanoconion)* mosquitoes and incriminating three species in enzootic VEEV transmission in the Magdalena Valley. These seminal discoveries contributed to our current understanding of epizootic VEE emergence from the subtype ID enzootic strains that circulate in Colombia. Furthermore, Cristina and her colleagues from the Instituto Nacional de Salud also documented the circulation of enzootic VEEV strain in periurban regions of Colombia, leading to the recognition that these viruses are a major source of human disease in Latin America. Her many contributions to our understanding of VEEV will undoubtedly continue to inform our understanding of this important virus for many years to come.

**Amy Morrison** (Project Scientist, University of California, Davis Department of Entomology and Nematology. Project Dengue-Iquitos, Peru): It is very difficult to capture my time working with Cristina in a few anecdotes, but I will always be grateful to her for letting me be a true research partner. When I arrived at INS my first summer in Colombia she had a look of concern slowly melted away when she found out I spoke Spanish and was “happy eating anything”. We spent that summer marking sand flies with fluorescent dust, and collecting them all night long, letting out a cheer and a high five every time to UV light indicated we had some recaptures. Later that summer, we shared a ride home after Colombia tied Germany to move out of the qualifying rounds in the World Cup, it was pure joy. We formed a friendship and scientific partnership that summer and spent many nights collecting sand flies in our favorite pigpen. Cristina made it possible for me just focus on our research and I’ve never enjoyed being in the field more. I joked with her on the few times we crossed paths after I had moved on to study dengue in Peru, that now I had her job dealing with all the silly problems you face, like the time the community thought we were stealing chickens to put in our Shannon traps or our technician had debts in town. I never understood all she did for me until now. I will miss her, but I remember all she taught me.

**Leonard Munstermann** (Senior Research Scientist, Yale School of Public Health and Head Curator of Entomology, Yale Peabody Museum of Natural History) writes: “I was asked to write something for Biomedica, but Cristina’s contributions went far beyond the experiences I had with her—and I guess I was just so sad to begin such a task.

As you know, she and I worked together for some 20 years, from the time I entered the phlebotomine world in 1992 until the NIH grant termination and my semi-retirement 2 yrs back. Our early days were tough, mostly because of the bureaucracy in both countries, but during that early period we developed a mutual respect and a collaborative working relationship that proved extremely productive. Cristina was first and foremost a skilled morphological taxonomist, and she spent many hours working with her students (and me) learning not only the traits associated with each phlebotomine sand fly species, but also how to prepare slide mounts such that these traits were optimally exposed. Her work was always meticulous to a fault, and with the advent of personal computing power, she

absorbed the newest methods and adapted them to her needs, as well as to the needs of the Instituto Nacional de Salud. The laboratory studies ranged from pragmatic to basic biology of these flies and included leishmanial infectivity, insecticide resistance and the bionomics of colony rearing.

More importantly perhaps was her knowledge of sand fly habitats and distributions of vector species in Colombia. We collected together in many localities in Cundinamarca (Anolaima to San Antonio del Tequendama), Boyaca, Huila and Tolima, Leticia, Valle del Cauca and Guajira. In addition, she was able to obtain many specimens from Vichada, Boyaca and Santander Depts as well as several difficult to access areas in Colombia (Figura 2). Hence, in addition to being an excellent guide to Colombian sand flies per se, she also was an expert on their ecological requirements and the distributions of several dozens of the most prominent species.

Finally, at a personal level she was the most honest of personages, as careful with financial matters as she was with scientific protocols. She was a warm-hearted person as she guided students through research projects for Master’s degrees and as she worked with technicians and colleagues at the institute. I was fortunate to be the recipient of that generosity, in that her house was open to me, and I was able to participate in the daily family routines as well as the festivities. My first thought now, whenever Colombia is mentioned, is that of her ancient red-tiled house in the center of Bogota—quiet, traditional and always welcoming.

Doctor, as you might imagine, each of these small vignettes has an entire story in itself, and I feel apologetic to the memory of Cristina Ferro for skimming the surfaces in this cursory manner. However, I hope you discern the thematic components of her life as I see them. And of course, this was written in a format for you to rewrite and weave into the story you wish to tell.

**Marco V. Herrero** (School of Veterinary Medicine, Universidad Nacional of Costa Rica) remembered that he met María Cristina in 1991 during an international research Project on phlebotomine sandflies (Computer Aided Identification of Phlebotomine Sandflies, CIPA group). She was an expert on biology and taxonomy of sandflies and he was a young researcher starting to learn about this topic. She helped him with the identification of sandflies from a



**Figura 2.** Cristina fue una incansable e imbatible investigadora aún en las más adversas condiciones de campo.

leishmaniasis endemic area in Costa Rica. I visited her on the Instituto Nacional de Salud for this reason. She was an excellent teacher and I learned a lot from her expertise on this field. We met once a year from 1991 to 1995 because of the project annual meeting and we shared our experience, feelings and thoughts. I admired her for her work as a professional scientist and I was aware of her academic production in entomology. I will always remember her as a friend and as a very successful female entomologist from Colombia.

“Que triste noticia !!!” fueron las palabras de **Elizabeth Ferreira Rangel** (Instituto Oswaldo Cruz, Brazil) al enterarse de la muerte de Cristina y, continúa: “Meu contato com Cristina foi durante as reuniões do GRUPO CIPA, Computer Aided Identification of Phlebotomine sandflies of the Americas do qual ela participou desde as primeiras reuniões. Sem dúvida, perdemos um profissional de valor que contribuiu de forma significativa para o conhecimento dos flebotomíneos.

Então, sempre estive simpática e bastante motivada em colaborar”.

**Clara Beatriz Ocampo** (Fundación Centro Internacional de Investigaciones Médicas, CIDEIM de Cali) recuerda a Cristina Ferro como la maestra que dejó una gran huella tanto a nivel profesional como personal. Con ella coordinó proyectos en leishmaniasis, en los cuales le recuerda como tutora y compañera de investigación. Sus conocimientos y experiencia le permitieron fortalecer los resultados de los estudios y publicarlos en revistas de alto impacto. La muerte cortó sus propósitos de seguir trabajando sin dar tiempo para prepararse para su ausencia. Resalta en ella la gran dedicación al estudio de las enfermedades transmitidas por vectores con énfasis en leishmaniasis y encefalitis, la cual estuvo acompañada de una alta prudencia y humildad en sus conocimientos, lo que permitió que todos le tuviéramos un gran respeto y que le echemos de menos...

En palabras de **Bruno L. Travi** (Associate Professor Department of Internal Medicine Division of Infectious Diseases. University of Texas Medical Branch) con ella se fue un pedazo de historia reciente de la entomología médica en Colombia. Se fue alguien en quien se podía confiar para conocer con precisión cualquier información sobre flebotomos en Colombia; siempre dispuesta a colaborar y a enseñar. Escaladora incansable en las montañas de Colombia, de casa en casa buscando vectores, estudiando sus hábitos y clasificándolos en la mente y en sus innumerables notas publicadas y sin publicar. En conjunto con **David Young**, no puedo pensar en nadie más que recientemente haya aportado tanto al conocimiento de flebotomos del país como Cristina. Todos dejamos de existir, pero algunos, como ella, dejan un rastro imborrable en los amigos que la recuerdan. Su excelente trabajo quedará para siempre vivo en los anales de la entomología colombiana.

**Elena Brochero** (Universidad Nacional de Colombia, sede Bogotá): Mi admiración para la mujer: hermana y madre de sus hermanos; investigadora y docente en su pasión de vida: la entomología; madre consagrada de sus hijos; abuela amorosa y dulce; compañera de trabajo caracterizada por su ética y responsabilidad; amiga silenciosa, de pocas palabras y enorme corazón. La historia no ha mostrado justicia con el aporte de las mujeres en la ciencia, pero Cristina fue siempre

una mujer íntegra que se evidencia en su legado personal y profesional.

**Camila González:** “En el comienzo de mi carrera, apenas terminado el pre-grado, recibí de Cristina la mejor oportunidad de mi vida, que marcó además, el resto de mi carrera profesional. Recuerdo que me llevó al INS para hablar con investigadores del área de Producción de Sueros y así explorar opciones de vinculación con ellos. Una vez reunidos, después de que yo les contara sobre mis intereses de investigación, les dijo: “piensen si quieren vincular a Camila, mientras tanto ella va a estar en Entomología trabajando conmigo”. Para mí fue una sorpresa, porque no habíamos hablado de esa posibilidad previamente y ella me dijo “a una persona con las ganas que tienes tú de trabajar y la claridad de lo que le gusta, no la puede uno dejar por ahí andando”. Desde ese día me vinculé al Laboratorio de Entomología del INS, conocí los insectos de importancia médica y comencé mi vida profesional, siempre guiada por Cristina, para convertirme en lo que soy hoy en día.

A lo largo de ese camino recorrido, Cristina pasó de ser una mentora a una amiga, con quien compartí confidencias y siempre estuvo dispuesta a escucharme. Personalmente, admiré de Cristina su prudencia y su generosidad, ya que siempre tuve las puertas de su casa abiertas para trabajar durante jornadas largas y enriquecedoras, acompañada de mi hijo, que siempre fue bienvenido y con quien siempre hubo un cariño especial y puedo decir que hasta alcahueta de parte de Cristina.

En el campo profesional, siempre admiré su pasión por el trabajo, su enorme auto-exigencia, su capacidad analítica, su disciplina, su precisión y la dedicación por hacer ciencia de la mejor calidad. Escribir artículos y proyectos de investigación con Cristina siempre fue un placer, porque se aprendía de una forma única y toda su producción científica tiene una calidad excepcional que demuestra ese empeño que le ponía a todo lo que hacía.

No tengo palabras para expresar el agradecimiento que siento con ella por todo lo que me dio y el vacío enorme que me dejó, pero espero seguir dejando su nombre en alto y continuar su legado de la forma en que ella hubiera querido.

**Bruce Alexander (rip)** wrote: I first met Cristina in April 1984, when **David Young, Bob Tesh, Laurel Walters** and I arrived in Bogota to begin our collaborative study on sand flies and leishmaniasis in Colombia. Cristina became my friend and mentor, from whom I was able to learn a great deal about the country where I was to spend so much of my career. When we met I knew very little Spanish, next to nothing about Colombia and not a lot more about sand flies - Cristina helped fill in the gaps on all three subjects. She helped me find accommodation, arranged for me to change money whenever I needed to (not such a straightforward undertaking in 1980s Colombia) and made sure my visits to Bogota were as pleasant and trouble-free as possible. She invited me to her home on several occasions, where I met her much-missed husband Fernando and her charmingly polite children **German** (“el Sabio Carras”) and **María Cristina**, now a medical entomologist herself. Cristina loved working in the field and during the 1980s we made many trips together, including a memorable one to Leticia in which she had to make daily visits to the Health Centre, having recently contracted leishmaniasis herself (Fig. 3). She helped me settle in to my first field site



Figura 3. En uno de sus periplos por el río Amazonas.

in Arboledas, Norte de Santander where we collected the first specimens of the sand fly species that bears her name in the poetically titled Vereda de Poteros. We spent many evenings with co-workers in forests and coffee plantations throughout Colombia, using ourselves as “human bait” for sand flies (does anyone still do this?) or hanging traps of various types. Sitting in a moonlit forest waiting for sand flies to arrive, while listening to the cries of oilbirds, tinamous and other night-flying birds (with the occasional swig of aguardiente to keep the spirits up) made a welcome change for Cristina from lab work in Bogota and administrative duties at INAS. *Lutzomyia ferroae* remains as a memorial to her contribution to Colombian entomology and the study of phlebotomine sand flies. As my oldest Colombian friend, Cristina was one of the few “family” members at my wedding in Bogota. Over the next few years we met occasionally in a variety of locations all over the world, most recently in Medellin before her illness. I was saddened to hear of her death, as a friend and colleague of 21 years. I offer my condolences to her two children and wish Maria Cristina every success in continuing the work her mother loved so much.

Para cerrar, James, encargado de esta edición, recuerda, vívidamente, la habilidad de Cristina para identificar a los

flebótomos. Esta cualidad fue única. Parecía que tenía un pacto con el genio de la taxonomía. Era capaz de darles su nombre y apellido al vuelo... En cierta ocasión, durante una visita a Dagua (Colombia) durante un brote de leishmaniasis cutánea **Bruce Alexander, Elizabeth Rangel, Bruno Travi** y mi persona tuvimos la fortuna de contar con la presencia de Cristina. Recuerdo que capturamos unas *Lutzomyia* y ella mirándolas a través del tubo del aspirador bucal y a la luz de la linterna se atrevió a adelantar un poco de la identidad de las colectas... Al día siguiente, muy temprano, motivado por la duda metódica, revisé el material y comprobé que ella estaba en lo cierto... Sabemos que las personas perviven en la manera que son recordadas en las mentes de quienes las estiman y quieren... las enseñanzas y los momentos compartidos con Cristina son el mayor legado que nos deja...es una especie de escuela que perdurará en el tiempo y por el cual le tributaremos gratitud.

**Agradecimiento:** a cada uno de los que colaboraron con su escrito y en especial a sus hijos, María Cristina y Germán Carrasquilla Ferro, por todo el apoyo recibido para elaborar este tributo.