

Kirsten M. Silvius

kmsilvius@gmail.com

San Francisco, CA

Mobile: (650) 224-2312

EDUCATION

- Ph.D.** 1999. Zoology Department, University of Florida, Gainesville, FL,
MSc. 1992. Zoology Department, University of Florida, Gainesville, FL
B.A. 1987. Biology and Romance Languages. Bowdoin College, Brunswick, ME

PROFESSIONAL EXPERIENCE

Virginia Tech University

03/2015 – present

Senior Research Associate, Department of Forest Resources and Environmental Conservation

- Strategic planning for protected area-based sustainable economic activities

Gordon and Betty Moore Foundation (GBMF), Palo Alto, CA 01/2007 -- 01/2015

Consultant, GBMF Environmental Conservation Program (2014-2015)

- Support Brazilian governmental and non-governmental institutions in the design, implementation and dissemination of environmental monitoring programs
- Evaluate grant impact and contribution to strategy

Program Officer, GBMF Andes-Amazon Initiative (2007-2014)

- Designed the Initiative's 2011-2016 protected area strategy, targeting improvement in monitoring, adaptive management and sustainable finance of protected area systems and indigenous lands.
- Led implementation of the protected area strategy in Brazil from 2010-2014, developing projects in support of the Ministry of Environment, the federal protected area agency (ICMbio), the National Institute in charge of Indigenous Affairs (FUNAI), the National Biodiversity Fund (Funbio), state protected area agencies in Pará and Amazonas states, and their national and international civil society partner organizations.
- Negotiated technical components of GBMFs \$15 million contribution to a \$250 million fund in support of the Amazon Region Protected Area Program (ARPA), securing the incorporation of participatory biodiversity monitoring into the new ARPA operating system, in alignment with other Brazilian government initiatives
- Co-developed, negotiated, and/or managed portfolios of grants valued at circa \$10M per year in support of the Initiative's capacity building, REDD+, and sustainable forestry strategies, in partnership with national, international, and regional NGOs and with academic institutions

University of Hawai'i at Manoa, Honolulu, HI

2004- 2006

Assistant Specialist, Environmental Center

- Co-PI on \$1.65 M National Science Foundation Coupled Human Natural Systems multi-investigator interdisciplinary grant
- Developed Watershed-Based Restoration Plan for Hilo Bay, Big Island with multi-stakeholder Hilo Bay Watershed Advisory Group
- Advised graduate students working with biodiversity conservation and invasive species management
- Reviewed and assessed environmental impact statements for infrastructure development and invasive species abatement projects for Hawai'i legislature

- Ad hoc member, Department of Land and Natural Resources Endangered Species Recovery Committee

State University of New York, Syracuse, NY **2001- 2004**

Adjunct Professor, Faculty of Environmental and Forest Biology

- Designed and taught field ecology courses in the Adirondacks and Brazil
- Authored and published peer-reviewed papers on plant-animal interactions and forest structure, presented papers at professional scientific meetings, edited Columbia University Press volume on Latin American Wildlife Conservation

Florida Atlantic University, Boca Raton, FL **1999 – 2001**

Research Professor, Department of Biological Sciences

- Taught large section undergraduate ecology and biology classes
- Advised graduate students, mentored undergraduate students

LANGUAGES

- Oral and written fluency in English, Spanish, and Brazilian Portuguese; basic oral and written French

PROFESSIONAL SERVICE

Current

- Founding member, Participatory Monitoring and Management Partnership

- Member, Finance Committee, Association for Tropical Biology and Conservation
- Interim Secretary and Council Member, Latin American Wildlife Management and Conservation Community

Past

- Advising editor : Electronic journal Manejo de Fauna Silvestre en Latinoamerica.
- Manuscript reviews for: Biotropica, Journal of Tropical Ecology, Caribbean Journal of Science, Journal of Ecology, Forest Ecology and Management, Acta Oecologica, Proceedings of the National Academy of Sciences (PNAS).
- Grant proposal reviews for: The Wildlife Conservation Society, The National Science Foundation, Neotropical Grassland Conservancy.

ADDITIONAL PROFESSIONAL EXPERIENCE

1990-1999: University of Florida, Department of Zoology

Teaching Assistant in Ecology and Introductory Biology, Department of Zoology.

1989-1990: Project Coordinator, Ecology and Conservation of the Endangered Yellow-tailed Amazon (*Amazona barbandensis*) on Margarita Island, Venezuela.

Research Assistant:

- 1988: Reproductive biology of the endangered Bahamas amazon parrot (*Amazona leucocephala bahamensis*), Abaco, Bahamas
- 1987-1988: Nutritional ecology of red howler monkeys (*Alouatta seniculus*), Hato Masagurara, Venezuela
- 1987: Reproductive biology of the snail kite (*Rostrhamus sociabilis*), Hato Masaguaral, Venezuela

- 1984: Demography of Leach's storm petrel (*Oceanodroma leucorhoa*), Kent Island, N.B., Canada.

SCIENTIFIC PUBLICATIONS

Sobral, M., K. M. Silvius, H. Overman, L. F. B. Oliveira, N. Butts, K. Epps & J. M. V. Fragoso. **In Prep.** *Biodiversity predicts carbon storage in the Amazon.* For submission to Nature.

Gervais, J., Pope N., Silvius K.M., Overman H. Oliveira L.F.B. & Fragoso J.M.V. **In prep.** *Relationships between indigenous villages and the occurrence of wild fruits in the Rupununi region of Amazonia.* Biotropica.

Fragoso J.M.V., E. L. Kurten, L.F.B. de Oliveira, J.B. Luzar, H. Overman J. M. Read, T. Levi & K.M., Silvius. **In Prep.** *The not so empty forest: Conventional survey methods under-detect Amazonian animals and bias management decisions.* J of Applied Ecology.

Iwamura T., Lambin E.F., Silvius K.M., Luzar J.B. & Fragoso J.M.V. **In review.** *Social-ecological pathways for animal populations and forest cover on indigenous lands in Amazonia: A simulation approach for environmental sustainability.* Ecology and Conservation.

Constantino, P., J. K. Buening, K. Silvius, F. Danielsen, M. K. Poulsen, P. Arroyo, A. T. Cruz, K. T. Ribeiro, S. Hvalkof, C. Durigan, C. Tofoli, M. R. Kinouchi, A. Leão, G. Estupinan, R. Tawada, C. B. Fonseca, et al. **In Press.** *Monitoramento participativo da biodiversidade e dos recursos naturais: Seminario internacional e formação da Rede Internacional de Monitoramento e Manejo Participativo.* Biodiversidade Brasileira.

Kennett, R., F. Danielsen, & K. Silvius. **In Press.** Citizen Science will not save biodiversity. Correspondence, Nature

Iwamura T., Lambin E., Silvius K.M., Luzar J.B. & Fragoso J.M.V. **2014.** *Agent-based modeling of hunting and subsistence agriculture on indigenous lands: understanding interactions between social and ecological systems.* Environmental Modelling & Software, 58: 109-127.

Nolte, C., A. Agrawal K. M. Silvius & B. Soares-Filho. **2013**. Governance regime and location influence avoided deforestation success of protected areas in the Brazilian Amazon. PNAS 110: 4956-4961

Levi T., Silvius K.M., Oliveira L.F.B., Cummings A.R. & Fragoso J.M.V. **2013**. *Competition and facilitation in the Capuchin-Squirrel Monkey Relationship*. Biotropica 45: 636-643.

Luzar J.B. Silvius K.M. & Fragoso J.M.V. **2012**. *Church Affiliation and Meat Taboos in Indigenous Communities of the Amazon*. Human Ecology 40: 833-845.

Luzar J.B., Silvius K.M., Overman J., Giery S.T., Read J.N. & Fragoso J.M.V. **2010**. *Large-Scale Environmental Monitoring by Indigenous Peoples*. BioScience, 61: 771-781.

Read J.M., J. M.V. Fragoso, K. SILVIUS, J. Luzar, A. R. Cummings, S. Giery, & de L. F. Oliveira. **2010**. *Space, Place, and Hunting Patterns among Amerindians of the Guyanese Amazon*. Journal of Latin American Geography, 9: 213-243.

Nogueira-Filho, S., S. S. Nogueira, J. Fragoso, M. Bassford & Silvius K.M. **2007**. *Ethological approaches for the control of feral pigs*. Applied Animal Behavior Science_108: 1-11

Silvius K.M, R. Bodmer, & J. Fragoso, eds. **2004**. People in Nature: Wildlife Conservation in South and Central America. Columbia University Press.

Silvius K.M. **2004**. Bridging the gap between western scientific and traditional indigenous wildlife management. *In* K. M. Silvius, R. Bodmer and J. Fragoso. People in nature: Wildlife conservation and management in Latin America. Columbia University Press.

Fragoso, J. M. V., R. E. Bodmer, & Silvius K.M. **2004**. Wildlife Conservation and Management in South and Central America: Multiple Pressures and Innovative Solutions. *In* K. M. Silvius, R. Bodmer and J. Fragoso. People in Nature: Wildlife Conservation in South and Central America. Columbia University Press.

Crawshaw, P. G, J. K. Mähler, C. Indrusiak, S. M.C. Cavalcanti, M. R. P. Leite, & Silvius K.M. **2004**. Ecology and conservation of the Jaguar in Iguazu National Park. *In* K. M. Silvius, R. Bodmer and J. Fragoso. People in Nature: Wildlife Conservation in South and Central America. Columbia University Press.

Silvius K.M. **2004**. Frugivore-mediated interactions among bruchid beetles (*Pachymerus cardo*, *Speciomerus giganteus*) and *Attalea butyracea* palm fruits at Barro Colorado Island, Panama: Implications for seed fate. Invited chapter for edited volume: P.-M. Forget, J. E. Lambert, P. E. Hulme and S. B. Vander Wall, eds. Seed fate: predation, secondary dispersal and seedling establishment, CABI Publishing.

Fragoso, J. M. V., Silvius K.M, & J. Correa. **2003**. Long-distance seed dispersal by tapirs increases seed survival and aggregates tropical trees. Ecology 84: 1998-2006.

Silvius K.M. & J. Fragoso. **2003**. *Agouti (Dasyprocta agouti) home range use in an Amazonian forest: Implications for the aggregated distribution of forest trees*. Biotropica 35: 74-83.

Silvius K.M. & J. M. V. Fragoso. **2002**. *Pulp handling by vertebrate seed dispersers increases palm seed predation by bruchid beetles in the northern Amazon*. Journal of Ecology 90: 1024-1032.

Silvius K.M. **2002**. *Spatio-temporal patterns of palm endocarp use by three Amazonian forest mammals: granivory or 'grubivory'?* Journal of Tropical Ecology 18: 707-723

Fragoso, J. M. V., K. SILVIUS, & M. Prada. **2000**. Wildlife management at the Rio das Mortes Xavante Reserve, MT, Brazil: Integrating indigenous culture and scientific method for conservation. World-Wildlife Fund, Brazil.

Silvius K.M. **1995**. *Avian consumers of cardón (Stenocereus griseus: Cactaceae) fruits on Margarita Island, Venezuela*. *Biotropica* 27: 96-105.

TECHNICAL AND EDUCATIONAL PUBLICATIONS

Wyneken, J. 2004. The Anatomy of Sea Turtles, Spanish language version (K. SILVIUS translator). US Department of Commerce NOAA Technical Memorandum NMFS-SEFSC-470, 1-172 pp, and accompanying Spanish language video.

Silvius K.M. 2004. Book review of C. H. Woods and R. Porro, Deforestation and Land Use in the Amazon. *Ecological Economics*.

Silvius K.M. 2003. Three chapters in World Environment Series. ABC-Clio Press:

- Biodiversity in Latin America.
- Protected Areas in Latin America.
- Forests in Latin America.

Silvius K.M. 2002. El valor de las palmeras en la Amazonía. Text box in Spanish edition of Richard Primack's "Essentials of Conservation Biology. (Elementos de Conservación Biológica: Perspectivas Latinoamericanas; R. Primack, R. Rozzi, P. Feinsinger, R. Dirzo, y F. Massardo. Fondo de Cultura Económica de México.)

SELECTED PRESENTED PAPERS, WORKSHOPS AND SYMPOSIA

Silvius, K. M. 2015. *Establishing a dialogue between Citizen Science and Participatory Monitoring and Management*. Forest Summit, California Academy of Sciences, San Francisco, CA.

Fragoso, J.M.V., Iwamura T., Silvius K.M., & Lambin E. 2014. *Sustainability of vertebrate animals, forest cover and humans in human inhabited protected areas when outside forests are eliminated*. XI Congreso Internacional de Manejo de Fauna Silvestre en la Amazonía y América Latina. Trinidad and Tobago.

Silvius K.M., Fragoso J.M.V, Kurten E.L, & Levi T. *Chronic underestimation of vertebrate abundances in Amazonian ecosystems limits ecological understanding and innovation in conservation*. 2012. Annual meeting of the Association for Tropical Biology and Conservation. Bonito, Brazil.

*Silvius K.M., J.M.V. Fragoso, J Gibbs, J.M. L. F. de Oliveira, O. Burger, J.B. Luzar, J.M. Read, J Overman and S. Giery. 2011. *Animals that hide and the challenges of accurate assessment and responsible management*. Annual Meeting of the American Association for the Advancement of Science, Washington, DC.

Fragoso, J.M.V. K.M. Silvius, J.M. L. F. de Oliveira, O. Burger, J.B. Luzar, J.M. Read, J Gibbs, J Overman and S. Giery. 2010. *Overhunted animals or animals hiding?* IX International Congress on Managing Wildlife in Amazonia and Latin America. Santa Cruz, Bolivia.

Fragoso, J.M.V. K.M. Silvius, J.M. L. F. de Oliveira, O. Burger, J.B. Luzar, J.M. Read, J Gibbs, J Overman and S. Giery. *Overhunted animals or animals hiding?* 2010. Annual Meeting of the Association for Tropical Biology and Conservation. Bali, Indonesia.

*Silvius K.M., J. M. V. Fragoso, L. L. Martins, J. H. Read, J. Chave, D. Swaney, and J. P. Gibbs. 2005. Multi-scale interactions between ecological systems and resource-use practices by Amazonian indigenous peoples. Association for Tropical Biology and Conservation Annual Meeting, Uberlandia, Brazil. *Invited Speaker*.

*Silvius K.M. 2004. Aggregated distribution patterns of fruiting trees: Interactions with frugivore home ranges in northern Brazil. Association for Tropical Biology and Conservation Annual Meeting, Miami, Florida, USA. *Invited Speaker*

*Fragoso, J. M. V. and K.M. Silvius. 2003. Selective pressures on palm seed defenses: Interactions among predators. Association for Tropical Biology and Conservation Annual Meeting, Aberdeen, Scotland.

*Silvius K.M. 2002. Disperser-mediated interactions between bruchid beetles and *Attalea* palm fruits: a Panama-Brazil comparison. Association for Tropical Biology Meeting, Panama City, Panama. *Invited speaker*

*Silvius K.M. and J. M. V. Fragoso. 2000. Status of wildlife research, conservation and management in Roraima state, Brazil. Workshop on Critical Issues in Wildlife Management in the Guiana Shield, Georgetown, Guyana. *Invited speaker*

*Silvius K.M. and J. M. V. Fragoso. 2000. The beetle and the palm: Complexity in fruit-frugivore interactions. 3rd International Symposium-Workshop on Frugivory and Seed Dispersal. São Paulo, Brazil.

Fragoso, J. M. V. and K.M. Silvius. 2000. Co-coordinator, workshop on "Seed dispersal at the landscape level: Patterns and consequences." 3rd International Symposium-Workshop on Frugivory and Seed Dispersal. São Paulo, Brazil. *Invited speaker*

*Silvius K.M. 1999. Ecología del area de vida de *Dasyprocta agouti*. IV International Conference on Wildlife Management and Conservation in Amazonia and Latin America. Asunción, Paraguay.

*Silvius K.M. 1999. Co-coordinator, Round table discussion, Symposium on Phenological Studies in Tropical Plant Communities. XVI International Botanical Congress, St. Louis, MO, USA. *Invited speaker*

*Silvius K.M. 1997. Uso de semillas de palmera (*Attalea maripa*) por *Sciurus igniventris*, *Dasyprocta agouti*, y *Tayassu pecari*: efecto de escala e implicaciones para estudios poblacionales. III International Conference on Wildlife Management for Conservation in Amazonia. Santa Cruz, Bolivia.

*Fragoso, J. M. V., and K. SILVIUS. 1997. Co-organizers, Symposium on "Latin American Philosophy of Conservation." III International Conference on Wildlife Management for Conservation in Amazonia. Santa Cruz, Bolivia.

*Silvius K.M. 1997. Usefulness of the keystone resource concept for a Neotropical granivore community: the case of the palm *Attalea maripa*. Poster presentation. Society for Conservation Biology Annual Meeting, Victoria, British Columbia, Canada.

SELECTED RESEARCH GRANTS

September 2005 - September 2011. Co PI. National Science Foundation Biocomplexity Grant, Coupled Human and Natural Systems. Biodiversity dynamics and land-use changes in the Amazon: Multi-scale interactions between ecological systems and resource-use practices by indigenous peoples.

July 2005 - January 2007. PI. Hawai'i Invasive Species Committee-DLNR. Determination of foraging and movement patterns of *Aratinga erythrogenys* (Aves: Psittacidae) using mist-net live capture and radio telemetry on O'ahu Island, Hawai'i. With graduate student Nicholas Kalodimos.

2004 - 2005. Co-PI. SUNY-SU EnSPIRE Seed Grant for Interdisciplinary Environmental Research Projects. Cultures in Transition: Complexity in Human – Nature Interactions and Biodiversity Dynamics in Indigenous Areas.

2000 - 2001. PI. Smithsonian Tropical Research Institute. Short-term Post-doctoral Fellowship. Complexity in fruit-frugivore interactions: beetles, mammal and palms at Barro Colorado Island, Panama.

1995 - 1997. PI. NYZS/The Wildlife Conservation Society. Mammalian consumers of palm fruits in the Amazon.

1995 - 1997. Co-PI. NYZS/The Wildlife Conservation Society. The role of disease, food availability and overhunting in the population dynamics of Amazonian rain forest peccaries.

1990 - 1991. PI. EcoNatura (NGO-Venezuela). Feeding ecology of the yellow-shouldered amazon parrot *Amazona barbadensis* on Margarita Island, Venezuela.

1989 - 1990. PI. Fundación para la Defensa de la Naturaleza (NGO-Venezuela). Status and ecology of the endangered yellow-shouldered amazon parrot *Amazona barbadensis* on Margarita Island, Venezuela.

1989 - 1991. PI. Wildlife Conservation Society. Status and ecology of the endangered yellow-shouldered amazon parrot *Amazona barbadensis* on Margarita Island, Venezuela.

FELLOWSHIPS AND AWARDS

1994. Tropical Conservation and Development Fellowship, University of Florida.

1993. Tropical Conservation and Development Summer Research Fellowship

1989-1990. Grinter Fellowship, Department of Zoology, University of Florida

1987. Graduated Magna Cum Laude, Bowdoin College

CONSULTANCIES AND COMMISSIONED / CONTRACTED PAPERS

January-March 2005. Environmental Assessment to Biodiversity Impacts of South-Eastern Highway, Republic of Mauritius. Under contract to NWFS Consultancy, project leaders Dr. David Hammond and Dr. William Laurance.

January 2000. Report commissioned by Iwokrama International Centre for Rain Forest Conservation & Development, Georgetown, Guyana. Status of wildlife research, conservation and management in Roraima state, Brazil, by Silvius, K. M. and J. M. V. Fragoso.

July 1998. Panelist, World Wildlife Fund workshop on "Indigenous Peoples and Conservation." Washington DC. Prepared case study and participated in discussions of the role of indigenous peoples in biodiversity conservation.

1995-1997. Consultant for World Wildlife Fund on Xavante Wildlife Management Plan Project. Helped design research protocol and co-wrote final management plan based on participative, culturally appropriate data gathering.

TEACHING EXPERIENCE

Spring 2003, 2004. Co-instructor, Amazon Field Ecology. Graduate-undergraduate field course, SUNY College of Environmental Science and Forestry.

Fall 2002, 2003. Co-instructor, Community Ecology in the Tropics. Graduate-undergraduate seminar, SUNY College of Environmental Science and Forestry.

Summer 2002, 2003. Monitoring bird diversity. Short field course, SUNY College of Environmental Science and Forestry Cranberry Lake Biological Station.

Spring 2001, Fall 2000, Spring 2000. Principles of Ecology. Upper level undergraduate course. Department of Biological Sciences, Florida Atlantic University.

Fall 1999. General Biology I. Large section introductory course. Department of Biological Sciences, Florida Atlantic University.

1999, 1993. Introductory biology, discussion leader, Zoology Department, University of Florida.

1994, 1992. General Ecology, lab instructor, Zoology Department, University of Florida.

1990, 1991, 1992, 1993, 1997. Introductory biology, lab instructor, Zoology Department, University of Florida. Teaching Award Recipient 1991.

STUDENT ADVISEMENT

Academic advisor. Vivianne Vejdani, MSc, Florida Atlantic University Department of Biology, Environmental Studies Program. Thesis: Replacement of Flowering dogwood by Spicebush in Pennsylvania secondary forest.

Academic committee member.

- Rogerio Cunha de Paula, MSc., Florida Atlantic University Department of Biology. Human impacts on large mammals in a Cerrado preserve, Brazil.
- Ricardo Zambrano, MSc., Florida Atlantic University Department of Biology. Reproductive biology of the Least Tern in South Florida.

- Melanie Antonovic, MSc., SUNY-ESF. The role of white-lipped peccaries in seedling mortality and tree species composition in an Amazonian forest.
- Enzo Aliaga Rossel, Msc., SUNY-ESF. Home range ecology of agoutis (*Dasyprocta punctata*) on Barro Colorado Island, Panama.
- Nicholas Kalodimos, PhD. Optimal foraging by the exotic *Aratinga erythrogenys* on Oahu Island, Hawaii.