

Marlon E. Cobos, Ph.D.

Postdoctoral Fellow

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Education

Ph.D. Ecology and Evolutionary Biology with Honors, University of Kansas, USA	2023
M.Sc. Zoology and Animal Ecology, Universidad de La Habana, Cuba	2016
B.Sc. Environmental Engineering, Universidad Nacional de Loja, Ecuador	2012

Professional Appointments

Postdoctoral Fellow. <i>Department of Ecology and Evolutionary Biology (EEB) & Biodiversity Institute (BI). University of Kansas.</i>	2023–present Lawrence, KS, USA
Lecturer. <i>Facultad Agropecuaria y de Recursos Naturales Renovables. Universidad Nacional de Loja.</i>	2017 Loja, Loja, Ecuador
Consultant. <i>IMPROYAM Environmental Consulting Company.</i>	2013–2014 Zamora, ZCh, Ecuador
Technician of Planning and Land Management. <i>El Guismi Decentralized Autonomous Government.</i>	2012–2013 El Pangui, ZCh, Ecuador

Research Experience

Postdoctoral Researcher

National Science Foundation (NSF): Poorly Sampled and Unknown Taxa (PurSUiT). Systematic Viral Discovery Through Structured Search of Host Phylogeny. *Advisor:* Jocelyn P. Colella. *University of Kansas.* **2024–present.** *Activities:* **data analysis, bioinformatics, and student mentoring.**

NSF: Predictive Intelligence for a Pandemic Prevention (PIPP). Center for Emerging Pathogen Prediction and Integration. *Advisor:* Jocelyn P. Colella. *University of Kansas.* **2023–present.** *Activities:* **fieldwork (mammal collection), molecular lab work, ecological modeling, proposal development, and student mentoring.**

Kansas Department of Wildlife and Parks (KDWP): The Bunker Resurvey Project—A Century of Environmental Change in Kansas (2022–2023); & Kansas Terrestrial Vertebrate Resurveys to Detect and Characterize Faunal Change (2023–2027). *Advisor:* Jocelyn P. Colella. *University of Kansas.* **2023–present.** *Activities:* **fieldwork (mammal collection), molecular lab work, bioinformatics, and student mentoring.**

Graduate Research Assistant

NSF EPSCoR. Marshaling Diverse Big Data Streams to Understand Risk of Tick-Borne Diseases in the Great Plains. *Advisor:* A. Townsend Peterson. *University of Kansas.* **2020–2023.** *Activities:* **fieldwork (tick collections), data analysis, ecological modeling, AI implementations, and student mentoring.**

Bases for conservation of the most endangered Cuban toad, *Peltophryne florentinoi*. *Advisor:* Roberto Alonso-Bosch. *Universidad de La Habana.* **2015–2017.** *Main Activities:* **fieldwork (surveying populations and habitats), data analysis, and statistical modeling.**

Associated Researcher

Ecological Bases for Restoration of Degraded Ecosystem Biodiversity and Functionality in Southern Ecuador, in the Face of Potential Global Environmental Changes. *Advisor:* Nikolay Aguirre. *Universidad Nacional de Loja.* **2016–2017.** *Main Activities:* **project design, data collection, data analysis, ecological modeling.**

Undergraduate Research Assistant

Characterization, Conservation, and Sustainable Use of Native Animal Species of South-Ecuadorian Amazon. *Advisor:* Katusca Valarezo-Aguilar. *Universidad Nacional de Loja.* **2011.** *Main Activities:* **fieldwork to record species and their habitats, data analysis, and mapping information.**

Trophic Niche Overlap and Disease Transmission Between the American Bullfrog (*Lithobates catesbeianus*) and Native Frogs of South-Ecuadorian Amazon. *Advisor:* Katusca Valarezo-Aguilar. *Universidad Nacional de Loja.* **2011.** *Main Activities:* **fieldwork and lab work to generate data.**

Teaching Experience

Lecturer

Multivariate Data Analysis (Co-instructor). EEB Department, *University of Kansas*. **USA**. Fall 2023.

Experimental Design. Faculty of Agriculture and Renewable Natural Resources (FARNR), *Universidad Nacional de Loja*. **Ecuador**. Spring 2017.

Inorganic Chemistry. FARNR, *Universidad Nacional de Loja*. **Ecuador**. Spring 2017.

Guest Lecturer

Environmental Sciences Seminar. *Lecture*: “Ecological Models for Disease Risk Prediction”. Department of Environmental Science, *Haskell Indian Nations University*. **USA**. March 2024.

Graduate Teaching Assistant

Human Anatomy, Dissection Lab. EEB Department, *University of Kansas*. **USA**. 2019–2020.

Human Anatomy, Observation Lab. EEB Department, *University of Kansas*. **USA**. Fall 2018.

Introductory Biology Lab. EEB Department, *University of Kansas*. **USA**. Spring 2018.

Chordate Zoology Lab. Department of Animal and Human Biology, *Universidad de La Habana*. **Cuba**. Fall 2015.

Instructor

Ecological Niche Modeling: Introduction Course. *Lecture*: “Spatio-temporal dynamics of hantavirus disease agents in Panama”. *Fundação Oswaldo Cruz (Fiocruz)*. **(Online) Brazil**. April 2025.

Field + Genomics (Workshop) **(Co-organizer)**. *Museums and Emerging Pathogens in the Americas (MEPA) Community of Practice*. **Ecuador**. November 2024.

Git and GitHub for Collaborative Research (Workshop) **(Co-Lead)**. BI, *University of Kansas*. **USA**. Fall 2024.

Ecological Niche Modeling: Introduction Course. *Lecture*: “New approaches to ENM: characterizations of host, vector, and pathogen niches”. *Fundação Oswaldo Cruz (Fiocruz)*. **(Online) Brazil**. March 2024.

Developing and Applying Educational Modules that link Museums, Biodiversity Literacy, and Emerging Diseases (Workshop) **(Co-organizer)**. *International Mammalogical Congress and American Society of Mammalogists Annual Meeting (ASM)*. **USA**. July 2023.

GitHub Essentials for Collaborative Research and Development (Workshop) **(Lead)**. BI, *University of Kansas*. **USA**. April 2023.

Ecological Niche Modeling Applied to Fossil Data (short course). *Lecture*: “Practical session: basic paleo niche modeling”. *Geological Society of America Annual Meeting*. **USA**. October 2022.

Ecological Niche Modeling for Zoonotic Diseases (Course). *Lectures*: “ENM using kuenm and Maxent”, “ENM: variability and uncertainty”, & “Practical sessions”. *American Society of Microbiology, and University of Kansas BI*. **(Online) India**. July 2020.

Ecological Niche Modeling (Course). *Lectures*: “ENM using kuenm and Maxent”, “Ecological niche overlap: basic theory and methods”, & “Practical and question and answer sessions”. BI, *University of Kansas*. **(Online) Worldwide**. 2020.

Modelos de Nicho y de Distribución de Especies (Course). *Lecture*: “ENM using kuenm and Maxent”. *Instituto Nacional de Ecología*. **Mexico**. June 2021.

Curso Avanzado de Modelado de Nichos Ecológicos (Course). *Lectures*: “Áreas para la calibración para modelos de nicho ecológico”, “Calibración de modelos de nicho ecológico”, “Transferencia de modelos de nicho ecológico”, & “Practical sessions”. *Instituto Nacional de Ecología*. **Mexico**. June 2019.

Modelado de Nicho Ecológico (Course). *Lecture*: “Estimación y representación de la incertidumbre en modelos de nicho ecológico”. BI, *University of Kansas*. **USA**. Online. 2018.

Conectividad de Hábitat (short course). *Lecture*: “Análisis de conectividad de hábitat”. *Instituto de Ecología y Sistemática*. **Cuba**. Fall 2015.

Mentoring Experience (^{URM} under-represented minority, ^{INT} international, ^{ONL} online, * co-author)

Daniel Abreu^{INT} Master’s student at Uppsala University, Sweden. (2025–present)
Metagenomic exploration of bacterial pathogen diversity in Ecuadorian bats.

Danielle M. Land^{URM} PhD student at the University of Kansas (KU). (2024–present)
Exploring Asian shrew historical biogeography via ecological niche models.

Jonathan J. Sauz Sánchez^{INT} PhD student at El Colegio de la Frontera Sur (ECOSUR), Mexico. (2024–present)
Ancestral niche evolution of freshwater fish (Lepisosteidae) and patterns of responses under climate change conditions. PhD dissertation (Committee member).

Mackenzie Grover PhD student at KU. (2024–present)
Strategies to improve models of ecological requirements and distributions of parasites.

Harlan Williams	Master's student at KU. Google Summer of Code Program. (2024) <i>ArctosR: An Interface to the Arctos Database for R.</i>
Weverton Trindade* ^{INT}	PhD student at Universidade Federal do Paraná, Brazil. (2023–present) <i>Routines for ecological niche modeling using machine learning algorithms.</i>
Luis F. Arias-Giraldo* ^{INT}	PhD student at the Spanish National Research Council. (2023–present) <i>Innovative methods to model and map risks from pathogens.</i>
Abby Perkins*	Master's student at KU. (2023–present) <i>Exploring approaches to deal with spatial autocorrelation in ENM.</i>
Daniel Ibañez IV* ^{URM}	Master's student at KU. (2023–2024) <i>Time-specific ENM for a hantavirus host in Panama.</i>
Alexander Hey*	Master's student at KU. (2023–2024) <i>Time-specific ENM for a hantavirus host in Panama.</i>
Shubert Aguayo* ^{INT, ONL}	Undergraduate student at Pontificia Universidad Católica del Ecuador. (2023–2024) <i>ENM for a Chagas disease vector in Ecuador and Peru.</i>
Francisco Villacis* ^{INT, ONL}	Undergraduate student at Pontificia Universidad Católica del Ecuador. (2023–2024) <i>ENM for a Chagas disease vector in Ecuador and Peru.</i>
Ismari Martinez* ^{URM}	Undergraduate student at KU. (2023) <i>Time-specific ENM of tick activity in the great plains.</i>
Janey Bryce* ^{URM}	Post-bachelor student at KU. (2022–2023) <i>Assessment of mammal community change in Kansas.</i>
Taylor Winters*	Undergraduate student at KU. (2022–2023) <i>Time-specific ENM for tick pathogens in the great plains.</i>
Anushka Gupta ^{INT, ONL}	Student in the Google Summer of Code Program. (2022) <i>Second phase of rsqLiteadmin: A GUI to Manage SQLite Databases.</i>
Pablo Castillo ^{INT, ONL}	Undergraduate student at Universidad Nacional de Loja, Ecuador. (2021–2022) <i>ENM and conservation area prioritization for an endangered bird in Ecuador.</i>
Divyansh Chawla ^{INT, ONL}	Student in the Google Summer of Code Program. (2021) <i>rsqLiteadmin: A GUI to Manage SQLite Databases.</i>
Yaneliz Marrero ^{INT}	Undergraduate student at Universidad de La Habana, Cuba. (2014) <i>Climate change risks for the distribution of an endemic bird in Cuba. Undergraduate dissertation (Co-advisor).</i>

Publications (Google Scholar citations: 2,496; h-index: 20; i10-index: 34; mentees: * undergraduate, ** graduate)

Journal Articles (Published and In Press)

- 62 **Cobos, M. E.**, Dunnum, J. L., Armien, B., Gonzalez, P., Juarez, E., Salazar, J., Cook, J. A., & Colella, J. P. In press. Selecting sites for strategic surveillance of zoonotic pathogens: A case study in Panama. *Ecohealth*. (preprint DOI: [10.1101/2024.08.12.607103](https://doi.org/10.1101/2024.08.12.607103))
- 61 Campbell, P. D., Wiens, B. J., **Cobos, M. E.**, Peterson, A. T., & Colella, J. P. 2025. Harnessing historical sampling to substantiate range shifts: Southward movement of North American least weasels (*Mustela nivalis*). *Front. Biogeogr.* 18, e131798. DOI: [10.21425/fob.18.131798](https://doi.org/10.21425/fob.18.131798)
- 60 Valarezo-Aguilar, K., **Cobos, M. E.**, Ordonez-Gutierrez, O., Mendoza-Leon, C., & Nuñez-Penichet, C. 2025. New record of the American Bullfrog, *Lithobates catesbeianus* (Shaw 1802), in Loja, Ecuador. *Rept. Amphib.*, 32(1), e22511. DOI: [0009-0002-5801-6446](https://doi.org/0009-0002-5801-6446)
- 59 **Cobos, M. E.**, Winters, T.*, Martinez, I.*, Yao, Y., Xiao, X., Ghosh, A., Sundstrom, K., Duncan, K., Brennan, R. E., Little, S. E., & Peterson, A. T. 2024. Modeling spatiotemporal dynamics of *Amblyomma americanum* questing activity in the Central Great Plains. *PLoS ONE* 19(10), e0304427. DOI: [10.1371/journal.pone.0304427](https://doi.org/10.1371/journal.pone.0304427)
- 58 Kass, J. M., Smith, A. B., Warren, D. L., Vignali, S., Schmitt, S., Aiello-Lammens, M. E., Arlé, E., Barbosa, A. M., Broennimann, O., **Cobos, M. E.**, (+15 co-authors). 2024. Achieving higher standards in species distribution modeling by leveraging the diversity of available software. *Ecography*. DOI: [10.1111/ecog.07346](https://doi.org/10.1111/ecog.07346)
- 57 **Cobos, M. E.**, Owens, H. L., Soberón, J., & Peterson, A. T. 2024. Detailed multivariate comparisons with mobility oriented parity. *Front. Biogeogr.* 17, e132916. DOI: [10.21425/fob.17.132916](https://doi.org/10.21425/fob.17.132916)
- 56 Arias-Giraldo, L. F**, **Cobos, M. E.**, Peterson, A. T., Landa, B., & Navas-Cortes, J. A. 2024. Unraveling the ecological niche signals of *Verticillium dahliae*: Insights from Mediterranean landscapes. *Plant Dis.* DOI: [10.1094/PDIS-02-24-0443-RE](https://doi.org/10.1094/PDIS-02-24-0443-RE)
- 55 Alkische, A., **Cobos, M. E.**, & Peterson, A. T. 2024. Broad-scale ecological niches of pathogens vectored by the ticks *Ixodes scapularis* and *Amblyomma americanum* in North America. *PeerJ*. 12, e17944. DOI: [10.7717/peerj.17944](https://doi.org/10.7717/peerj.17944)

- 54 Barve, N., Ashraf, U., Barve, V., **Cobos, M. E.**, Nuñez-Penichet, C., & Peterson, A. T. 2024. Revisiting plant hardness zones to include multiple climatic stress dimensions. *iScience*. 110824. DOI: [10.1016/j.isci.2024.110824](https://doi.org/10.1016/j.isci.2024.110824)
- 53 Arias-Giraldo, L. F** & **Cobos, M. E.** 2024. enmpa: An R package for ecological niche modeling using presence-absence data and generalized linear models. *Biodiv. Inform.* 18, 28–42. DOI: [10.17161/bi.v18i.21742](https://doi.org/10.17161/bi.v18i.21742)
- 52 Ng'eno, N., **Cobos, M. E.**, Kiplangat, S., Mugoh, R., Ouma, A., Bigogo, G., Omulo, S., & Peterson, A. T. 2024. Long-term antibiotic exposure risk landscapes and resistant *Escherichia coli* colonization in a densely populated setting. *PLoS ONE*. 19(7), e0302521. DOI: [10.1371/journal.pone.0302521](https://doi.org/10.1371/journal.pone.0302521)
- 51 Peterson, A. T., Yao, Y., **Cobos, M. E.**, & Xiao, X. 2024. Correlative ecological niche model applications to predicting landscape-scale woody plant encroachment in Kansas tallgrass prairie systems. *PLoS ONE*. 19(6): e0305168. DOI: [10.1371/journal.pone.0305168](https://doi.org/10.1371/journal.pone.0305168)
- 50 Machado-Stredel, F., Atauchi, P. J., Nuñez-Penichet, C., **Cobos, M. E.**, Osorio-Olvera, L., Khalighifar, A., Peterson, A. T., & Fletcher Jr., R. J. 2024. The roles of abiotic and biotic factors in driving range shifts: An invasive *Pomacea* snail facilitates *Rostrhamus sociabilis* (Snail Kite) northward range expansion. *Ornithology*. ukae022. DOI: [10.1093/ornithology/ukae022](https://doi.org/10.1093/ornithology/ukae022)
- 49 Ng'eno, E., Alkische, A., Romero-Alvarez, D., Sundstrom, K., **Cobos, M. E.**, Belgum, H., (+15 co-authors). 2024. Phenology of five tick species in the central Great Plains. *PLoS ONE*. 19(5), e0302689. DOI: [10.1371/journal.pone.0302689](https://doi.org/10.1371/journal.pone.0302689)
- 48 DeRaad, D., **Cobos, M. E.**, Hofmeister, N. R., DeCicco, L., Venkatraman, M. X., Nishiumi, I., (+12 co-authors). 2024. On the brink of explosion? Identifying the source and potential spread of introduced *Zosterops* white-eyes in North America. *Biol. Invasions*. DOI: [10.1007/s10530-024-03268-8](https://doi.org/10.1007/s10530-024-03268-8)
- 47 Peterson, A. T., **Cobos, M. E.**, Sikes, B., Soberón, J., Osorio-Olvera, L., Bolick, L., & Emmett, A. 2024. Relationships among cost, citation, and access in journal publishing by an Ecology and Evolutionary Biology Department at a U.S. University. *PeerJ*. 12, e16514. DOI: [10.7717/peerj.16514](https://doi.org/10.7717/peerj.16514)
- 46 Bernardinis, G., **Cobos, M. E.**, Brum, F. T., Marques, M. C. M., Peterson, A. T., Carlucci, M. B., & Zwiener, V. P. 2023. Ecological restoration and protection of remnants are key to the survival of the critically endangered *Araucaria* tree under climate change. *Glob. Ecol. Conserv.* 47, e02668. DOI: [10.1016/j.gecco.2023.e02668](https://doi.org/10.1016/j.gecco.2023.e02668)
- 45 **Cobos, M. E.**, Nuñez-Penichet, C., Campbell, P. D., Cooper, J. A., Machado-Stredel, F., Barve, N., (+7 co-authors). 2023. Effects of occurrence data density on conservation prioritization strategies. *Biol. Conserv.* 284, 110207. DOI: [10.1016/j.biocon.2023.110207](https://doi.org/10.1016/j.biocon.2023.110207)
- 44 **Cobos, M. E.**, & Peterson, A. T. 2023. Broad-scale factors shaping the ecological niche and geographic distribution of *Spirodela polyrhiza*. *PLoS ONE*. 18, e0276951. DOI: [10.1371/journal.pone.0276951](https://doi.org/10.1371/journal.pone.0276951)
- 43 Colella, J. P., **Cobos, M. E.**, Salinas, I., Cook, J. A., & The PICANTE Consortium. 2023. Advancing the central role of non-model biorepositories in predictive modeling of emerging pathogens. *PLOS Pathog.* 19, e1011410. DOI: [10.1371/journal.ppat.1011410](https://doi.org/10.1371/journal.ppat.1011410)
- 42 Ashraf, U., Peterson, A. T., Chaudhry, M. N., & **Cobos, M. E.** 2023. Global ecological niche conservatism and evolution in *Olea* species. *Saudi J. Biol. Sci.* 30(1), 103500. DOI: [10.1016/j.sjbs.2022.103500](https://doi.org/10.1016/j.sjbs.2022.103500)
- 41 Alkische, A., **Cobos, M. E.**, Osorio-Olvera, L., & Peterson, A. T. 2022. Ecological niche and potential geographic distributions of *Dermacentor marginatus* and *Dermacentor reticulatus* (Acari: Ixodidae) under current and future climate conditions. *Web Ecol.* 22(2), 33–45. DOI: [10.5194/we-22-33-2022](https://doi.org/10.5194/we-22-33-2022)
- 40 Busby, W. H., Barve, N., **Cobos, M. E.**, & Peterson, A. T. 2022. Effects of landscape history on current geographic distributions of four species of reptiles and amphibians in Kansas. *Southwest. Nat.* 66(2), 157–165. DOI: [10.1894/0038-4909-66.2.157](https://doi.org/10.1894/0038-4909-66.2.157)
- 39 **Cobos, M. E.**, Barve, V., Barve, N., Jiménez-Valverde, A., & Nuñez-Penichet, C. 2022. rangemap: An R package to explore species' geographic ranges. *Biodiv. Inform.* 17, 59–66. DOI: [10.17161/bi.v17i.16271](https://doi.org/10.17161/bi.v17i.16271)
- 38 **Cobos, M. E.**, & Peterson, A. T. 2022. Detecting signals of species' ecological niches in results of studies with defined sampling protocols: Example application to pathogen niches. *Biodiv. Inform.* 17, 50–58. DOI: [10.17161/bi.v17i.15985](https://doi.org/10.17161/bi.v17i.15985)
- 37 Contreras-Díaz, R. G., Falconi, M., Osorio-Olvera, L., **Cobos, M. E.**, Soberón, J., Peterson, A. T., (+8 co-authors). 2022. On the relationship between environmental suitability and habitat use for three neotropical mammals. *J Mammal.* 103(2), 425–439. DOI: [10.1093/jmammal/gyab152](https://doi.org/10.1093/jmammal/gyab152)
- 36 Machado-Stredel, F., Freeman, B., Jiménez-García, D., **Cobos, M. E.**, Nuñez-Penichet, C., Jiménez, L., Komp, E., Perktas, U., Khalighifar, A., Ingenloff, K., Tapondjou, W., de Silva, T., Fernando, S., Osorio-Olvera, L., & Peterson, A. T. 2022. On the potential of documenting decadal-scale avifaunal change from before-and-after comparisons of museum and observational data across North America. *Avian Res.* 13, 100005. DOI: [10.1016/j.avrs.2022.100005](https://doi.org/10.1016/j.avrs.2022.100005)

- 35 Peterson, A. T., Aiello-Lammens, M., Amatulli, G., Anderson, R., **Cobos, M. E.**, Diniz-Filho, J. A., (+ 37 co-authors). 2022. ENM2020: A free online course and set of resources on modeling species' niches and distributions. *Biodiv. Inform.* 17, 1–9. DOI: [10.17161/bi.v17i.15016](https://doi.org/10.17161/bi.v17i.15016)
- 34 Nuñez-Penichet, C., **Cobos, M. E.**, Soberón, J., Gueta, T., Barve, N., Barve, V., Navarro-Sigüenza, A. G., & Peterson, A. T. 2022. Selection of sampling sites for biodiversity inventory: Effects of environmental and geographical considerations. *Methods Ecol. Evol.* 13, 1595–1607. DOI: [10.1111/2041-210X.13869](https://doi.org/10.1111/2041-210X.13869)
- 33 Banks, W. E., Moncel, M.-H., Raynal, J.-P., **Cobos, M. E.**, Romero-Alvarez, D., Woillez, M.-N., Faivre, J.-P., Gravina, B., d'Errico, F., Loch, J.-L., & Santos, F. 2021. An ecological niche shift for Neanderthal populations in Western Europe 70,000 years ago. *Sci. Rep.* 11(1), 5346. DOI: [10.1038/s41598-021-84805-6](https://doi.org/10.1038/s41598-021-84805-6)
- 32 **Cobos, M. E.**, Cheng, Y., Song, G., Lei, F., & Peterson, A. T. 2021. New distributional opportunities with niche innovation in Eurasian snowfinches. *J. Avian Biol.* 52(12), e02868. DOI: [10.1111/jav.02868](https://doi.org/10.1111/jav.02868)
- 31 Deraad, D. A., **Cobos, M. E.**, Alkische, A., Ashraf, U., Ahadji-Dabla, K. M., Nuñez-Penichet, C., & Peterson, A. T. 2021. Genome-environment association methods comparison supports omnigenic adaptation to ecological niche in malaria vector mosquitoes. *Mol. Ecol.* 30(23), 6468–6485. DOI: [10.1111/mec.16094](https://doi.org/10.1111/mec.16094)
- 30 Gonzalez, V. H., **Cobos, M. E.**, Jaramillo, J., & Ospina, R. 2021. Climate change will reduce the potential distribution ranges of Colombia's most valuable pollinators. *Perspect. Ecol. Conserv.* 19(2), 195–206. DOI: [10.1016/j.pecon.2021.02.010](https://doi.org/10.1016/j.pecon.2021.02.010)
- 29 Machado-Stredel, F., **Cobos, M. E.**, & Peterson, A. T. 2021. A simulation-based method for identifying accessible areas as calibration areas for ecological niche models and species distribution models. *Front. Biogeogr.* 13(4), e48814. DOI: [10.21425/F5FBG48814](https://doi.org/10.21425/F5FBG48814)
- 28 Nuñez-Penichet, C., **Cobos, M. E.**, Checa, M. F., Quinde, J. D., Aguirre, Z., & Aguirre, N. 2021. High diversity of diurnal Lepidoptera associated with landscape heterogeneity in semi-urban areas of Loja City, southern Ecuador. *Urban Ecosyst.* 24(6), 1155–1164. DOI: [10.1007/s11252-021-01110-w](https://doi.org/10.1007/s11252-021-01110-w)
- 27 Nuñez-Penichet, C., **Cobos, M. E.**, & Soberón, J. 2021. Non-overlapping climatic niches and biogeographic barriers explain disjunct distributions of continental *Urania* moths. *Front. Biogeogr.* 13(2), e52142. DOI: [10.21425/F5FBG52142](https://doi.org/10.21425/F5FBG52142)
- 26 Nuñez-Penichet, C., Osorio-Olvera, L., Gonzalez, V. H., **Cobos, M. E.**, Jiménez, L., Deraad, D. A., (+8 co-authors). 2021. Geographic potential of the world's largest hornet, *Vespa mandarinia* Smith (Hymenoptera: Vespidae), worldwide and particularly in North America. *PeerJ*, 9, e10690. DOI: [10.7717/peerj.10690](https://doi.org/10.7717/peerj.10690)
- 25 Raghavan, R. K., Koestel, Z., Ierardi, R., Peterson, A. T., & **Cobos, M. E.** 2021. Climatic suitability of the eastern paralysis tick, *Ixodes holocyclus*, and its likely geographic distribution in the year 2050. *Sci. Rep.* 11(1), 15330. DOI: [10.1038/s41598-021-94793-2](https://doi.org/10.1038/s41598-021-94793-2)
- 24 Simões, M. V. P., Saeedi, H., **Cobos, M. E.**, & Brandt, A. 2021. Environmental matching reveals non-uniform range-shift patterns in benthic marine Crustacea. *Clim. Change.* 168(3), 31. DOI: [10.1007/s10584-021-03240-8](https://doi.org/10.1007/s10584-021-03240-8)
- 23 Soberón, J., **Cobos, M. E.**, & Nuñez-Penichet, C. 2021. Visualizing species richness and site similarity from presence-absence matrices. *Biodiv. Inform.* 16, 20–27. DOI: [10.17161/bi.v16i1.14782](https://doi.org/10.17161/bi.v16i1.14782)
- 22 Vignoles, A., Banks, W. E., Klaric, L., Kageyama, M., **Cobos, M. E.**, & Romero-Alvarez, D. 2021. Investigating relationships between technological variability and ecology in the Middle Gravettian (ca. 32–28 ky cal. BP) in France. *Quat. Sci. Rev.* 253, 106766. DOI: [10.1016/j.quascirev.2020.106766](https://doi.org/10.1016/j.quascirev.2020.106766)
- 21 Alkische, A., **Cobos, M. E.**, Peterson, A. T., Samy, A. M. 2020. Recognizing sources of uncertainty in disease vector ecological niche models: An example with the tick *Rhipicephalus sanguineus sensu lato*. *Perspect. Ecol. Conserv.* 18(2), 91–102. DOI: [10.1016/j.pecon.2020.03.002](https://doi.org/10.1016/j.pecon.2020.03.002)
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- 1 **Cobos, M. E.**, Nuñez-Penichet, C., Valarezo-Aguilar, K. 2015. First record of an American Bullfrog (*Lithobates catesbeianus*) population in Loja, Ecuador. *Rept. Amphib.*, 22(1), 46–48. DOI: [10.17161/landa.v22i1.14041](https://doi.org/10.17161/landa.v22i1.14041)

Books

- 1 Aguirre, N., Mazón, M., and **Cobos, M. E.** 2019. Comunicar y Divulgar la Ciencia. Redacción y publicación de trabajos científicos y divulgativos. *EDILOJA*. Loja, Ecuador.

Other Publications

- 3 **Cobos, M. E.** 2023. Integrating Multiple Approaches for Comprehensive Correlative Ecological Niche Modeling. Doctoral Thesis. University of Kansas.
- 2 **Cobos, M. E.** 2016. Posibles implicaciones del cambio climático sobre la distribución de las especies del género *Peltophryne* (Anura: Bufonidae) en Cuba. *Master's Thesis*. Universidad de La Habana.
- 1 **Cobos, M. E.** 2012. Distribución potencial de la rana toro (*Lithobates catesbeiana*) y su relación con la fragmentación de hábitats en Zamora Chinchipe, Ecuador. *Bachelor's Thesis*. Universidad Nacional de Loja.

Articles In Prep., Pre-prints, and In Review

- 10 **Cobos, M. E.**, Augusto, F., Cook, J. A., Peterson, A. T. & Colella, J. P. In prep. Simulating spatio-temporal dynamics in host-pathogen interactions: Choclo hantavirus and its wildlife host.
- 9 **Cobos, M. E.**, Hey, A. D.**, Ibañez IV, D.**, Armien, B., Cook, J. A., Peterson, A. T. & Colella, J. P. In prep. Towards the inclusion of ecological dynamics in mapping zoonotic disease risk: a case of hantavirus in Panama

- 8 Perkins, A.**, Trindade, W.**, Peterson, A. T., & **Cobos, M. E.** In prep. Evaluation of methods to reduce effects of spatial autocorrelation in ecological niche modeling: A new geostatistical approach.
- 7 Trindade, W.**, Peterson, A. T., & **Cobos, M. E.** In prep. Testing implementations of Akaike information criterion in evaluations of machine learning ecological niche models.
- 6 Yumiseva, C., Villasis, J. F.*, Aguayo, S.*, **Cobos, M. E.**, Colella, J. P., & Villasis, A. G. In prep. Current and future potential distribution of the Chagas disease vector *Rhodnius ecuadoriensis*.
- 5 Haddock, J. B.**, Nuñez-Penichet, C., **Cobos, M. E.**, & Colella, J. P. In prep. Leveraging historical occurrence data to assess change in mammal diversity across space and time.
- 4 Arias-Giraldo, L. F.**, **Cobos, M. E.**, Peterson, A. T., Landa, B., & Navas-Cortes, J. A. In review. Modeling the ecological niche of *Verticillium dahliae* in southern Spain: Current patterns and projected shifts under climate change. *Plant Dis*.
- 3 **Cobos, M. E.**, Corimanya, J. L., Ng'eno, E., Nuñez-Penichet, C., Perkins, A. C., Ruiz-Utrilla, Z., Alkishe, A., Romero-Alvarez, D., Yao, Y., Ghosh, A., Xiao, X., Peterson, A. T. & Duncan, K. T. In review. Spatiotemporal dynamics of questing activity by four tick species in the central Great Plains. *PLoS ONE*.
- 2 Timbrell, L., Garcia-Medrano, P., **Cobos, M. E.**, Moncel M. H., Banks, W. E. In review. Marine Isotope Stage 11 and the onset of the Neanderthal world: Exploring ecological niche dynamics and technological variability. *Nat. Ecol. Evol.*
- 1 **Cobos, M. E.**, Osorio-Olvera, L., & Peterson, A. T. 2019. Assessment and representation of variability in ecological niche model predictions. *BioRxiv*. DOI: [10.1101/603100](https://doi.org/10.1101/603100)

Scientific Presentations (+ invited, presenter, *undergraduate, **graduate)

- 25 **Cobos, M. E.**, F. B. Agosto, B. Armien, J. A. Cook, J. L. Dunnum, J. P. Colella. Modeling temporal and spatial dynamics of hantavirus infection in rodent hosts: A case study in Panama. *Ecology and Evolution of Infectious Diseases (EEID)*; Notre Dame, IN, USA, June 2025.
- 24 +**Cobos, M. E.** Selecting sites for strategic surveillance of zoonotic pathogens. *Verena lightning talks seminar series*; (Online), USA. March 2025.
- 23 +**Cobos, M. E.** Desarrollo exhaustivo e innovaciones en los modelos de nicho ecológico usando el paquete kuenm2. *Seminarios del Instituto de Biología de la UNAM*; (Online), USA. February 2025
- 22 **Cobos, M. E.**, T. Winters*, I. Martinez*, Y. Yao, X. Xiao, A. Ghosh., K. Sundstrom, K. Duncan, R. E. Brennan, S. E. Little, and A. T. Peterson. Spatiotemporal dynamics of *Amblyomma americanum* questing activity in the Central Great Plains. *Ecology and Evolution of Infectious Diseases (EEID)*; Palo Alto, CA, USA, June 2024.
- 21 Ibañez IV, D.**, **M. E. Cobos**, A. Hey**, J. P. Colella. Monthly suitability dynamics of the wild reservoir of Calabazo Hantavirus, *Zygodontomys brevicauda*. *ASM Annual Meeting*; Boulder, CO, USA, June 2024.
- 20 Hey, A.**, **M. E. Cobos**, D. Ibañez IV**, J. P. Colella. Time-specific suitability dynamics for the reservoir of Choclo hantavirus, *Oligoryzomys costaricensis*. *ASM Annual Meeting*; Boulder, CO, USA, June 2024.
- 19 **Cobos, M. E.**, D. Ibañez IV**, A. Hey**, J. A. Cook, J. L. Dunnum, B. Armien, J. P. Colella. Environmental dynamics of rodent-borne hantaviruses in Panama. *ASM Annual Meeting*; Boulder, CO, USA, June 2024.
- 18 +**Cobos, M. E.** Biorepositories as catalysts for advancing ecological modeling. *MEPA: Museums and Emerging Pathogens in the Americas*; (Online), USA. October 2023.
- 17 **Cobos, M. E.**, J. L. Dunnum, B. Armien, P. Gonzalez, E. Juarez, J. Salazar, J. A. Cook, and J. P. Colella. Environmental and geographic considerations for comprehensive sampling: An example with Panamanian rodents and their pathogens. *International Mammalogical Congress and ASM Annual Meeting*; Anchorage, AK, USA. July 2023.
- 16 **Cobos, M. E.**, C. Nuñez-Penichet, J. Soberón, T. Gueta, N. Barve, V. Barve, A. G. Navarro- Sigüenza, and A. T. Peterson. Selection of sampling sites for biodiversity inventory: Effects of environmental and geographical considerations. *International Biogeography Society-10th Biennial Conference*. (Online), Canada. June 2022.
- 15 +**Cobos, M. E.** Conservación de especies y cambio del clima. *Seminario Internacional Biodiversidad y Cambio Global*. (Online), Ecuador. June 2022.
- 14 +**Cobos, M. E.** Diseño de sistemas de monitoreo de la biodiversidad: consideraciones para lograr muestreos más efectivos. *II Seminario de Calidad Ambiental y Biodiversidad*. (Online), Ecuador. February 2022.
- 13 +**Cobos, M. E.** Ecological niche models and climate change: considering variability in data and results. *Congreso Internacional de Variabilidad y Cambio Climático*. (Online), Colombia. March 2021.
- 12 +**Cobos, M. E.**, A. T. Peterson, C. Nuñez-Penichet, J. Soberón, L. Osorio-Olvera, S. Goodman, and A. P. Raselimanana. Models and simulations to understand biological invasions: the case of *Duttaphrynus melanostictus* invasion in Madagascar. *IBS 2019 Humboldt Meeting and 2nd Latin American Biogeography Meeting*. Quito, Ecuador. August, 2019.
- 10 **Cobos, M. E.** and R. Alonso Bosch. Multiscale analyses reveal the importance of breeding sites for the

- conservation of a critically endangered Cuban toad in the face of global change. *Joint Meeting of Ichthyologists and Herpetologists*. Rochester, New York, USA. July 2018.
- 9 Nuñez-Penichet, C., **M. E. Cobos**, A. Barro, and J. Soberón. Potential migratory routes of *Urania boisduvalii* (Lepidoptera: Uraniidae) among the populations of its host (*Omphalea* spp.). *VI Meeting of Neotropical Lepidoptera*. Concepción, Chile. January 2018.
 - 8 **Cobos, M. E.**, R. Alonso-Bosch. Vulnerabilidad de los bufónidos cubanos al cambio climático: Una evaluación basada en características ecológicas y geográficas de su nicho. Quito, Ecuador. July 2017.
 - 7 Mendoza, C., K. Valarezo-Aguilar, and **M. E. Cobos**. Distribución potencial del Perico Pechi- blanco (*Pyrrhura albipectus*): factores climáticos que determinan su presencia. *V Encuentro Ornitológico Ecuatoriano*. Zamora. Ecuador. August 2016.
 - 6 **Cobos, M. E.**, C. Nuñez-Penichet, C. Mendoza, and K. Valarezo-Aguilar. Impacto del cambio climático en la distribución potencial del Perico Pechiblanco (*Pyrrhura albipectus*). *V Encuentro Ornitológico Ecuatoriano*. Zamora. Ecuador. August 2016.
 - 5 **Cobos, M. E.** and C. Nuñez-Penichet. Pérdidas forestales y cambio climático: búsqueda de posibles sinergias para identificar áreas prioritarias de restauración. *I Congreso Ecuatoriano de Restauración del Paisaje*. Loja, Ecuador. April 2016.
 - 4 **Cobos, M. E.** Avances en métodos para el estudio de la distribución de especies. *Reunión para la Conservación de la Biodiversidad en Cuba-2015*. Havana, Cuba. November 2015
 - 3 Nuñez Penichet, C., **M. E. Cobos**, and A. Barro. Rutas migratorias potenciales de *Urania boisduvalii* (Lepidoptera: Uraniidae) en Cuba: conectividad y conservación. *Reunión para la Conservación de la Biodiversidad en Cuba-2015*. Havana, Cuba. November 2015
 - 2 **Cobos, M. E.** and R. Alonso. Efectos aditivos del cambio climático y la pérdida de hábitat en el rango de distribución de un sapo cubano amenazado. *X Convenio Internacional sobre Medio Ambiente y Desarrollo: V Congreso sobre Gestión de Ecosistemas y Medio Ambiente de Biodiversidad*. Havana, Cuba. July 2015
 - 1 **Cobos, M. E.** and R. Alonso. Un hábitat vulnerable para un sapo cubano amenazado. *Reunión para la Conservación de la Biodiversidad en Cuba-2014*. Havana, Cuba. November 2014

Fellowships, Grants, Awards

- | | |
|-----------|--|
| 2024 | National Science Foundation (NSF: EID). <i>Geographic Expansion of Vectors Driving Emergence of Tick-Borne Diseases</i> . \$1,702,474 (pending) Co-PI |
| 2024 | National Bio and Agro-Defense Facility (USDA). <i>Biodiversity of ticks and hosts in the Great Plains</i> . \$140,000 (pending) Co-PI |
| 2024 | University of Kansas. <i>Marnie and Bill Argersinger Award for Outstanding Dissertation</i> . \$1,500 |
| 2022 | BI, University of Kansas. <i>Panorama Grant</i> . \$1,000 |
| 2021 | BI, University of Kansas. <i>Division of Ornithology Grant</i> . \$1,000 |
| 2021 | BI, University of Kansas. <i>Panorama Grant</i> . \$1,000 |
| 2019 | Google Summer of Code. R organization. <i>Grinnellian ecological niches and ellipsoids in R</i> . \$6,000 |
| 2019 | EEB Department. University of Kansas. <i>Summer research scholarship</i> . \$2,000 |
| 2018 | Google Summer of Code. R organization. <i>Species range maps in R</i> . \$6,000 |
| 2018 | University of Kansas. <i>Graduate scholarly presentation travel fund</i> . \$500 . |
| 2018 | EEB Department. University of Kansas. <i>Summer research scholarship</i> . \$3,000 |
| 2017 | University of Kansas. <i>Fellowship for graduate studies (Fall semester)</i> . \$9,370 |
| 2014-2016 | Ecuadorian National Secretary of Superior Education Science and Technology (SENESCYT). <i>Scholarship for international graduate studies (M.Sc.)</i> . \$33,297 |

Community Engagement and Extension

Science Sundays: Ticks in Kansas: *Activities:* Science communication activity with the general public.
Where and when to find them *Scope:* Lawrence, Kansas.
 Kansas, USA. *Institution:* Field Station, University of Kansas.
 April, 2024

Microbes on the move *Activities:* Spanish translations of outreach materials and social media posts;
 Kansas, USA. Facilitate activities with visitors including speaking and engaging in Spanish
 July, 2022 and English.
Scope: Three cities in the state of Kansas.
Institution: BI, University of Kansas.

Strategic Development Plan for an Amazonian Rural Region

Zamora Chinchipe, Ecuador.
2012–2013

Activities: Participative work with Indigenous (Shuar and Saraguro) and mixed-ancestry communities to identify development priorities; Workshops with key stakeholders to build capacities for participative planning; Coordinated meetings with local and regional governments and stakeholders; Development of strategic plan document.

Scope: El Guismi Rural region.

Institution: El Guismi Decentralized Autonomous Government.

Battery disposal awareness campaign

Zamora Chinchipe, Ecuador.
2012–2013

Activities: Designing content and teaching materials for primary schools; Presenting content and educational activities in primary schools with the involvement of teachers and students.

Scope: Ten rural schools in El Guismi.

Institution: El Guismi Decentralized Autonomous Government.

Plastic bottle recycling campaign

Zamora Chinchipe, Ecuador.
2012–2013

Activities: Designing content and teaching materials for primary schools; Presenting content and educational activities in primary schools with the involvement of authorities, teachers, and students. Design of mechanisms to collect, store, and recycle collected materials.

Scope: Ten rural schools in El Guismi.

Institution: El Guismi Decentralized Autonomous Government.

Professional Membership

Ecological Society of America

2024-present

Society for the Study of Evolution

2022-present

International Biogeography Society

2018-present

Society for the Study of Amphibians and Reptiles

2018

ServiceCommittees

Diversity, Equity, Inclusion, and Belonging. BI. University of Kansas. 2021–2024.

KU Center for Genomics Symposium Planning Committee. University of Kansas. 2024–2025.

Reviewer for Grant/Award Proposals

2024 Graduate Researchers Award. Global Biodiversity Information Facility (GBIF). 2024.

Reviewer for Scientific Journals

Aquatic Conservation: MFE (3), Biodiversity Informatics (2), Biological Conservation (2), Copeia (1), Ecological Modelling (1), Ecography (3), Ecology and Evolution (1), Global Change Biology (1), Global Ecology and Biogeography (1), Hydrobiologia (2), Journal of Animal Ecology (1), Journal of Biogeography (3), Journal of Forestry Research (4), Journal of Medical Entomology (2), Mammalian Biology (2), Methods in Ecology and Evolution (1), Molecular Ecology (1), Nordic Journal of Botany (1), Ornithological Applications (1), Oryx (1), PeerJ (2), Perspectives in Ecology and Conservation (2), Plant Ecology (1), PLoS ONE (7), Progress in Oceanography (2), Tropical Medicine & International Health (1), Waterbird (1)

Fieldwork

2024	Ecuador	Small mammal and pathogen survey in the Pacific Region, Field co-lead
2024	Kansas, USA	Monthly rodent-pathogen surveys at KU Field Station, Field lead
2023	Kansas, USA	Small mammal survey at KU Field Station, Field co-lead
2021–2022	Kansas, USA	Small mammal and tick surveys in Kansas Public Lands, Field co-lead
2021	Kansas, USA	Greater Duckweed sampling across the state of Kansas, Field lead
2020–2022	Kansas, USA	Tick and tick-pathogen survey in Kansas Public Lands, Field co-lead
2015	Cuba	Surveillance of new localities for an endangered toad, Field assistant
2012	Ecuador	Biodiversity survey for strategic planning, Field lead
2011	Ecuador	Invasive Bullfrog surveys in the Amazon region, Field assistant
2011	Ecuador	Surveys of animal species in the Amazon region, Field assistant

Open Source Software

<u>kuenm2</u>	Detailed Development of Ecological Niche Models. <u>Creator</u> .
R package	https://github.com/marloncobos/kuenm2
<u>ArctosR</u>	An Interface to the Arctos Database. <u>Co-author</u> .
R package	https://github.com/hrhwilliams/ArctosR
<u>enmpa</u>	Ecological Niche Modeling using Presence-Absence Data. <u>Co-author</u> .
R package	https://CRAN.R-project.org/package=enmpa
<u>mop</u>	Mobility Oriented-Parity Metric. <u>Creator</u> .
R package	https://CRAN.R-project.org/package=mop
<u>biosurvey</u>	Tools for Biological Survey Planning. <u>Co-creator</u> .
R package	https://github.com/claununez/biosurvey
<u>nichevol</u>	Tools for Ecological Niche Evolution Assessment Considering Uncertainty. <u>Creator</u> .
R package	https://CRAN.r-project.org/package=nichevol
<u>grinnell</u>	Dispersal simulations based on ecological niches. <u>Co-creator</u> .
R package	https://github.com/fmachados/grinnell
<u>ellipsenm</u>	Ecological niche's characterization using ellipsoids. <u>Creator</u> .
R package	https://github.com/marloncobos/ellipsenm
<u>kuenm</u>	An R Package for Detailed Development of Ecological Niche Models Using Maxent. <u>Creator</u> .
R package	https://github.com/marloncobos/kuenm
<u>rangemap</u>	Simple Tools for Defining Species Ranges. <u>Creator</u> .
R package	https://github.com/marloncobos/rangemap

Professional References

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<i>Reference for: Research</i>	