

Background Information

Johnny Albert Uelmen Jr.
Department of Population Health Sciences

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Formal Education

- 2020 Doctor of Philosophy (PhD), Epidemiology
University of Illinois at Urbana-Champaign School of Veterinary Medicine. Urbana, IL.
- 2017 Professional Certification in Public Health Entomology, Midwest Center for Excellence in Vectorborne Diseases (MCEVBD)
- 2017 MS, Epidemiology
University of Wisconsin. Madison, WI.
- 2014 Graduate Certification in Global Health, UW-Madison
- 2014 Master of Science (MS), Entomology
University of Wisconsin. Madison, WI.
- 2010 Bachelor of Science (BS), Evolutionary Biology
University of Wisconsin. Madison, WI.

Training & Skills

September 1, 2025 – STRIDE Scholar, Institute for Clinical and Translational Research
June 15, 2026

September 1, 2025 – MATRIX Scholar, School of Medicine and Public Health
May 31, 2026

June 23 - 28, 2025 Center for High Throughput Computing (CHTC) Open Science Grid (OSG)
School User Training Certification

Current Positions

- 2026 – Present Advisory Member, South-East Asian Regional Expert Group on Environmental Determinants of Health and Climate Change, World Health Organization (WHO)
- 2026 – Present Sustainability Faculty Fellow, 3-year term, Office of Sustainability, University of Wisconsin-Madison

2024 – Present Assistant Professor, Population Health Sciences, University of Wisconsin-Madison

Affiliations

2026 – Present Center for Ecology and the Environment
 2025 – Present Nelson Institute for Environmental Studies
 2025 – Present Comparative Biomedical Sciences (CBMS) Trainer
 2025 – Present Center for Demography and Ecology (CDE)
 2025 – Present Parasitology and Vector Biology (PVB) Training Program
 2025 – Present Data Science Institute (DSI)
 2024 – Present Molecular and Environmental Toxicology (MET)
 2024 – Present J.F. Crow Institute for the Study of Evolution

Past Positions

2023-2024 Assistant Director, Triangle Center for Evolutionary Medicine (TriCEM),
 Duke University
 2023-2024 Postdoctoral Scholar, Department of Evolutionary Anthropology
 Duke University
 2022-2023 Postdoctoral Scholar, Department of Integrative Biology
 University of South Florida
 2021-2022 Postdoctoral Scholar, Department of Epidemiology
 University of Michigan
 2020-2021 Postdoctoral Scholar, Department of Pathobiological Sciences
 University of Illinois at Urbana-Champaign

Honors and Awards

2025 – 2027 Centennial Scholar, School of Medicine and Public Health, UW-Madison
 (\$210,000)
 2024 North Carolina Biotechnology Center, Biotechnology Event Sponsorship
 Program (\$1500)
 2022 University of Michigan Postdoctoral Association Conference Award (\$500)
 2020 CDC Aedes Challenge Workshop, Sponsored Student Travel Award
 (\$2500)
 2019 Michigan Mosquito Control Association, 2nd place student oral competition
 (\$500)
 2019 Illinois Mosquito & Vector Control Association, 2nd place student oral
 competition (\$100)
 2019 Fulbright U.S. Research Scholar, India, *Finalist*
 2018 University of Illinois Student Sustainability Committee Fund Award (\$5715)
 2018 Fulbright U.S. Research Scholar, Thailand, *Runner-up*
 2017 UW-Madison Green Fund Award (\$21,156)

2017	UW-Madison University Lectures Grant (\$1037)
2017	Student American Veterinary Medical Association One Health Grand Challenge Award (\$1700)
2017	UW-Madison Bucky's Peer Mentor Award Finalist
2017	UW-Madison Bucky's Conservation & Sustainability Award Runner-up
2017	Wisconsin Without Borders Community Based Research Award (\$750)
2016	CDC Division of Foodborne, Waterborne, and Environmental Diseases acknowledgment for role in ending multi-state <i>Salmonella</i> outbreak in Midwest
2016	UW-Madison International Academic Programs Graduate Student Study Abroad Scholarship (\$1500)
2016	UW-Madison Global Health Institute Graduate Student Research Award (\$4790)
2006-2010	Chancellor and Powers-Knapp Scholar, UW-Madison

Professional Society Memberships

2024 – Present	Society for Vector Ecology (SoVE)
2024 – Present	International Society for Evolution, Medicine, and Public Health (ISEMPH)
2023 – Present	Ecology and Evolution of Infectious Diseases (EEID)
2015 – Present	American Mosquito Control Association (AMCA)
2014 – Present	American Geophysical Union (AGU)
2011 – Present	Ecological Society of America (ESA)
2011 – Present	Entomological Society of America (EntSoc)
2011 – Present	American Society of Tropical Medicine & Hygiene (ASTMH)

Publications ([complete list via NCBI](#))

Peer-Reviewed Publications

25. Benjamin Burgunder, Jian Yang, **Johnny Uelmen**, Rebecca Lee Smith, Patrick Irwin, Megan L. Fritz. 2025. Molecular surveillance supports differing roles in West Nile virus transmission between *Culex pipiens* and *Culex restuans* in Chicago, Illinois. *Journal of Medical Entomology*, **63**, tjaf190. PMID: 41622672. DOI: 10.1093/jme/tjaf190.
24. Ryan M. Carney, Farhat Azam, Karlene Rivera, Tanvir Bhuiyan, Lala S. Rafaraso, Valéry Riantsoa, Russanne D. Low, Sarah Zohdy, Tovo M. Andrianjafy, Mamisoa A. Ramahazomanana, Ranto N. Rasolofo, Pradeep A. Subramani, **Johnny A. Uelmen Jr.**, and Sriram Chellappan. 2025. Artificial intelligence and citizen science as a solution for enhanced global surveillance of invasive malaria mosquito *Anopheles stephensi*: Madagascar case study. *Insects*, **16**, 1098.
23. Lukas Blumrich, ***Johnny Uelmen**, Alexandre Archanjo Ferraro. 2025. Exploring Evolutionary Medicine Through Bibliometrics: Research Insights and Future Opportunities.

Evolution and Public Health, 13(1): 399-410. PMID: 41395346. PMCID: PMC12701569. DOI: 10.1093/emph/eoaf032.

22. Titcomb, G., **Uelmen, J.**, Janko, M., & Nunn, C. 2024. Infectious disease responses to human climate change adaptations. *Global Change Biology*, 30(8), e17433. PMID: 39171421. PMCID: PMC11646313. DOI: 10.1111/gcb.17433.

Peer-Reviewed Publications Prior to Faculty Appointment

21. Wan, G, Allen, J, Ge, W, Rawlani, S, **Uelmen, JA**, Mainzer, L, and Smith, RL. 2024. Two-step light gradient boosted model to identify human west nile virus infection risk factor in Chicago. *PLOS ONE* **19** (1): e0296283. PMID: 38181002. PMCID: PMC10769082. DOI: 10.1371/journal.pone.0296283
20. ***Johnny A. Uelmen Jr.**, Andrew Clark, John Palmer, Landon C. Van Dyke, Russanne Low, Connor D. Mapes, Ryan M. Carney. 2023. Global Mosquito Observations Dashboard (GMOD): creating a user-friendly web interface fueled by citizen science to monitor invasive and vector mosquitoes. *International Journal of Health Geographics* **22** (28). PMID: 37898732. PMCID: PMC11180130. DOI: 10.1186/s12942-023-00350-7
19. Ryan M. Carney, Alex Long, Russanne D. Low, Sarah Zohdy, John R. B. Palmer, Peter Elias, Frederic Bartumeus, Laban Njoroge, Maina Muniafu, **Johnny A. Uelmen**, Nil Rahola, Sriram Chellappan. 2023. Citizen science as an approach for responding to the threat of *Anopheles stephensi* in Africa. *Citizen Science: Theory and Practice* **8** (1): 1-15. DOI: 10.5334/cstp.616
18. ***Johnny A. Uelmen Jr.**, Connor D. Mapes, Agne Prasauskas, Carl Boohene, Leonard Burns, Jason Stuck, Ryan M. Carney. 2023. A Habitat Model for Disease Vector *Aedes aegypti* in the Tampa Bay Area, Florida. *Journal of the American Mosquito Control Association* **39** (2): 96-107. PMID: 37364184. DOI: 10.2987/22-7109
17. Karen M Holcomb, Sarabeth Mathis, J Erin Staples, Marc Fischer, Christopher M Barker, Charles B Beard, Randall J Nett, Alexander C. Keyel, Matteo Marcantonio, Marissa L. Childs, Morgan E. Gorris, Ilia Rochlin, Marco Hamins-Puértolas, Evan L. Ray, **Johnny A Uelmen**, Nicholas DeFelice, Andrew S Freedman, Brandon D Hollingsworth, Praachi Das, Dave Osthus, John M. Humphreys, Nicole Nova, Erin A Mordecai, Lee W. Cohnstaedt, Devin Kirk, Laura D. Kramer, Mallory J. Harris, Morgan P. Kain, Emily MX Reed, Michael A Johansson. 2023. Evaluation of an open forecasting challenge to assess skill of West Nile virus neuroinvasive disease prediction. *Parasites & Vectors* **16**, 11. DOI: 10.1186/s13071-022-05630-y
16. ***Uelmen, J.A.**, Kopsco, H., Mori, J., Brown, W.M., and Smith, R.L. 2023. Modeling Community COVID-19 Transmission Risk Associated with U.S. Universities. *Scientific Reports* **13**, 1428. DOI: 10.1038/s41598-023-28212-z
15. ***Uelmen, JA**, Lamczyk, B, Irwin, P, Bartlett, D, Stone, C, Mackay, A, Arsenault-Benoit, A,

- Mutebi, J-P, Hamer, G, Fritz, M, and Smith, RL. 2023. Human biting mosquitoes and implications on WNV transmission. *Parasites & Vectors* **16**, 2. DOI: 10.1186/s13071-022-05603-1
14. Leosani, Y., **Uelmen, J.A.**, and Carney, R. 2022. Spatial evaluation of healthcare accessibility across archipelagic communities of Maluku Province, Indonesia. *PLOS Global Public Health* **3**(3): e0001600. DOI: 10.1371/journal.pgph.0001600
 13. Ranoa, DRE, Holland, RL, Alnaji, FG, Green, KJ, Wang, L, Fredrickson, RL, Wang, T, Wong, GN, **Uelmen, JA**, et al. 2022. Mitigation of SARS-CoV-2 Transmission at a Large Public University. *Nature Communications* **13**, 3207. DOI: 10.1038/s41467-022-30833-3
 12. Aley, I, Nehls, B, **Uelmen, JA**, and Hicks, A. 2021. Lessons Learned from a Sustainability-Focused Community-Based Learning Green Fund Partnership. *Climate Change and Sustainability* **15**(1). DOI: 10.1089/scc.2021.0013
 11. Fox, L. Haefele, H., **Uelmen, J.**, Hoppes, S., Swenson, J., Tolbert M.K., Suchodolski, J.S., and Steiner, J.M. 2021. Biomarkers of Gastrointestinal Disease in Cheetahs (*Acinonyx jubatus*). *Journal of Zoo and Wildlife Medicine* **52**(3): 886-892. PMID: 34687504. DOI: 10.1638/2021-0012
 10. Keyel AC, Gorris ME, Rochlin I, **Uelmen JA**, Chaves LF, Hamer GL, et al. 2021. A proposed framework for the development and qualitative evaluation of West Nile virus models and their application to local public health decision-making. *PLoS Neglected Tropical Diseases* **15**(9): e0009653. DOI: 10.1371/journal.pntd.0009653
 9. ***Uelmen, JA**, Irwin, P., Brown, W.M., Karki, S., Ruiz, M.O., Li, B., and Smith, R.L. 2021. Dynamics of data availability in disease modeling: An example evaluating the trade-offs of ultra-fine-scale factors applied to human West Nile virus disease models in the Chicago area, USA. *PLOS ONE* **16**(5): e0251517. DOI: 10.1371/journal.pone.0251517
 8. ***Uelmen, JA**, Irwin, P., Bartlett, D., Brown, W.M., Karki, S., Ruiz, M.O., Fratterigo, J., Li, B., and Smith, R.L. 2020. The Effects of Scale on West Nile Virus. *American Journal of Tropical Medicine & Hygiene* **104**(1): 151-165. DOI: 10.4269/ajtmh.20-0416
 7. ***Uelmen JA**, Hicks, A, Nehls, Breana, Aley, Ian. 2020. Sustainability impacts of replacing high-flow toilets in a university residence hall. *Sustainability: The Journal of Record* **13**(2): 74-80. DOI: 10.1089/sus.2019.0030
 6. ***Uelmen, JA**, Brokopp C, Patz, J. A. 2020. 15-year Evaluation of West Nile Virus in Wisconsin: Effects of Wildlife and Human Health. *International Journal of Environmental Research and Public Health* **17**(5): 1767. DOI: 10.3390/ijerph17051767
 5. Karki, S, Brown, WM, **Uelmen, JA**, O'Hara Ruiz, M, Smith, RL. 2019. The drivers of West Nile virus human illness: fine scale dynamic effects of weather, mosquito infection, social, and biological conditions. *PLOS ONE* **15**(5): e0227160.

DOI: 10.1371/journal.pone.0227160

4. Chakraborty, S, Andrade, FCD, Ghosh, S, **Uelmen, JA**, and Ruiz, MO. 2019. Historical expansion of Kyasanur Forest Disease in India from 1957 to 2017: A retrospective analysis. *Geohealth* **3**: 44-55.
3. Harbison, JE, Nasci, R, Runde, A, Henry, M, Binnal, J, Hulsebosch, B, Johnson, H, **Uelmen, JA**, Bradley, M, Newton, G, Irwin, P, and O'Hara Ruiz, M. 2018. Standardized Operational Evaluations of Catch Basin Larvicides from Seven Mosquito Control Programs in the Midwestern United States During 2017. *Journal of the American Mosquito Control Association* **34**: 107-116.
2. ***Uelmen JA**, Lindroth RL, Tobin PC, Schwartzberg EG, and Raffa KF. 2016. Effects of winter temperatures, spring degree-day accumulation, and insect population source on phenological synchrony between forest tent caterpillar and host trees. *Forest Ecology and Management*, **362**: 241-250.
1. ***Uelmen JA**, Duman JG, Lindroth RL, Schwartzberg EG, and Raffa KF. 2016. Supercooling points of diapausing forest tent caterpillar eggs. *The Canadian Entomologist*, **148**: 512-519.

Papers Submitted to Peer-Reviewed Journals

2. Jordan A. Wilson, **Johnny Uelmen**, Ellen J. Kendall, Nicole L. Gottdenker, David Pickel, Ana Luisa Santos, Judith Littleton, Timothy P. Newfield, J.R. McNeill, Rebecca Gowland, Emily Mendenhall, Jane Buikstra. 2025. Assessing Malaria Risk in a Changing Climate: Using One Paleopathology to Integrate Disease Ecology Modeling, Paleoclimatology, and Ancient Skeletal Health. *Under peer review in the Lancet*.
1. Andrianjafy, T., **Uelmen, J.A.**, Carney, R.M., and Zohdy, S. 2025. Urban larval mosquito surveillance in Antananarivo, Madagascar: spatiotemporal heterogeneity and associated vector dynamics. *Under review in Zoonosis and Public Health*.

Research Presentations (*in person unless otherwise stated)

Local/UW

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| November 18, 2025 | The Global Health Institute's Global Health Tuesday Webinar 'AI's Potential to Address Global One Health Crises'. My presentation was titled "New Technologies and Use of Artificial Intelligence in Ecological Studies". |
| March 19, 2025 | Data Science Research Bazaar Lightning Talk, UW-Madison |
| January 28, 2025 | Pathobiology Department Seminar Series, UW-Madison |
| December 6, 2024 | EI Zoominatio Speaker (*Virtual) |
| October 9, 2024 | Latinx Voices, Lightning Talk, UW-Madison |

October 8, 2024 Parasitology and Vector Biology Seminar Series, UW-Madison

Regional

July 11, 2025 International Symposium on the Infectious Diseases of Bats (BatID),
“Anthropogenic change, bat stress, and ecotonal shifts: Identifying
high-risk Nipah virus spillover zones in Bangladesh”. University of
Chicago.

March 26, 2025 Marshfield Clinic Seminar Series Speaker

November 23-24
2024 Illinois Mosquito and Vector Control Association, Springfield, IL

National

December 19, 2025 American Geophysical Union Annual Conference, New Orleans, LA.
Oral presentation titled “Reconstructing Malaria Dynamics in Ancient
Athens through Paleoclimatic Modeling, Ancient DNA Analysis, and
Interdisciplinary Insights: Implications for Historical Disease Burden
and Future Climate-Driven Health Risks”.

December 15, 2025 American Geophysical Union Annual Conference, New Orleans, LA.
Oral presentation titled “Integrating NASA Earth Observations, Thermal
Drones, and AI to Detect Hotspots of Co-circulating Vector-borne
Pathogens in Colombia”.

November 12, 2025 American Society of Tropical Medicine & Hygiene Annual Conference,
Toronto, Canada.

October 23, 2025 Mount Sinai, Department of Environmental Health Sciences Seminar,
New York City, NY. Oral presentation titled “Vectors in a Changing
Climate: Modeling the Spread of Mosquito-Borne Viruses”.

June 17, 2025 Ecology and Evolution of Infectious Diseases Annual Conference,
“Mapping Oropouche Virus Risk Through Land Cover Change and
Vector Ecology”. University of Notre Dame.

March 3-7, 2025 American Mosquito Control Association Conference, San Juan, Puerto
Rico, March 3-7, 2025.

November 16-17,
2024 BEACONS Conference, New Orleans, LA.

November 7,
2024 University of Florida, Department of Geography Seminar Series

International

February 10, 2026, University of Pécs, National Laboratory of Virology, 5-year Anniversary
Conference. Podium talk titled “From Pixels to Pathogens: Drone,
High-Throughput Computing, GIS, AI, and Citizen Science for One
Health Surveillance.”

August 2025 Vectoract, Dhaka, Bangladesh

May 13, 2025 Advancing Health and Malaria Resilience in Africa Through Innovation
in a Changing Climate (*Virtual)

October 14, 2024	Center for Tropical Disease Research, University of Costa Rica, Seminar Speaker (*Virtual)
August 6-9, 2024	International Society of Evolution, Medicine, and Public Health Annual Conference, Durham, UK
July 9-14, 2024	Vectoract, Budapest & Pécs, Hungary
February 13-14,	Center for Tropical Disease Research, University of Costa Rica, seminar series and medical entomology workshop.

Research Support

Current

February 2026 – January 2028	Wisconsin Partnership Program (WPP) New Investigator Award (NIP) • <i>Improving Ecological Modeling and Forecasting of Ticks and Tick-Borne Diseases in Wisconsin</i> • Primary Investigator, Submitted May, 2025 • Award amount: \$150,000
September 2025 – August 2028	NASA ROSES A.65: Responsive Science Initiatives Research, September 2025 – August 2028) • <i>Integrating Landsat 8 Remote Sensing and Machine Learning for Predicting Ecotonal Shifts and Zoonotic Spillover Risk in Flying Fox-Nipah Virus Interfaces</i> • Primary Investigator, Requested grant amount: \$899,964 • Application designated as “Selectable” and may be funded pending updated appropriations from recent Senate package approvals (anticipated final notification in March 2026)
February 2026 – January 2027	Osa Conservation Susan Wojcicki Fellowship 2025 • Integrative Surveillance of Oropouche Virus Vectors, Reservoirs, and Environmental Drivers in the Osa Peninsula, Costa Rica • Primary Investigator, Submitted April 2025 • Awarded amount: \$15,000
January 2025 – December 2027	Centennial Scholar Award, School of Medicine and Public Health, UW-Madison • Award amount: \$210,000

Grants Under Review

January 2027 – December 2030	ERASMUS Capacity Building in Higher Education • Transforming Higher Education for One Health-Based Vector-borne Disease Surveillance • Co-Investigator, Submitted February, 2026
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July 2026 – June 2029	ARIA Opportunity Seeds: Engineering Ecosystem Resilience • Solar-powered GPS-ACC telemetry for bats and beyond: Arribada-led open hardware to track <i>Pteropus medius</i> and reduce Nipah spillover risk • Lead Co-Principal Investigator, Submitted February, 2026 • Requested grant amount: \$610,000 • Funding period: 3 years
June 2027 – May 2028	ICTR Translational Basic & Clinical Pilot Award • Integrating Molecular Surveillance and Predictive Risk Mapping to Inform Clinician and Community Response to Tick-Borne Diseases in Wisconsin • Principal Investigator, Submitted January, 2026 • Requested grant amount: \$50,000 • Funding period: 1 year • *Invited to submit a full proposal in February, 2026
July 2027 – June 2029	ICTR Clinical & Translational Sciences (CTS) • Community engagement in research to provide trusted, evidence-based healthcare for tickborne diseases • Co-Principal Investigator, Submitted January, 2026 • Requested amount: \$125,000 over 2 years
June 2027 – May 2031	NIH R01, PI: Cristian Koepfli, University of Notre Dame • Linking serology and remote sensing to stratify vector-borne disease transmission across scales • Co-Principal Investigator, Submitted January, 2026 • Requested subaward: \$649,844 over 5 years
January 2027- December 2027	Spencer Foundation, Vision Grant • Bridging the Gap: Rethinking High-Impact Models for First-Generation, Low-Income Undergraduates in Research Universities • Co-Principal Investigator, Submitted September, 2025 • Requested grant amount: \$75,000 • Funding period: 1 year
May 2025 – April 2028	NSF NRT Program, UW-Madison pre-proposal for 2026 competition • <i>Converging Social and Environmental Systems to Foster Disaster Preparedness</i> • Co-Primary Investigator, Submitted May, 2025 • Requested grant amount: \$3,000,000 • Funding period: 5 years
July 2025 – June 2030	NSF 25-527: Smart and Connected Communities (S&CC) • <i>Science Driven Explainable AI and Community Engagement for Mosquito Vector Surveillance and Disease Modeling</i> • Co-Principal Investigator, Submitted February, 2025