Postdoctoral Researcher– Quantitative Ecology, Human-Wildlife Movement & SARS-CoV-2

The URBANxNATURE Lab and the Applied, Spatial Ecology Lab at the University of Maryland are searching for a postdoctoral researcher to work on a multi-institutional and transdisciplinary project to study the potential transmission of SARS-CoV-2 between humans and deer in urban and suburban settings. Multiple studies have identified SARS-CoV-2 infections in white-tailed deer, making deer a species of interest in understanding spillover risk between humans and wildlife. The potential for human-deer interactions is greatest in urban and suburban areas, due to higher human population numbers and increased densities of deer. Therefore, urban deer serve as a specific species of concern for the spread of SARS-CoV-2 and potentially other airborne diseases between humans and animals.

This is a collaborative project between the University of Maryland (UMD) and George Mason University (GMU) bringing together wildlife ecologists, disease ecologists, epidemiologists, and geographical information scientists. The overall goal of this project is to investigate zoonotic transmission pathways at the human-wildlife interface and integrate these relevant pathways into a modeling framework that can more broadly predict the risk of spillover between humans and wildlife. The specific research objective that this postdoc would primarily focus on is estimating the potential for human-deer interaction by using data collected from animal mounted GPS technology and available sources of human mobility data to identify the underlying dynamics that result in human-deer interactions and identify hotspots of spatiotemporal overlap between deer and humans.

The post-doc will interface with the larger research group (2 postdocs, 2 PhD and 2 MS students, 1 Research Associate, and 4 PI's) through biweekly all-hands meetings and we will foster collaborative relationships between the post-doc and affiliated faculty through in person meetings and co-led papers.

We are particularly excited about recruiting a postdoc that has quantitative skills in animal movement models and experience analyzing GPS collar data. The postdoctoral scholar will be responsible for the following work:

1. Assisting fieldwork team with capturing and collaring deer in Washington, D.C.
2. Procuring, collating, and curating human mobility data
3. Collecting and curating environmental variables associated with human and deer observations.
4. Conducting statistical analyses to quantify human-deer interactions and identify correlates associated with the spatiotemporal overlap of humans and deer
5. Developing a risk assessment and/or risk maps of the probability of spatiotemporal overlap between humans and deer
6. Collaborating with postdocs and faculty at GMU to develop an agent-based model that incorporates white-tailed deer movement, human mobility, and disease surveillance data to predict transmission risks between humans and deer and identify potential mitigation strategies to reduce potential human-deer interaction.

The postdoctoral researcher will be supervised by Drs. Travis Gallo and Jennifer Mullinax in the Department of Environmental Science and Technology at the University of Maryland and will work closely with collaborators at George Mason University.

Position structure:
The position is funded for 24 months. The successful candidate will be hired through the University of Maryland, College Park and be based on the main campus. The anticipated start date is

November/December, but the in-person start date is negotiable. The postdoctoral researcher will be provided an annual salary of $65,0000, plus benefits, a computer (based at UMD) with high processing speeds, office space on campus, and travel funds to attend a national conference.

Qualifications:

Minimum qualifications:
1. Ph.D. degree in wildlife ecology, disease ecology, quantitative ecology, statistics, or related field by the anticipated start date
2. Expertise in R coding language and previous experience constructing Bayesian hierarchical models and/or agent-based (individual-based) models.
3. Expertise working with and analyzing large spatial data sets using R, Python, QGIS, and/or ArcGIS
4. Demonstrated desire and proven ability to publish in peer-reviewed journals.
5. Excellent written and personal communication skills
6. The ability to work both independently and collaboratively, and to meet deadlines.

Desired qualifications:
Recognizing that the perfect candidate will likely not meet all these desired qualifications, competitive candidates will have a background working with some combination of animal movement models, species-interaction models, wildlife observation data, large complex data sets, and data integration.

How to apply:
We encourage candidates of all backgrounds and experiences to apply. Send the following to tgallo@umd.edu with "Human-Deer Postdoc" in the Subject header: 1) Letter of interest, 2) CV, and 3) contact info for 3 references in a SINGLE PDF titled with your name (e.g., DoeJohn.doc or SmithJane.pdf).

Apply by August 15, 2023 for full consideration, though the position will remain open until a suitable candidate is found.