

ECOLOGY AND EVOLUTION OF INFECTIOUS DISEASE – PI MEETING
March 27-29, Madison, WI
PROGRAM

SUNDAY, MARCH 27

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|-------|-----------------------|--------------------------|--|
| 8:20 | NSF & NIH | | Opening Remarks |
| 8:30 | Levin, B. | Emory U | Within-host population and evolutionary dynamics of antibiotic treatment: what mathematical models and in vitro experiments tell us |
| 9:00 | Osnas, E. | Princeton U | Evolutionary changes in the house finch- <i>Mycoplasma</i> system |
| 9:15 | Zelner, J. | Princeton U | Social connectedness can inhibit disease transmission: Social organization, cohesion, village context and infection risk in rural Ecuador |
| 9:30 | Bordenstein, S. | Vanderbilt U | Genome reduction and expansion in obligate intracellular bacteria |
| 9:45 | Powell, E. | Rutgers U | Understanding How Disease and Environment Combine to Structure Resistance in Estuarine Populations |
| 10:00 | BREAK | | |
| 10:15 | Rizzo, D. | U California-Davis | Multi-scale management of Sudden Oak Death: putting the research to work |
| 10:45 | Blanford, J. | Pennsylvania State U | Geospatial Analysis for Evaluation, Surveillance and Management of Emerging Infectious Diseases |
| 11:00 | Novak, R. J. | U Alabama-Birmingham | Identification of <i>Simulium damnosum</i> s.l. breeding sites using remote sensing data |
| 11:15 | Paaijmans, K. | Pennsylvania State U | What are the relevant microclimate measures for assessing malaria risk? |
| 11:30 | Chen, D. | New York U | <i>Plasmodium falciparum</i> var Gene Diversity and Organization |
| 11:45 | Matos, L. F. | Eastern Washington U | Artificially host shifted rhabdovirus sigma exhibits increased infectivity and virulence |
| 12:00 | LUNCH | | |
| 1:00 | Shields, J. | Virginia Inst Marine Sci | Ecology of Infectious Disease in the marine realm: workshop report |
| 1:15 | Getz, W. M. | U California-Berkeley | Biomass transformation webs and their application to modeling anthrax outbreaks in Etosha National Park, Namibia |
| 1:30 | Lee, J. | Colorado State U | Host and pathogen molecular markers reveal different patterns of connectivity among bobcats (<i>Lynx rufus</i>) in a highly fragmented landscape |
| 1:45 | Hughes, A. | U South Carolina | The Importance of Effective Population Size in Pathogen Evolution |
| 2:00 | Gautam, R. | Texas A&M U | Mathematical modeling of host, pathogen and environmental factors in infection transmission: an example of <i>Escherichia coli</i> O157:H7 spread in a cattle herd under time-varying ambient temperature conditions |
| 2:15 | Piontkivska, H. | Kent State U | Evolution of HIV epitopes: the tortoise and the hare race? |
| 2:30 | Dybas, C. | NSF | The state of science journalism – a discussion |
| 2:45 | POSTER SESSION | | |

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MONDAY, MARCH 28

- 8:30 Conrad, P. U California-Davis Tracking *Toxoplasma gondii* from land to sea
- 9:00 Bowen, J. U North Carolina-Charlotte Mechanistic models of *Vibrio* fate and transport in the Neuse River Estuary, NC
- 9:15 Gear, D. Pennsylvania State U Transmission heterogeneities in a wildlife host: exposure, susceptibility, and co-infection
- 9:30 Arinaminpathy, N. Princeton U Impact of cross-protective vaccines on epidemiological and evolutionary dynamics of influenza
- 9:45 Cummings, D. Johns Hopkins U Location-specific patterns of exposure to recent pre-pandemic strains of influenza A in southern China

10:00 BREAK

- 10:15 Ochman, H. Yale U Microbial Communities Infecting Humans and Other Great Apes
- 10:45 Shields, J. Virginia Inst Marine Sci The impact of the parasitic dinoflagellate *Hematodinium* sp. on the American blue crab
- 11:00 Nakazawa, Y. CDC An integrated approach to investigations of the sylvatic reservoirs of monkeypox
- 11:15 Bellan, S. E. U California-Berkeley Anthrax incidence estimation using distance sampling and scavenger movement data
- 11:30 Huq, A. University of Maryland Environmental determinants of pathogenic vibrios in the Pacific Northwest, the Northern Gulf of Mexico, and Chesapeake Bay
- 11:45 Brusini, J. U Florida Artificial selection on Sigma virus titer and correlated response of virulence

12:00 LUNCH

- 1:00 Thrall, P. CSIRO Rapid genetic change underpins antagonistic coevolution in a natural host-pathogen metapopulation
- 1:30 Ezenwa, V. U Georgia Coinfection and pathogen invasion
- 1:45 Harvill, E. Pennsylvania State U Evolution of *Bordetellae*; from Commensals to Pathogens
- 2:00 Culligan, P. Columbia U Aquifers and tubewells as vectors of diarrheal disease in Bangladesh: Ecological and hydrogeological factors

2:15 BREAK

- 2:45 Bevins, S. Colorado State U Domestic and non domestic felids in the US: contact, connectivity, and infectious disease
- 3:15 Parrish, C. Cornell U Canine influenza and canine parvovirus as models of the evolutionary processes involved in viral host switching
- 3:30 Pagán, I. Pennsylvania State U Raccoon parvoviruses provide multiple examples of host range variation and adaptation that reveal major mechanisms of viral emergence
- 3:45 Knapp, R. U California-Santa Barbara Nowhere to hide: impact of a temperature-sensitive amphibian pathogen along an elevation gradient
- 4:00 Lyons, M. Old Dominion U Microscopic Islands: The Role of Organic Aggregates in Aquatic Disease Ecology

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POSTER SESSION

Bellan, S. E.	U California-Berkeley	Anthrax ecology and epidemiology in Etosha National Park, Namibia
Brennan, A.	Montana State U	Elk grouping patterns and Brucella transmission
Brennan, A.	Montana State U	Elk contact rates in western Wyoming: reducing Brucella transmission on winter feedgrounds
Brindley, P. J.	George Washington U	Development of microsatellite markers for Schistosoma japonicum
Brunner, J.	Washington State U	Does crowding promote epidemics? The effects of food and density on ranavirus transmission in wood frog tadpoles
Bushek, D.	Rutgers U	MSX and dermo disease in Delaware Bay oysters: The role of disease refugia
Carrington, L.	Pennsylvania State U	Impact of daily temperature fluctuations on dengue virus transmission by Aedes aegypti
Carver, S.	Colorado State U	Mechanisms of intra- and interspecific hemoplasma transmission in felids
Chen, D.	New York U	Evidence of recombination in the hypervariable var gene family of Plasmodium falciparum
Cobb, R. C.	U California-Davis	Ecosystem transformation by emerging infectious forest disease: loss of large tanoak from California forests
Conrad, P.	U California-Davis	Roles of a marine host cycle and particle aggregation in transmission of zoonotic pathogens in coastal ecosystems
Dhondt, A.	Cornell U	Transmission dynamics in the house finch-Mycoplasma system
Dobbs, F.	Old Dominion U	Microscopic Islands: Modeling the Theory of Island Biogeography for Aquatic Pathogens Colonizing Marine Aggregates
Dolan, T.	Virginia Inst Marine Sci	Coupling a physical and biological modules to model Hematodinium infections in the American blue crab
Donovan, D.	Michigan State U	Sequential Sampling of West Nile Virus Infection Prevalence in Culex Mosquitoes Forecasts Human Epidemics
Drake, J. M	U Georgia	Space-time modeling of the force of infection of West Nile virus in New York City
Drown, D. M	Indiana U	Evolution of transmission mode in obligate symbionts
Epstein, J.	EcoHealth Alliance	Update on Nipah virus ecology and outbreak surveillance in Bangladesh
Fleming-Davies, A.	U Chicago	Do more virulent pathogens persist longer in the environment?
Garabed, R.	Ohio State U	Livestock Movements and Disease Epidemiology in the Chad Basin: Modeling Risks for Animals and Humans
Gardner, A.	U Illinois	Abiotic Factors Affecting Productivity of Catch Basins as Culex (Diptera: Culicidae) Larval Habitats in Suburban Chicago, USA
Goldstick, J.	U Michigan	Interaction between neighboring villages in determining regional patterns of diarrheal disease in northern coastal Ecuador: A structured random process
Gramza, A.	Colorado State U	Understanding the Ecological Role of Domestic Cats in Urbanizing Landscapes

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Griffith, A.	Colorado State U	Feline Leukemia Virus in Florida bobcats and California pumas
Grossman, M.	Emory U	Environmental Reservoirs of Antibiotic Resistance in Rural Ecuador
Guo, X.	Rutgers U	Genetic structure of eastern oyster populations in Delaware Bay
Haas, S. E.	U North Carolina-Charlotte	Increased species diversity reduces disease risk in a generalist plant pathogen invasion across a natural forest ecosystem
Hamer, G.	Michigan State U	Filarioid nematode infections in amplification hosts for West Nile virus
Hersh, M.	Bard College	Comparative ecology of <i>Borrelia burgdoferi</i> and <i>Babesia microti</i> : Effects of host quality on tick-borne disease dynamics
Higgins, B.	U Minnesota	University of Minnesota Undergraduate Research Opportunity Program (UROP): Household characteristics associated with presence of <i>Leptospira</i> in the environment
Hobbs, T.	Colorado State U	Hierarchical Bayesian Modeling of Disease Dynamics: A Case Example Using Chronic Wasting Disease
Ivanek, R.	Texas A&M U	Environmental and pathogen factors in host infectiousness and infection transmission; Rapid characterization of pathogen genotypes
Ivanek, R.	Texas A&M U	Effectiveness of environmental decontamination as an infection control measure
Johnson, C. J.	U Wisconsin-Madison	Detection of Chronic Wasting Disease in Naturally Contaminated Environmental Samples
Jolles, A.	Oregon State U	From host immunity to pathogen invasion: how do within-host mechanisms scale up to disease dynamics?
Kerr, K.	Hofstra U	Tick- Host Ecology in the Southeastern U.S. and Implications for Lyme Disease Prevalence
Kilpatrick, M.	U California-Santa Cruz	Vector survival and competence across a land-use gradient
Kitron, U.	Emory U	Anemia, impaired growth and exercise intolerance in Kenyan children: the role of schistosomiasis and polyparasitism
Kitron, U.	Emory U	Spatial temporal heterogeneity of <i>Anopheles</i> mosquitoes and blood feeding behavior of <i>Anopheles gambiae</i> s.l. and <i>Anopheles funestus</i> in coastal Kenya
Kitron, U.	Emory U	Impact of drought on the spatial pattern of transmission of <i>Schistosoma haematobium</i> in coastal Kenya
Knapp, R.	U California	After the crash: factors allowing host persistence following outbreaks of a highly virulent disease
Kramer, A. M.	U Georgia	Mechanistic model of bacterial persistence on marine aggregates
Krebs, B.	U Illinois Urbana-Champaign	Movements and Roosting Behavior of the American Robin: Implications for West Nile Virus Transmission and Amplification
Kuczaj, I. M.	Michigan State U	Variation in host-seeking behaviors of <i>Ixodes scapularis</i> ticks: examination of biotic and abiotic factors involved in Lyme disease ecology
Kulow, M.	Texas A&M U	Rapid molecular characterization of pathogens characterized with genotype dependent pathogen-host interaction, including pathogen virulence and pathogenicity

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Levy, K.	Emory U	The Impact of Poultry Farming Practices on the Development of Antibiotic Resistance and the potential for transmission: An experimental Trial
Lewis, J. S.	Colorado State U	The effects of urban fragmentation on interactions, movements, and pathogen transmission in sympatric felid populations
Li, Y.	Harvard U	Mechanisms of immunity and diversifying selection in <i>Streptococcus pneumoniae</i>
Lyons, M.	Old Dominion U	Organic Aggregates as Microscopic Islands for Microbial Communities
Mason, M.	U Minnesota	Diagnostic accuracy of laboratory assays for detection of leptospirosis in low prevalence populations
McCann, R. S.	Michigan State U	Influence of Landscape Structure on Distribution of Adult Anopheles Vectors of Malaria in Lowland, Western Kenya
Mayne, P.	Emory U	Conceptualizing and quantifying social distance in modeling spatial spread of the human parasite <i>Schistosoma japonicum</i>
Mitchell, C. E.	U North Carolina-Chapel Hill	The community ecology of viral pathogens – Causes and consequences of coinfection in hosts and vectors
Monaghan, A.	National Ctr Atmosph Res	The vector mosquito <i>Aedes aegypti</i> at the margins: sensitivity of a coupled natural and human system to climate change
Morton, E.	Indiana U	Ecology and Interactions of the At and Ti plasmids of <i>Agrobacterium tumefaciens</i>
Mundt, C. C.	Oregon State U	Initial Epidemic Conditions as Primary Determinants of Epidemic Spread: A Plant Disease Model
Mundt, C. C.	Oregon State U	Initial Epidemic Conditions as Primary Determinants of Epidemic Spread: A Plant Disease Model
Munoz-Zanzi, C. A.	U Minnesota	Eco-epidemiology of Leptospirosis in Latin America: Community structure and study populations
Munroe, D.	Rutgers U	A Metapopulation Model to Examine Gene Transfer and Population Dynamics in Shellfish
Murdock, C.	Pennsylvania State U	Temperature shapes mosquito immune response in complex ways: warmer temperatures do not necessarily equal faster responses
Narvaez, D. A.	Old Dominion U	Effects of larval dispersion on the movement of disease resistant genes between oyster populations
Newman, C. M.	U Wisconsin-Madison	<i>Culex flavivirus</i> and West Nile virus mosquito co-infection and positive ecological association, Chicago
Olival, K. J.	EcoHealth Alliance	Non-Pteropus Reservoirs for Nipah virus and Genetic Connectivity of <i>Pteropus giganteus</i> in Bangladesh
Pang, G. C.	Michigan State U	Investigating the Impact of Temperature on Blacklegged Tick Densities in the Northern and Southern United States
Paul, S.	Kent State U	Highly conserved HIV-1 epitopes: Potential candidates for multi-epitope vaccine
Platt, T. G.	Indiana U	Resource competition determines the local spread and decline of a facultative pathogen
Powell, E.	Rutgers U	EID Studies of Delaware Bay Oyster Populations
Rougeron, V.	New York U	An evolutionary and ecological analysis of <i>Plasmodium falciparum</i> var genes using 454 sequencing

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Rulison, E. L.	U Rhode Island	Effects of environmental variables on abundance and phenology of immature <i>Ixodes scapularis</i> (Acari: Ixodidae)
Spicknall, I. H.	U Michigan	Scaling individual level treatment to regional level patterns of resistance: The ecology of antibiotic resistance in pathogenic and commensal bacteria
Stack, C.	Pennsylvania State U	Contact network classification based on epidemiological data
Swei, A.	Cary Institute Ecosyst Studies	Consequences of changes in host composition on Lyme disease risk
Thomas, J.	U Mississippi	Targets of Balancing Selection in the Human Pathogen, <i>Staphylococcus aureus</i>
Thrall, P.	CSIRO	Molecular co-evolution of directly interacting flax immune receptors and fungal effector proteins
Thrall, P.	CSIRO	The LRR domain of flax immune receptors determines flax rust effector recognition specificity
Tsao, J. I.	Michigan State U	Dramatic differences in tick abundance contribute to the dramatic difference in Lyme disease cases in the eastern U.S.
VandeWoude, S.	Colorado State U	The effects of urban fragmentation and landscape connectivity on disease prevalence and transmission in North American felids
Walker, E. D.	Michigan State U	Population Structure Changes of Anopheles Vectors of Malaria During Long Term Implementation of Insecticide Treated Bed Nets
Zhang, L.	U Michigan	Genotype distribution and regional transmission of <i>E. coli</i> pathogens
Zhang, X.-S.	New York U	Natural transformation of an engineered <i>Helicobacter pylori</i> strain deficient in type II restriction endonucleases