

Forum

EcoHealth ONE: Forging Collaboration between Ecology and Health

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Repeatedly these days, we read about newly emergent diseases or public health catastrophes, from severe acute respiratory syndrome (SARS) and avian influenza to the 2003 European heatwave and 2005 Hurricane Katrina. New diseases have always cropped up throughout history, especially since the age of modern agriculture, which brought about a major shift in our societal practices and personal behaviors. Thus, in some ways, these new health threats are not new; but are they occurring at an accelerating frequency? Many would argue that indeed they are, and this begs the question, why?

Could it be that our rapid rate of ecological and earth systems change is shifting the balance in a way that enhances disease risk? Intact ecosystems play an important role in regulating the transmission of many infectious diseases, according to the Millennium Ecosystem Assessment (an international assessment of the links between ecological conditions and human well-being (www.millenniumassessment.org)). Biological mechanisms that have altered the incidence of many infectious diseases include altered habitat (leading to changes in the number of vector breeding sites or reservoir host distribution), niche invasions or interspecies host transfers, changes in biodiversity (including loss of predator species and changes in host population density), human-induced genetic changes of disease vectors or pathogens (such as mosquito resistance

to pesticides or the emergence of antibiotic-resistant bacteria), and environmental contamination of infectious disease agents.

Unhealthy landscape changes are well known in the literature. New water projects may provide increased food crops, but they also provide ideal habitat for snails that serve as the intermediate reservoir host species for schistosomiasis; irrigated rice fields increase the extent of mosquito breeding areas, leading to greater transmission of mosquito-borne malaria, lymphatic filariasis, Japanese encephalitis, and Rift Valley fever. Deforestation alters malaria risk, depending on the region of the world, by favoring the proliferation of *Anopheles gambiae* and *A. darlingi* in Africa and South America, respectively.

Noninfectious diseases also have their roots in environmental and ecological degradation. Unplanned urbanization and sprawl contribute to numerous health conditions in the “built” environment: obesity, heart disease, and diabetes are exacerbated by sedentary lifestyles from our overdependence on automobiles; heat-related mortality and respiratory illness are exacerbated by the urban “heat island” effect; and depression and social isolation are exacerbated by a reduction in social capital and other stresses of urbanized living.

In recognition of the inextricable links between ecosystems, earth systems, and human and wildlife health, the first conference of the International EcoHealth Association (“EcoHealth ONE”) will convene in Madison, Wisconsin, October 7–10, 2006. International experts from the fields of

public health, wildlife medicine, conservation biology, sociology, anthropology, economics, urban planning, and other disciplines will come together at an event that will help forge collaboration toward further understanding linkages between ecology and health. The conference theme is “Promoting Global Health – Sustaining Natural Resources.”

Disease resurgence of today demonstrates that socio-economic behavior and ecological systems are tightly interwoven and, therefore, susceptible to a range of

driving forces from globalization to climate change and the loss of biological diversity. There is a consequent need for new approaches that can identify and analyze the vulnerabilities of coupled human-natural systems and contribute to strengthening their resilience and sustainability. The EcoHealth ONE conference this coming October can serve as a gathering point to advance such understanding of the interconnections among social and ecological systems across disciplines and geographic and temporal scales.