

In This Issue

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TO RIO (+20) AND BEYOND

After generating great expectations, the Rio + 20 conference marking the 20th anniversary of the 1992 Earth Summit laid out universal sustainable development principles, but provided no legally binding agreements, and fell short of promoting a balanced integration of the social, economic, and environmental pillars of sustainable development. In the current issue, **Langlois et al.** argue for the urgent need to translate the general aspirations put forth by Rio + 20 into concrete health outcomes and greater health equity. They propose that discussions leading to the new Sustainable Development Goals, which set the foundation for the post-2015 UN development agenda beyond the Millennium Development Goals, offer a critical opportunity to re-assess the major challenges for global health and sustainable development.

PLAYING LEAPFROG

Pathogens have contributed to amphibian declines in many parts of the globe, and trade is known to facilitate disease spread. Here, **Gilbert et al.** assess the health of frogs traded for food and pets in Southeast Asia and survey for key pathogens. The study found *Batrachochytrium dendrobatidis* (Bd) to be rare or absent among frogs sampled in Cambodia, Vietnam and Lao PDR, but was present in Singapore. No ranavirus was found. Although Bd currently appears rare in Southeast Asia, the findings in Singapore and poor health of frogs in Vietnamese farms indicate a need for improved biosecurity in traded and farmed frogs.

UP AND ATOM

People living around nuclear facilities often express concern about human health and environmental risks from these

facilities. Activity patterns and perceptions play a key role in both human health risk, and for environmental management and planning. People attending a Native American festival in Cookeville Tennessee were interviewed to determine the types, participation, and rates of outdoor activities, and their perceptions of the importance of characteristics of the sites they prefer for outdoor activities. Planners and managers of such nuclear facilities to create and maintain outdoor habitats that fit the needs and desires of people residing in these areas can use this information. In this paper, **Burger et al.** show planning and management requires not only science and engineering, but information on public policy, human needs and requirements, and human perceptions and evaluations of environmental characteristics.

A SUSTAINABLE EPA

The U.S. Environmental Protection Agency has recently realigned its research around the concept of sustainability. Successful integration of scientific research across ecological and human health disciplines requires a shift to whole systems thinking. Using the driving forces, pressures, state, impact and response framework, social and economic aspects of environmental and human health were integrated into a single framework. **Yee et al.** applied this framework at a science planning meeting to identify research opportunities. For broader applicability, also provided is a hierarchical list of keywords, guidelines for discussion, and an overview of other roles for a systems framework in research.

TO BREATHE OR NOT TO BREATHE

Weather and asthma have long been shown to be related. However, asthmatics are ultimately exposed to an entire weather situation rather than individual weather variables.

Research by **Lee et al.** uses “synoptic” climatological methods that define holistic surface weather types in order to relate these weather situations to changes in asthma admissions in New York State. Results show that a cold and dry weather type is associated to increased admissions in autumn, while hot and dry weather types are associated to increased asthma admissions in summer. Results vary regionally, seasonally, and between age groups.

VIRTUAL HAY FEVER

Investigating the impact of climate change on human health requires the development of efficient tools that link patient symptoms with changing environmental variables. **Medek et al.** developed an internet-based hay fever diary linked to simultaneously record pollen load and weather variables in Canberra, Australia over spring 2010. Hay fever severity increased with increasing pollen load, particularly grass pollen load, and with increasing maximum daily temperature. The study shows the feasibility of using internet-based tools for environmental health research, and is applicable to diverse health variables in the changing environment.

FARMING MALARIA

Regions that experience seasonal or epidemic malaria are particularly sensitive to climate and land use change, which impact interannual variability in malaria transmission. In a study by **Stryker et al.** in water-limited environments, land-use affects partitioning of rainfall into infiltration and runoff that reaches small topographic depressions, which form breeding habitats of malaria transmitting mosquitoes. A linked hydrology–entomology model reproduced observed differences in mosquito abundance between 2009 and 2010 seasons, and the calibrated, field validated model was used to assess scenarios of land cover. Model results show variation in pool persistence and mosquito abundance, due to land use changes alone, with particular sensitivity to surface roughness.

MEET YOUR MEAT

Roughly 70% of emerging infectious diseases are zoonotic in origin. Bushmeat hunting, a major cause of biodiversity

loss in African forests, involves an elevated risk of zoonotic disease transmission due to exposure to the blood and bodily fluids of animals. While bushmeat-related risk is known in the research community, it is relatively unknown whether bushmeat hunters and traders perceive zoonotic risk. This study by **Subramanian** surveyed bushmeat hunters and traders in Sierra Leone on their hunting practices and awareness of zoonotic disease risk. Awareness among hunters and traders was low, indicating a role for public health education.

FEEDING A FEVER

This study by **Åström et al.** explores the possible influence of socio-economic factors together with climatic factors on the global distribution on Dengue fever. Further, the future distribution of Dengue is projected using a range of global climate change projections together with different economic scenarios. Findings show that both socio-economics and climate will have an impact on Dengue in the future. Regardless of the economic development however, a large part of the global population may be at risk of dengue in the future.

THAT DOGGONE VIRUS

Infectious diseases can cause major wildlife population declines and may pose an important conservation threat to endangered species. **Prager et al.** investigated canine distemper virus (CDV) and rabies virus (RV) exposure in Kenyan domestic dogs and wild carnivores, including endangered African wild dogs. Domestic but not wild carnivore populations appeared capable of maintaining RV and may therefore be a reservoir. No carnivore population in the study area appeared to have maintained CDV, suggesting an external or cryptic reservoir or metareservoir for CDV. Given our results, we conclude that domestic dog rabies vaccination programs may reduce the risk of spillover to other hosts.

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