EcoHealth 5, 101–103, 2008
DOI: 10.1007/s10393-008-0179-8

EcoHealth

In This Issue

Special Section: EcoHealth in China

This summer, we witness that special event which draws us together as a global village like no other—the games of the XXIX Olympiad. During this time, over a billion people around the world will focus their attention on the host country, China, and be reminded of its incredible 5000 years of culture and civilization, of its growing position as a dominant force in the global economy and global politics. In this issue, we have a Special Section focused on China's contribution to Ecohealth science, philosophy, and culture. This series of articles covers the breadth of *EcoHealth's* focus—anthropology, social science, conservation medicine, and ecosystem sustainability. It also reveals how embedded these issues are in some of the major challenges across the world: the shift of culture from pastoralism to sedentary, the growth of cities, and the degradation of wildlife habitats.

These issues are critical for China as its economic expansion and openness brings with it a growing global realization of the factors that might affect the health of its people: from the nouveau riche in the skyscrapers of Shanghai to rural Tibetans who still practice traditional pastoralism. The articles presented here paint a picture of a vibrant, diverse country with a growing understanding of these issues. They also provide a microcosm of Ecohealth issues around the world, as the complexity of disease ecology and its linkages with social science and development are better understood. We hope that this Special Section provides our readers with a primer on the growing importance of ecology and health approaches in China.

Lost in Transition

Tibetan nomads are inexorably transitioning towards a sedentary lifestyle driven by factors ranging from climate change to state-led socioeconomic transformation. Concurrent with these changes are emergence of diseases, agricultural intensification, and complete shifts in diet and lifestyle. As elsewhere, failure to fully integrate land-use and human health has resulted in failed policies. Based upon transdisciplinary work in the region, Xu et al. (2008) present a convincing argument for the urgent need for an ecohealth approach to arrest environmental degradation and improve the well-being of these people by integrating Tibetan nomadic traditions with health and social services.

Man's Best Friends, Their Friends…and Their Parasites

The tapeworms that cause echinococcosis cycle among livestock, wildlife, domestic dogs, and, of course, humans. Despite causing a severe debilitating disease in many people, the parasite remains endemic in some pastoral regions of China. Zhenghuan et al. (2008) review the life cycles of the parasites that cause echinococcosis, discuss their broad host ranges, and the factors that cause them to be such an entrenched problem in places like Tibet. They conclude that this disease is a classic transdisciplinary conundrum—requiring an understanding of culture, human behavior, livestock production, domestic animal health, and wildlife biology.

Wending Our Way to Watershed Health on the Huangtu

Watersheds are often the first to suffer from anthropogenic environmental change, due to their location at the end of a hydrological cycle that can be perturbed repeatedly as it wends its way downstream. A previous issue of *EcoHealth* provided a state-of-the-science review of how to assess

indicators of ecosystem health in watersheds in the USA. In this issue, Suo et al. (2008) use an interesting ground-truthed satellite imaging approach to assess vigor, organization, and resilience in the Jinghe River in Central China. They demonstrate that this is an effective way to target areas for rehabilitation and protection—a critical concern for China.

One Schistosomiasis Issue, Two Papers, and the Three Gorges Dam

In an era in which large scale development projects are becoming increasingly scrutinized for their effects on environmental quality and human well-being, the construction of the Three Gorges Dam on the Yangtze River stands out. The size, construction work force, and human population directly affected by the region it occupies are all vast—and so is the potential for schistosomiasis, reflected by the volume of research this topic has generated. In this issue, we present two papers that each seek to determine the effects of the changed hydrology on *Oncomelania* spp., the snail host for *Schistosoma japonicum*. A comprehensive review of the literature has been provided by Zhu et al. (2008) who point to the significance of changed demographics and agricultural practices in areas affected by the dam, as well as a need to put more effort into simulating consequences and effects of interventions. Taking another approach, Seto et al. (2008) have examined the relationships between snail densities, water levels, and water temperatures to attempt to predict what might happen to snail populations under a changed flow environment. Both papers call for active monitoring programs. Together they provide the journal with important information upon which to gauge dam projects' effects on schistosomiasis.

A Tale of Two Urban Ecosystems

China has undergone profound changes over the past few decades: political, demographic, and economic. China's urban populations have boomed, and as the economy has strengthened and personal wealth increased, so has that population's understanding of the health implications of urbanization and industrial production. By contrast, in the United States heavy industrial centers such as Pittsburgh have dramatically declined—both in population and industrial production. The forum from Ali and Zhao (2008) on the sister-cities of Wuhan, China, and Pittsburgh, USA, explores how these cities have dealt with similar and different pressures during these recent transitions. The authors conclude that despite different social and political pressures, they have both achieved a degree of ecosystem health.

Divining Lyme

Lyme disease, the most often reported vector-borne emerging infectious disease (EID) in the United States, presents an excellent example of where an interdisciplinary approach would be beneficial towards predicting and preventing future infection. Killilea et al. (2008) review the literature on spatial patterns and environmental correlates of human cases of Lyme disease and the vector (ticks) in the United States. Beyond an increase in Lyme disease risk associated with forests—and even this varies among forest types—there was little agreement among previous studies. There is a need for a standardized, long-term study of the ecology of Lyme disease—in particular, its spatial dynamics.

Gerontological Good-Health Guide

Modern technology affects every aspect of our relationship with our ecosystem and is blamed for threats to planetary sustainability, such as global warming, water shortages, and resource depletion. Conversely, anthropogenic changes have greatly contributed to the control of infectious and other diseases, which has led to an increasing proportion of older people. Harris et al. (2008) argue that applying a settings approach wherein older people are considered as integral to the way society lives, works, and plays rather than treating them as economic and social burdens will not only improve gerontological health, but may reduce the threat that a dependant and burgeoning older population poses to global sustainability.

The Pest Timing

Recent data has called into question the efficiency of flea transmission of plague among prairie dogs. Wilder et al. (2008) determined that early phase transmission of *Yersina pestis* (24-hours postinfection) by prairie dog fleas is more efficient than later time periods postinfection. The flea species most abundant on black-tailed prairie dogs in March, *Oropsylla tuberculata cynomuris*, has more than threefold higher transmission efficiency than *O. hirsuta*, the

species most commonly found on prairie dogs in September and October. These findings may be useful in the timing of insecticide applications to slow plague transmission among prairie dogs.

Turning Up the Heat for Musk Ox

Climate change projections are not only expected to alter species ranges, but also cause extinction. The introduced musk oxen population in Norway suffered a mortality event of more than 20% following an unusually warm period. Ytrehus et al. (2008) propose an increase in temperature as an ultimate cause and an outbreak of fatal pasteurellosis as a proximate cause of the die-off. They suggest that the role of infectious diseases is not sufficiently considered in species declines. Furthermore, they suggest that the musk ox may soon follow in the footsteps of its distant brethren, the woolly mammoth.

On Equal Footing

Hubris tends to result in a lack of communication between the fields of human and animal health. In other words, we tend to forget that we are also animals. As Rabinowitz et al. (2008) state, we maintain an "us vs. them" attitude, which must be overcome. An holistic approach to human and animal health or examination of "shared risks" can have many benefits, not the least of which may be discovery of novel pathogens and the elucidation of the ecology of human and animal diseases.

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Published online: August 13, 2008