

In This Issue

REVIEW: DRYLAND SALINITY IN AUSTRALIA AND ECOSYSTEM DISTRESS SYNDROME

Changes in environmental quality, such as air or water pollution, affect human health, and tomes have been written to describe these one-way relationships. When classes of environmental degradation are seen from an ecosystem perspective, where humans are an important component of that system, and where they instigate and respond to the effects of that environmental degradation, a more realistic perspective of the relationships can be seen. Reviewing relevant literature for dryland salinity in southwestern Australia, **Jardine et al.** provide such a perspective. They compile the human health consequences of these degrading processes, and produce a conceptual model useful for practitioners in the areas of environmental management and public health.

ORIGINAL CONTRIBUTIONS: WEST NILE VIRUS AND CALIFORNIA BREEDING BIRD DECLINES

When West Nile virus was first introduced into the USA in 1999, the conservation community shuddered at the prospect of widespread bird declines or extinctions. Yet, despite its rapid spread across North America, Central America, and South America, there is surprisingly little known about its impact on New World avian fauna. **Koenig et al.** follow an earlier article by Hochachka et al., in the first volume of *EcoHealth*, in using US bird census data and information on viral spread and impact to show that most California corvids declined after the virus made its sweep westwards.

WILDLIFE TRADE AND DISEASE EMERGENCE

Bushmeat hunting and wildlife trade likely caused the most significant emerging disease of the 21st Cen-

tury—AIDS—and the only emerging zoonosis to become nearly pandemic in the last decade—SARS. Despite these disease risks and their impact on animal welfare and conservation, wildlife trade continues to grow and become more globalized. How does this growth increase the risk of future disease emergence? **Swift et al.** develop a mathematical model that helps explain this phenomenon. The model provides a basis for a systematic evaluation of the future risk of wildlife trade to global health.

AMPHIBIAN CHYTRID *BATRACHOCHYTRIUM DENDROBATIDIS* MAY NOT OCCUR ON FRESHWATER CRUSTACEANS

Amphibian chytridiomycosis is a fungal disease responsible for mass mortalities, declines, and extinctions in many regions. Despite a decade of research, the reasons for this devastating impact remain uncertain. To cause extinction, pathogens must have evolved a strategy to persist at low host densities and escape extinction themselves. These strategies include infection of multiple reservoir hosts, vector-borne transmission, and sexual transmission. **Rowley et al.** report on their ongoing efforts to identify potential alternative reservoirs of the pathogen causing chytridiomycosis, and demonstrate that shrimp, after all, do not provide the escape strategy for this devastating disease.

LAND-USE CHANGE, DENGUE, AND MALARIA IN NORTHERN THAILAND

Statistical modeling employing spatial data and developing alternative scenarios for emerging mosquito-borne diseases, like malaria and dengue, has been most frequently concerned with the effects of global climate change. To date, land-use change has been the predominant contributor to

global environmental change and its potential influence on mosquito-borne disease risk. The report by **Vanwambeke et al.** represents a significant contribution in this regard. On the basis of a 3-year field study in northern Thailand, the authors developed and tested a model linking the landscape, people, and mosquitoes. The results, including disease risk projections based on likely future land-use changes, provide an important foundation for future interdisciplinary research on vector-borne disease, as well as guidance on preventive measures.

CLIMATE VARIABILITY AND CHOLERA SEASONALITY IN MADRAS

Uncovering the role of environmental drivers in seasonality of cholera is critical to understand temporal variability at longer time scales, including trends and interannual variability. **Ruiz-Moreno et al.** examine the association between rainfall and cholera, in both time and space, using the extensive historical records for the districts of Madras in former British India (1901–1940). The results support a model of cholera seasonality with two different routes of transmission: one is enhanced by increasing rainfall (in areas with abundant water), and the other is buffered by increasing water. This dual nature of the influence of rainfall creates different temporal patterns in regions where cholera is either endemic or epidemic.

ENVIRONMENTAL INDICATORS, WATER, AND WATERBORNE DISEASES IN NEW ZEALAND

Data for drinking water quality, access to water, and waterborne disease rates are routinely collected by countries, but the reliability of the data to demonstrate relationships needs testing. **Khan et al.** have used the DPSEEA framework (Drivers–Pressure–State–Exposure–Effect–Action), and New Zealand data, to construct a model capable of predicting relationships among these sets of indicators. Their article considers the application of the model, and routinely collected data, to establish the likely outcomes of interventions to reduce the burden of waterborne diseases.

PROJECTING FUTURE MOSQUITO-BORNE DISEASE RISK IN NEW ZEALAND

As a temperate country, New Zealand has relatively few vector-borne infectious diseases compared to tropical

countries. However, land-use changes have altered New Zealand's landscapes, habitats, and biodiversity in ways that, in some instances, have been conducive to new or resurgent mosquito-borne viral diseases. Long-term climate change may increase these risks as well. **Derraik and Slaney** review mosquito-borne disease risks in New Zealand, and produce a model to project future risks, the results of which point to the need for effective vector control strategies.

PROFILES: NEW INTERDISCIPLINARY RESEARCH INITIATIVE AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY

The long-term success of new scientific fields depends partly on the availability of funding for education, training, research, and action. **Pongsiri and Roman** profile a new venture from the USA's Environmental Protection Agency (EPA). For many years, the EPA has led the field of environmental health through studies and outreach on pollution, toxicology, and others. The new EPA program will fund integrative research to characterize mechanisms linking biodiversity and human health. This novel approach will help underpin the future growth of the EcoHealth field by providing critical support for activities in which many *EcoHealth* readers are engaged.

UNIVERSITY OF BRITISH COLUMBIA FOOD SYSTEM PROJECT

Food systems operate at all scales from local to global, and food is produced under social, ecological, and economic constraints. The type of food produced and the means of production have multiple consequences for the health of people (through diet, lifestyle, and so on), and the biophysical condition of agricultural ecosystems. For these reasons, institutions charged with a task of feeding large numbers of people have a local and global obligation to constantly examine the sustainability of their operations. **Rojas et al.** describe one such examination of the University of British Columbia, showing how participatory approaches to learning can be used to conduct sustainability assessments for food operations.

FORUM: LEISHMANIASES AND THE PROTECTION OF NATURE

Often, the ultimate driver of disease is human population growth. Globalization of trade and travel, encroachment

into new habitats, deforestation, and other factors are often cited as the cause of disease emergence, but all are an intrinsic byproduct of population growth. In his thought-provoking, controversial article, **Ashford** delves into the dark side of disease ecology and proposes that leishmaniasis, in some cases, dampen anthropogenic

environmental exploitation. He then discusses the alarming possibility that diseases represent the only remaining hindrance to human population growth and environmental destruction, apart (perhaps) from the slim possibility of us dramatically changing our species' behavior!

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