

In This Issue

In This Issue

STRANGER DANGER

An increasing number of native predators, including fish, reptiles and birds, are now using exotic invasive species as main food items. **Bulté et al.** discuss how feeding on invasive prey species can directly affect exposure to trophically transmitted parasites and indirectly affect subsequent vulnerability to parasitic infections by influencing the nutritional and toxicological status of native predators. Resulting changes in parasitism are expected to affect the fitness of native predators and, ultimately, their populations. Integrative studies linking invasive prey to the parasitological, immunological, and toxicological status of native predators are much needed for the conservation and management of their populations.

DON'T RANA MY PARADE

While emerging infectious diseases are a growing concern of biologists, there currently is a lack of sufficient data examining the spatial and temporal dynamics of disease in many wild populations. This information is imperative for developing conservation and management strategies. **Hoverman et al.** used field surveillance to examine amphibian communities for the presence of an emerging viral pathogen, ranavirus. The authors discovered that ranaviruses were widespread in amphibian populations but displayed seasonal fluctuations in prevalence. Their results bring greater awareness of the broad host range, spatial extent, and temporal dynamics of this pathogen and provide a foundation for future studies examining potential drivers of emergence.

ACTIONS THAT SPEAK LOUDLY

Global climate change and its impact on health exemplify the challenge of managing complexity in health research.

While it is increasingly recognized that using approaches that embrace complexity is a necessity in public health, mobilizing such approaches from theory into practice remains challenging. **Harper et al.** profiles the processes behind the “Changing Climate, Changing Health, Changing Stories” project to illustrate how an EcoHealth approach guided by transdisciplinarity, community participation, and social equity was used to plan and implement this climate-health research project. This article provides an overview of the project, including project development, research methods, project outcomes, and challenges encountered.

In this issue, **Ferrer et al.** discuss one of the follow-up activities of a previously published paper in EcoHealth [Nguyen-Viet et al. (2009): 6(2) 180–191] to show how a conceptual framework is applied at the ground level of a case study. This paper assesses diarrheal infection risks caused by the use of wastewater in an urban setting of Thailand, using Quantitative Microbial Risk Assessment (QMRA). Through an assessment of exposure of local population to wastewater in relevant scenarios, the results showed that canal water and vegetables were heavily contaminated with the pathogens *Giardia lamblia* and *Entamoeba histolytica*. Infection risk was high in considered scenarios and greatly exceeded the acceptable risk standard imposed by the World Health Organization (WHO).

WHAT'S UP, HOMO SAPIENS?

Emerging infectious diseases (EIDs) from wildlife are perplexing: they are increasing, and occur in regions of high biodiversity. Yet, globally, biodiversity loss is occurring at critical levels. In this study by **McFarlane et al.**, the authors find that wild mammals accommodating human activity (i.e. that are synanthropic) are 15 times more likely to be

the source of these diseases. The increase and spread of native and introduced species able to adapt to human-induced landscape change is at the expense of species more vulnerable to habitat loss. The authors' findings suggest a mechanism linking land conversion, the global decline in biodiversity, and the rise in EIDs of wildlife origin.

Among common human activities, hunting and butchering of wildlife in Central Africa are known to have associated risks for a variety of human diseases, including the highly devastating HIV/AIDS. Bushmeat hunters have high exposure to body fluids of nonhuman primates, which are natural reservoirs of simian immunodeficiency viruses (SIV). Therefore, it is highly probable that SIVs are transmitted to humans in this high-risk group. Remarkably, **Djoko et al.** were unable to detect SIV infection in a large group of highly exposed hunters. Additional studies on at-risk populations are necessary to determine whether these results are due to viral/host characteristics or low SIV prevalence in species consumed as bushmeat in Cameroon.

BEWARE OF TICKS! ENTER AT OWN RISK!

This manuscript by **Fritzsche and Allan** communicates the results of an empirical study that synthesizes the currently disparate fields of host–parasite interactions with the “ecology of fear,” a conceptual framework that has historically referred to behaviors prey use to avoid predation. The study shows that hosts abandon more food at sites with high densities of lone star ticks, an abundant ectoparasite, suggesting that hosts modify foraging behavior when exposed to increased risk of parasitism. The authors' work highlights the importance of incorporating parasite-avoidance behavior by hosts into studies of host–parasite interactions, especially when such behaviors may generate dynamic landscapes of human vector-borne disease risk.

NOT AS RATTY AS IT SEEMS

Historically, sewers have been considered to be the main reservoir for peri-domestic rodents. However, by solely responding to increased surface infestation, current

sewer-baiting programs are mostly reactive. In this study by **Mughini Gras et al.**, the authors explored the extent to which the surface infestation is related to sewer and surface bait intakes in Bologna, Italy. Surface infestation was significantly positively associated with surface bait intakes only, and not with sewer bait intakes. Surface infestation is therefore not a reliable indicator of sewer infestation, and suggests discouraging the use of reactive sewer-baiting as routine strategy. The common belief that surface infestation reflects sewer infestation seems to be in contradiction and thereby disproved with these results. The authors recommend that poison-based strategies should be shifted towards ecologically-based approaches to gain effectiveness.

INFLUENZA, EY?

Pathogens carried by wild birds such as flu and salmonella significantly impact the poultry industry and human health. **Fuller et al.** reviewed the literature on infectious diseases of birds and found that there have been few studies on the ecology of avian pathogens. Results suggest that global warming may increase the frequency with which avian diseases jump to humans, for example, by enabling tropical parasites such as malaria to spread north. The authors recommend that the control of diseases that are likely to appear as a result of climate change will require a network for testing wild birds for diseases.

This paper by **Carrel et al.** examines the potential barriers to gene flow among highly pathogenic H5N1 avian influenza viruses in Vietnam. The authors found that, within Vietnam, there are few barriers to genetic exchange, and those that do occur are sporadic in both space and time. These results suggest that avian influenza viruses are able to move unimpeded across the landscape of Vietnam, exchanging genetic information between northern and southern provinces. This finding has implications for the continued circulation of H5N1 viruses across Vietnam, such that discontinuities in underlying landscape variables, such as population density or land cover, do not appear to generate spaces where genetic change is limited.