

## Alternatives to Chemicals

### The solution to pollution?

A recent article in Harper's magazine quotes a slogan used by the chemical industry in the seventies: "The solution to pollution is dilution". The idea was that if toxins are mixed with enough water (or air), they would be rendered harmless. No matter that many toxins accumulate in soil, water and in human and animal tissue, or consist of particles that do not break down easily that persist in the environment. The legacy of that old solution to pollution includes: hermaphroditic frogs, fish ingesting PCBs in our waterways, and elevated rates of cancer among farm workers. A better slogan: The solution to pollution is to stop polluting.

### Biodiversity and Human Health: mapping pathogens

Conservation is crucial to protecting human health because it can help to prevent the emergence of new infectious diseases, which are on the rise. The first map of the world's hotspots of emerging infectious diseases was recently published in the journal Nature, [www.nature.com/nature/journal/v451/n7181](http://www.nature.com/nature/journal/v451/n7181). The map, according to lead author Kate E Jones, "urgently highlights the need to prevent further intrusion [by humans] into areas of high biodiversity".

As the human population continues to grow and wildlife habitat shrinks, wildlife gets more and more concentrated, comes in closer proximity with humans, and pathogens are better able to cross over to humans by direct contact and via livestock as the intermediate host. This happens everywhere in the world, but especially in the tropics and sub-tropics, where extreme poverty, ethnic conflict, and government corruption intensify the threats to ecosystems created by unsustainable logging and poaching.

The resulting diseases, or zoonoses, are numerous, and sometimes very lethal, because humans have not evolved resistance to them. The pathogens include exotic diseases, such as Ebola, multi-drug resistant strains of previously known diseases, such as tuberculosis, and some new strains that put us at risk of a worldwide pandemic, such as Avian influenza. The threat is growing in developed nations such as ours, in part due to the overuse of antibiotics, and to the centralization of our industrialized food system, which creates opportunities for variants of e coli and other pathogens, to spread rapidly and widely.

Conservation efforts often appeal to our compassion for magnificent top predators, such as polar bears or whales. But conservation work often must focus on species with less star appeal, species just as essential--sometimes more essential-- to the functioning of healthy ecosystems and to human health, such as bats or other small mammals. The newly published pathogen map will enable us to be more proactive in identifying the host species of zoonoses and help in developing public health strategies to contain them before they seriously threaten human populations.