

Bioregional planning to improve public and environmental health

By Carol Kelly

Disease doesn't stop at national boundaries, presenting unique international challenges. A new framework, called One Bioregion/One Health, provides an approach to transboundary regional planning that considers relationships between people and nature in the quest for healthier living spaces.

Proposed by researchers in California and Mexico and funded in part by NIEHS, the framework merges regional planning and ecosystem management as a way to improve public and environmental health. The scientists presented their proposal in an [article](http://www.tandfonline.com/doi/full/10.1080/13600826.2014.951316#.VD5wzlb70yA) (<http://www.tandfonline.com/doi/full/10.1080/13600826.2014.951316#.VD5wzlb70yA>) published in the journal *Global Society*.

"Our health is affected by environmental exposures, stress, diet, urban design, and behavior," said Keith Pezzoli, Ph.D., lead author of the study and director of the Urban Studies and Planning Program at the University of California, San Diego (UCSD). "We can't think about health on just one side of the border because animals, sick people, and pollutants move back and forth," he said.



"Creating a sustainable and resilient community, even across a national border, is possible by fostering investment in natural resources, rooted livelihoods, and institutions," said Pezzoli. (Photo courtesy of UCSD)

Tracing the One Bioregion/One Health concept

A bioregion is a territory that is socially and culturally defined by its people rather than borders on a map. Bioregions are shaped by global trends, including climate change, food and water issues, economic crisis, large-scale natural disasters, and widespread increases in preventable diseases.

The One Health concept acknowledges that human health is interconnected and dependent on the health of animals and the environment. One Health is viewed by organizations such as the U.S. Centers for Disease Control and the World Bank as a way to respond to a range of emerging and existing disease threats, such as drug-resistant tuberculosis.

Combining these concepts, One Bioregion/One Health is a modern approach to enable integrative, civically engaged research to create solutions to problems, according to Pezzoli.

Supporting ecological restoration

The authors recommend using the One Bioregion/One Health approach for ecological restoration in metropolitan areas with urban sprawl, such as those found along the United States-Mexico border. From the Pacific Ocean to the Gulf of Mexico, about 15 million people live along this increasingly urbanized border region, say the authors. Within this wide territory, the NIEHS-funded researchers at the UCSD [Superfund Research Center](http://superfund.sdsc.edu/) (<http://superfund.sdsc.edu/>), along with partner organizations, are conducting a One Bioregion/One Health project using this approach in the San Diego-Tijuana region. One of their goals is to develop and maintain a transboundary geographic information system to aid regional decision making.

"We are joined with Mexico through the Tijuana River watershed," said Pezzoli, who is also affiliated with the UCSD Superfund Research Center. "We are in it together because of land, buildings, and streets, but also from a health perspective."

Improving public health

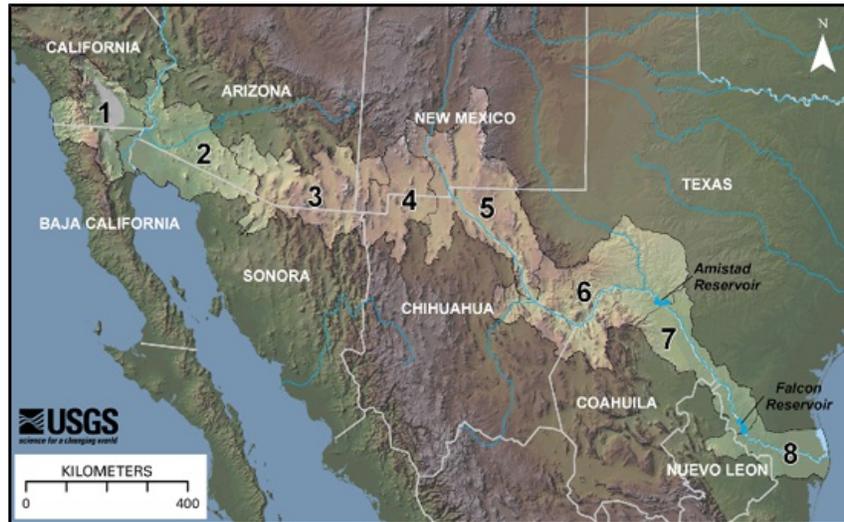
To implement the One Bioregion/One Health framework and achieve a healthy cross-border region, public health professionals need training in global health diplomacy and cooperation, according to the researchers.

They also suggest that universities, through multidisciplinary programs like the Superfund Research Center, can integrate community engagement and research translation into the efforts. In the context of ecological restoration, this cooperation and engagement is essential to the creation of healthier living spaces in a bioregion, say the authors.

Citation: Pezzoli K, Kozo J, Ferran K, Wooten W, Gomez GR, Al-Delaimy WK. 2014. [One Bioregion/One Health: an integrative narrative for transboundary planning along the US-Mexico border](#)

(<http://www.tandfonline.com/doi/abs/10.1080/13600826.2014.951316#.VDojt7HnFUh>)
. Global Society, 28(4):419.

(Carol Kelly is a health and science writer with MDB, Inc., a contractor for the NIEHS Division of Extramural Research and Training.)



The U.S. Geological Survey defines eight health initiative regions along the U.S.-Mexico border. (Map courtesy of U.S. Geological Survey
(http://borderhealth.cr.usgs.gov/maps/borderwide_shaded_relief.pdf)
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