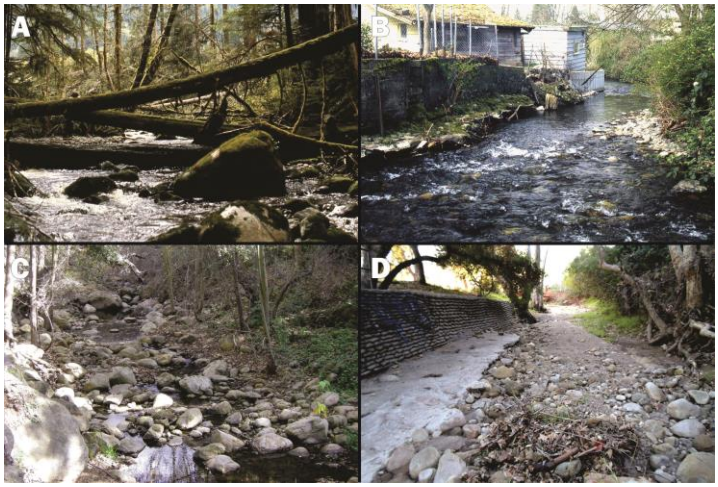
Freshwater Science
BRIDGES
Volume 35 • Issue 1 • Pages 272–443
March 2016 Fact Sheet

Global Perspectives on the Urban Stream Syndrome

Four papers in this BRIDGES cluster highlight factors that produce diverse biological and sociological conditions in urban watersheds. Key points include:

- Defining the urban stream syndrome has been useful for improving management of urban watersheds throughout the globe, but embracing the syndrome obscures site-specific factors influencing the physicochemical and biological responses of streams to urbanization (Booth et al. 2016).
- Climate is an important driver in determining the direction and magnitude of symptoms of the urban stream syndrome and produces heterogeneous changes in structure and function among watersheds (Hale et al. 2016).
- Economic development influences the type and quantity of waste entering waterways, the age and condition of water infrastructure in urban watersheds, and the ecosystem services provided by urban streams (Capps et al. 2016).
- The degree to which urban infrastructure degrades streams is modulated by its function (piping vs. infiltration), maintenance, age, and materials (plastic or concrete). These characteristics vary over space and time within and among cities based on the rate of economic development and urban expansion, available technologies, management goals, and regulations (Parr et al. 2016).
- Integrating global commonalities of urban streams with a more nuanced understanding of regional and local characteristics of a given watershed will promote the recovery of watersheds in urban areas (Booth et al. 2016).



Paired views of undisturbed (A, C) and urbanized (B, D) streams. A and B show upstream and downstream reaches of East Fork Issaquah Creek, a humid region with relatively uniform hydrographs, glacially derived sediment, and abundant channel–vegetation interactions. C and D show upstream and downstream reaches of Mission Creek, a semi-arid region with flashy hydrographs, active sediment delivery from the Transverse Ranges, and limited riparian vegetation (Fig. 1, Booth et al. 2016).

ABOUT THE AUTHORS:

Derek Booth (dbooth@bren.ucsb.edu) is a geologist with Stillwater Sciences and an adjunct professor in the Bren School. **Allison Roy** is a research ecologist with the USGS Massachusetts Coop Unit at the University of Massachusetts Amherst. **Benjamin Smith** is a doctoral student at King's College in London. **Rebecca Hale** (halereb3@isu.edu) is an assistant research professor in the Department of Biological Sciences at Idaho State University. **Mateo Scoggins** is an environmental scientist with the city of Austin, Texas. **Nathan Smucker** works for the U.S. Environmental Protection Agency. **Amanda Suchy** is a doctoral student in biology at Arizona State University. **Krista Capps** (kcapps@uga.edu) is an assistant professor at the Odum School of Ecology and the Savannah River Ecology Laboratory at the University of Georgia. **Catherine Bentsen** is a MS student in environmental conservation at the University of Massachusetts Amherst. **Alonso Ramírez** is a professor in the Department of Environmental Science at the University of Puerto Rico-Rio Piedras. **Thomas Parr** (tbparr@udel.edu) is a postdoctoral researcher at the University of Delaware. **Martin Neale** is part of Golder Associates and the School of Biological Sciences at the University of Auckland.