BIOWORKS: A RESEARCH AND DEVELOPMENT PRACTICE WITHIN BIOHABITATS

Joint Society for Ecological Restoration/SETAC North America Technical Workshop– *Restoration of Impaired Ecosystems; an Ounce of Prevention or a Pound of Cure*

Jackson, Wyoming

Ideal restoration scenario for a former steel mill site at RiverBend, Buffalo, NY

In the spring of 2014, Biohabitats president Keith Bowers was among a select group of experts in the fields of restoration ecology and environmental toxicology invited by the Society for Ecological Restoration (SER) and the Society of Environmental Toxicology and Chemistry (SETAC) to collectively define best scientific practices for integrating the practice of ecological restoration with the remediation of contaminated sites.

Restoration of aquatic and terrestrial landscapes contaminated by the extraction, energy, and chemical industries, along with land and water contaminated by industrial accidents and neglect, are a high priority. Both aquatic and terrestrial ecosystems will potentially become even more imperiled due to a diverse suite of stressors likely to unfold over the coming years.

As a result, there is a growing interest to integrate ecological restoration with site remediation activities to ensure that contaminants are fully remediated while simultaneously providing a foundation for restoring full ecosystem functions and processes. There is also interest in utilizing restoration techniques to prevent contamination of ecosystems during extractive or exploratory activities.

The workshop aimed to link two areas of study, restoration ecology and environmental toxicology, to begin addressing important questions raised by the integration of ecological restoration and remediation–both preventing contamination during restoration activities and restoring contaminated ecosystems. These include:

- Will an attractive nuisance be created for life that inhabits a restored area?

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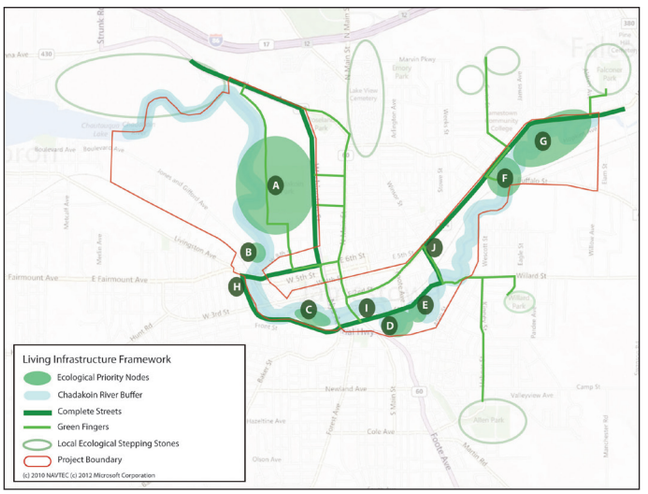
Experts in restoration ecology and environmental toxicology gather to further knowledge related to the potential and challenges of integrating ecological restoration and the remediation of contaminated sites.

- Can the restoration process have potential to release additional contaminants over time?
- What baseline should be used in an ecosystem that was altered hundreds of years ago? (This is in addition to some restoration questions about ever-changing baselines and influences of climate change.)

Expert participants from both disciplines exchanged ideas and lessons learned, identified key areas of research, and outlined a path forward to go beyond remediation. The workshop produced a series of joint papers published in Integrated Environmental Assessment and Management (a publication of SETAC), that includes example case studies.



top: Putting SediMite™ activated carbon into highly contaminated Mirror Lake to bind contaminants in the sediment, Dover, DE; above: Washington Avenue Green, an urban park developed on a former industrial site, Philadelphia, PA; left: A Living Infrastructure Framework provides a foundation for revitalization and restoration opportunities along the formerly industrialized Chadakoin River, Jamestown, NY