

How to Design Within Novel Ecosystems

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As our landscapes become increasingly fragmented and degraded, landscape architects and designers are grappling with how to deal with invasive and non-native plants that form “novel ecosystems.” Given each one of these systems is different, there are complicated issues that require a thoughtful and strategic approach. Ecologist Stephen Murphy from the University of Waterloo joined Travis Beck, ASLA, director of horticulture at the Mt. Cuba Center, and Larry Weaner, Affiliate ASLA, Larry Weaner Landscape Associates, to discuss strategies for designers at the ASLA 2015 Annual Meeting in Chicago.

A novel ecosystem, as Murphy defined, is as an ecosystem that has “crossed an ecological or socio-economic threshold so it’s no longer possible, or at least feasible, to restore the system to some kind of historical range of variation.” For example, Chicago’s original ecosystem has far passed this threshold: It’s simply unfeasible to tear down the entire city to restore the prairie. Each novel ecosystem is fragmented to a different degree. And the more edges these systems have, the more opportunity for invasives to take hold.

An invasive plant is a “highly competitive plant or animal species” that is able to rapidly colonize because it doesn’t have any competition and is therefore able to become the dominant species. The reality is that a novel ecosystem may never be free of invasive plants, but there are ways to manage them.



Woodland, Mt. Cuba / The Washington Post

Most designers already work in novel ecosystems, so the issue isn't necessarily whether they are good or bad. Instead the question is how to design within these systems. As Beck, author of *Principles of Ecological Landscape Design* pointed out, one need only look at the ASLA 2015 professional award winners to see numerous examples of “naturalistic plantings with high ecological value that blend seamlessly with the surrounding landscape.” Here's an example of a naturalistic planting in a wetland park in China.

Weaner sees novel ecosystems as an opportunity to “preserve the propagules,” seeds or cuttings of plants. Many native plants are found in these mixed human-created and natural ecosystems and their seeds can be collected.

Beck offered some useful tips. Reduce novel landscape fragmentation by identifying and prioritizing land to restore. If given the opportunity to start from scratch, begin again with a clean seed bed — in other words, fresh soil without embedded seeds from other places. If not, clean up the edges of novel landscapes by removing invasive plants while leaving desirable seedlings. Only small shifts in species composition may be possible at first. A simplified, but well-considered plant palette is important for ease of maintenance.

Working with these concepts is tricky. All of the speakers caution that there is no right answer. Each site requires a different approach.



ASLA 2015 Professional Honor Award. Weishan Wetland Park, Aecom Shanghai / ASLA



Meadow, Salt Point, New York / Larry Weaner
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