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Rain Gardens and Other Plantings Promote Learning and Restore Ecological Functioning to Schoolyards

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Earth Partnership schools are providing many learning opportunities for students as they plan, plant, manage, monitor and study their schoolground plantings. In science, social studies, language arts, fine arts and music classes, students are learning about the cultural and natural history of prairies and other ecosystems by applying their work to these real-life projects.

Students' schoolyard restoration efforts can also play an important role in the ecological functioning of a natural area. The Society for Ecological Restoration defines ecological restoration as "the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed." In addition, a restored ecosystem contains reproducing populations with a complex web of interactions, has the potential to persist indefinitely under existing conditions, and functions as part of a larger ecological landscape.

Students can create more than attractive gardens with native species. They can actually improve the ecological functioning of the school grounds.

How? One way is by learning how and where rainwater flows over the landscape, then using native plantings to enhance and restore the natural flow of water on the site. In undisturbed natural areas, water flows over a vegetated landscape, with much of it soaking into the ground before ever reaching a body of water. This natural system of water movement over the land helps to keep water clean and reduces serious flooding.

In built environments, including school grounds, rainwater flows over hard surfaces such as parking areas, rooftops, and compacted lawns. The rainwater picks up debris; gas, oil and other contaminants from cars; pesticides, fertilizer and sediments from lawns; residue from roofs, and flows into storm sewers.

This untreated water often flows directly into lakes and streams, threatening their ecological integrity. By locating their plantings in areas that will collect

rainwater from roofs and paved areas and allowing it to infiltrate the school grounds, students can restore some of the filtering function of the school landscape.

Another way for school plantings to have a positive impact on the local ecology is by locating them adjacent to other patches of habitat on the school grounds or adjoining properties.

While we encourage schools to go slow and start small for a variety of reasons, in terms of habitat and sustainability, bigger is often better. For example, there appears to be a minimum number of plants necessary for some species such as forked aster (*Aster furcatus*) to attract pollinators for their reproduction. Many bird species have a minimum habitat patch size to nest.

Most schools cannot restore habitat patches large enough to attract now-rare species such as the black and white warbler, which requires 175 acres of forest or the greater prairie chicken, which requires at least 250 acres of prairie. Nevertheless, students can enlarge habitat for many other species by connecting their school restorations to natural areas in their communities. For instance, in Verona, Wisconsin, the School Nature Center connects to city parks and waterways, which eventually link to a county park using restored prairies, wetlands and woodlands.

Transforming a schoolyard from a sterile landscape to an environmentally healthy one is an exciting way for students to learn. An important bonus is students knowing that they are improving the ecological functioning of the school grounds and improving water quality in their community.

Resources:

- WDNR. 2003. Rain Gardens: A How-to Manual for Homeowners. University of Wisconsin-Extension (PUB-WT-776 2003) 1-877-947-7827: <http://clean-water.uwex.edu/pubs/raingarden/rgmanual.pdf>
- <http://www.appliedeco.com/Projects/Rain%20Garden.pdf>
- <http://clean-water.uwex.edu/pubs/raingarden/gardens.pdf>
- <http://www.mninter.net/~stack/rain/>
- <http://www.ser.org>