

## **Planning for the Unplanned: Ecological Restoration Techniques & Landscape Design**

**by Larry Weaner**

After many years of separation, the fields of landscape architecture and ecological restoration are blending. We look to the past for information, but that does not mean we are trying to recreate the past, trying to reestablish pristine ecosystems. We will adapt past practices to modern times.

For example, we are learning more about the extent to which Native Americans managed the landscape. We can see that our hands off approach is leading to a loss of many valuable habitats. As a very specific example, native peoples had great use for sedges, which they would dig from wetlands. They would dig up a clump, and put half of the clump back. Over thousands of years, the sedges adapted to this management, and died out when the practice stopped.

When we think about landscaping with natives, we need to focus on ecological processes, not just on the plants themselves. Some of the processes discussed include adaptation, competition, succession, and seasonal variation. Here are some ways these considerations might affect the design of a landscape project:

- Use plant communities occur naturally in the soil type and ecoregion.
- Take advantage of plants from surrounding communities with strong dispersal mechanisms. For example, don't waste money planting sweet gum saplings if there are mature sweet gums nearby.
- Observe whether plant species grow alone or in groups or colonies. Use colonial species when you want to crowd others out, refrain from using colonial species otherwise. For example, use clump forming shrubs if you want the meadow to persist, use colonial shrubs if you want the herbaceous plants crowded out.
- Do not include less aggressive species (adapted to poor soil) in a seed mix intended for a site with rich soil.
- Expect the flower species in a meadow to vary as the meadow matures. For example, do not expect black-eyed susans to remain prominent in a meadow after the 2<sup>nd</sup> year.
- Do not create shrub land by planting shrubs and mulching in between them, instead sow a meadow seed mix with some shrub seeds in it. Similarly, plant a meadow seed mix with some shrub/tree seeds to create a woodland.
- Blend species that grow and flower in spring (like *Penstemon digitalis*) with those that grow and flower in summer and fall.

What species do you want in the meadow? Here's how to stack the deck in their favor:

- Soil disturbance creates opportunities for seeds in the seed bank to germinate. Avoid disturbing the soil. Don't till. Use a drill seeder. Cut trees and shrubs you don't want, don't pull them.
- In the first year, mow the meadow at a height of 6" to discourage early successional weeds like ragweed and foxtail from seeding.
- Select species appropriate to the site. For example, indian paintbrush only grows over limestone, so don't waste money on the seed otherwise.
- Protect your lousy soil. Rich soil encourages weeds. Don't import topsoil and don't add compost to "improve" the soil.
- Sow in early July to favor the germination of warm season grasses. Many weeds can't germinate at this time of year.
- To further encourage warm-season grasses like little bluestem, mow in the spring but not in the summer.
- Don't spend a lot of money buying a diversity of species for a site with rich soil. Stick with a few common, aggressive species, they will take over the whole site either way.

There isn't much seed available for establishing plants in woodlands, so you'll have to use plants. Plant pots or plugs in "mother patches". Over time, seed will disperse outward from the mother patches into the rest of the woods.

Design the landscape with a gradient of wildness, more orderly and formal near buildings, becoming increasingly wild with distance. Accent gardens nearest buildings with a few cultivars to make the landscape more acceptable to the client. However, use local ecotypes in the more natural areas. Cultivars are about horticulture, focus should be on seeds. You will need the wild ecotypes to stack the seed bank in favor of more native plants and fewer invasives if your landscape is to be truly sustainable.

**Handouts:**

None

**Recommended Resources:**

Anderson, M. Kat. 2013. *Tending the Wild: Native American Knowledge and the Management of California's Natural Resources*. University of California Press. 558pp.

Bonap.org. The Biota of North America Program. Recommended website for determining the geographic distribution of plant species.

Mann, Charles. 2006. *1491: New Revelations of the Americas Before Columbus*. Vintage Books. 541pp. Also recommended: subsequent books by Charles Mann.

Muir, John. 2014. *The Yosemite*. Create Space Independent Publishing Platform. 136pp.