

ADAPTING YOUR RESTORATION TO CLIMATE CHANGE - PART I

Climate change is rapidly becoming the biggest variable in the restoration of plant communities. As the climate warms, there will be significant changes in precipitation distribution, temperature extremes, and even plant growth rates. These changes will affect the hydrology, community type, and species composition of your projects. While it is not possible to discuss all of the variables in this short article, hopefully it will initiate a thought process that incorporates climate change in each stage of your restoration planning.

Here in the Midwest, climate change will likely increase extreme precipitation events, increase dormant season rainfall, and increase the likelihood of mid to late summer droughts and heat waves. (sound familiar?) The net effect will be more flood events, especially in November through June and more dramatic fluctuations in soil moisture. In addition, hardiness zones are slowly shifting northwards, as extreme bitter cold events become less frequent.

When deciding on species composition for your project, it is important to include plants that are most likely to adapt to the increasingly erratic hydrology. Since it is not possible to know exactly how each species will respond to climate change, it will be more important than ever to include high diversity in your plantings. However, unless you are restoring a specialized stable habitat such as a fen, you may want to deemphasize species at the southern edge of their range, as they are likely to find the climate increasingly inhospitable. Conversely, be sure to include appropriate species that are at the northern edge of their range in your area, as they will likely adapt well to the warmer climate. When selecting possible restoration sites, look for locations with a variety of hydrologic zones, aspects, and soil types. This heterogeneity will allow species to move around to find their ideal niche, helping the diversity planned in your restoration to persist in spite of changing conditions.

Nowhere will climate change be a bigger factor in native plant applications than their use in storm water BMPs such as rain gardens and bio-retention. Extreme wet periods and long summer droughts will result in extremely challenging growing conditions. This will be particularly true where sandy engineered soil mixes are utilized. Such mixes can become extremely dry during long heat waves like the one that affected central Indiana and many other areas of the country this past July. Consider including a larger component of compost in these soil mixes to aid in moisture retention. In addition, include "bulletproof" species of plants in these BMPs that seem to withstand almost any weather extreme. My observations and recommendations for these hardy species will be the subject of Part II of this series.

The climate is almost certain to change far more rapidly during the remainder of this century than at any time in human history. It will become imperative for us to consider this in every aspect of our planning as we adapt to a warmer, more chaotic, and more energetic climate.

PLANT FEATURE: SWEET BLACK-EYED SUSAN (*RUDBECKIA SUBTOMENTOSA*)



An outstanding native of wet-mesic prairies and floodplains, Sweet Black-Eyed Susan is an underused perennial appropriate for a variety of applications. Reaching 4-5 feet in height, it blooms from late July to mid-September, normally peaking in mid-August. The medium green three-lobed foliage is attractive throughout the growing season. Sweet Black-Eyed Susan is a real star in rain gardens and bio-retention areas, where it will survive several days of shallow inundation, yet is extremely drought resistant. It is also an excellent perennial for tall borders and mass plantings. In restoration, it should be included in wet prairie, sedge meadow, and floodplain restorations. An excellent list of associates may be found in our [Wet Mesic Prairie Mix](#).