Summer 2015

What Healthy Coastal Forests and Shorelines Can Teach Us Landscaping

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Recommended Citation
https://opencommons.uconn.edu/wracklines/97
Residential home landscapes share little in common with coastal forests; they’re fundamentally different, by design, but that doesn’t mean that healthy coastal forests and other natural coastal communities can’t provide valuable insights in the effort to bring sustainability to our home yards and gardens. Since Hurricane Irene and Superstorm Sandy, coastal communities are increasingly examining what it means to be “sustainable” and “resilient” – two qualities that natural ecosystems have honed over thousands of years of adaptation.

Along the Connecticut coast, a healthy forest is characterized by mixed hardwood trees of black, red, and white oaks, hickories, and black cherry, often with dense thickets of vines and shrubs that include catbrier, greenbrier, and poison ivy. Where more southern species have found a foothold, we have holly, tupelo, and sweetgum, and where the more typical low-elevation, rolling topography gives way to headlands, pitch pine, and chestnut and post oak can be found. In places where sand dunes have stabilized or sandy glacial deposits remain, the well-drained soils support scarlet oak and sassafras as well as locally abundant eastern red cedar, and often American beach grass, beach pea, and seaside goldenrod. This is a simplistic description of a much more complex and diverse landscape, but you get the idea. More importantly, there are a number of native plant species that could – and probably should – find a home in our residential landscapes.

“Healthy” suggests the virtual absence of non-native and invasive species – an increasingly rare phenomenon in Connecticut. It also describes a diversity of plants (and animals) that have more or less settled into a mutually beneficial working relationship that keeps the ecosystem operating.

So what applications do healthy coastal natural communities have for our increasingly urbanized landscape, where we seek to live a little more lightly on the land, and bounce back more readily from the increasing frequency and intensity of storms in an age of changing climate?

Our healthy coastal forest is, by definition, made up of native plant species. While not every native plant lends itself to a home landscape, those that do can go a long way toward lessening our carbon footprint and increasing the sustainability of our home landscape. Native plants, once established, are right at home in our southern New England climate, which means that they are far more likely to live without the need for inputs of chemical fertilizer, pesticides,

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and water. Inorganic fertilizer and pesticides are made from fossil fuels, a finite, unsustainable resource. In addition to being un-sustainably produced, both excess nutrients (particularly nitrogen) from fertilizers and the chemicals that make up pesticides can create inhospitable aquatic ecosystems. Excess nitrogen fuels algal blooms that eventually lead to reduced oxygen in the bottom waters of, particularly, the western part of Long Island Sound. The impacts of pesticide chemicals are less well understood, but have been linked to abnormal hormonal levels in aquatic organisms that can impact reproduction and survival.

Even if you are not one of the over a million Connecticut residents who, according to a 2011 U.S. government census report, count wildlife viewing among a favorite pastime, how and what you plant in your yard can make a difference, collectively, to the survival of our local flora and fauna.

The use of native plants is, according to entomologist and champion of native plants Doug Tallamy, a tangible way for the home landscaper to help link urban and suburban landscapes with natural areas, and help benefit wildlife. By helping to restore the foods that feed insects, e.g. native plants, we can create habitats that in turn fuel other wildlife (most notably birds), and create corridors that help sustain animals whose natural habitat has declined or disappeared. While this may seem nice but not essential, remember that many of the benefits that we garner from nature – among them access to clean air and water, are free services that are the result of healthy ecosystems (such as coastal forests). Restoring small elements of nature, just may, collectively, make a difference.

Native coastal forests and shorelines also create a template for how to beautify our suburban landscape. Birds, small mammals, even pollinators, respond to not only the type of plant that is present, but that plant’s structure, the numbers and varieties of plants, the seasonal availability of specific vegetation, including flowers and fruits, and the availability of shade and protective cover. The convention of planting single specimens and species of plants around building foundations is anathema to healthy forest and shoreline natural communities. A stratified forest has canopy, mid-story and understory trees and shrubs, and an herbaceous ground cover that may include early spring ephemeral flowers, mid-season specialists, and late fall seed and fruit-producers. These layers are important for multitudes of animal species that may, for example, share overlapping resource needs, but exploit them at different times of the day.

The National Oceanic and Atmospheric Administration (NOAA) defines coastal resilience as “building the ability of a community to ‘bounce back’ after hazardous events such as hurricanes, coastal storms, and flooding – rather than simply reacting to impacts.” Part of the impacts suffered from our recent coastal storms has been the result of our disappearing natural coastline and vegetated riverbanks. What healthy coastal forests and shorelines teach us is that thousands of years of adaptation have fitted natural communities with built-in resilience.

Coastal tidal marshes have tremendous capacity to absorb storm surge: water, wind, and salt. You can experience the “flexibility” of a salt marsh by merely jumping on the marsh surface and feeling your surroundings quake; layers of decomposing vegetation are capable of both absorbing storm water as well as wind and wave impact. The same can be said of vegetated stream and riverbanks, appropriately called “flood plain”. Waterside vegetation not only slows and absorbs storm waters, it also helps to cleanse it by absorbing or breaking down pollutants. Both coastlines and waterway buffers have built in capacity to “bounce back” from destructive events.

The common thread to both of these natural systems is that the interface with water is living, hence the

According to the invertebrate conservation organization Xerces, if you want to make a home for pollinating insects you should do what nature does: plant a wide variety of flowers that bloom throughout the season; use a variety of colors, shapes and sizes; plant in groups of the same color or kind; and leave enough material to overwinter to provide food and nesting sites.
commonly applied resilience term, “living shorelines.” The built solution to coastal storm damage is to build a wall, bulkhead, or embankment — hardened barriers that may feel safer, but often intensify erosion, in addition to being a poor habitat substitute. Living shorelines integrate plants, sand, and a limited amount of rock to protect coastal landscape as well as shallow marine habitats.

As coastal human communities seek ways to adapt to a changing landscape, it makes sense to explore all the resources available, including the living examples of healthy coastal natural forests and shorelines. It’s just the sea change that is needed.

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All photos: Judy Preston

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Native plants are a main attraction at the High Line Canal in Manhattan. Created on an abandoned elevated train bed, visitors can enjoy many varieties of hardy native plants that thrive in the heart of an urban center.