



Sandscapes - Healthy or Not?

Importance

Sandscapes are unique geological formations that help define the character of the park. They form over time as long-shore currents carry sands to quieter waters where they accumulate and form various shapes. The park has a very diverse collection of sandscapes including cusped forelands (South Twin Island), sandspits (many islands), barrier spits (Long Island) and tombolos (Stockton Island). Tombolos form between two previously unconnected islands. Wisconsin recognizes Long, Outer, Raspberry, Rocky, and Stockton sandscapes collectively as a State Natural Area.

Several species of plants function to stabilize sandscapes including beach grass and juniper. Beach grass is very sensitive to human trampling or disturbances such as landing kayaks. Barren areas are appearing on various beaches and sandscapes throughout the park. Juniper is a species that usually thrives on the harsh conditions found on sandscapes. However, in 2011, a large juniper at Stockton Quarry Bay (photo) was discovered with only the outer edge still living. The vast majority of the plant, including the entire central portion, was dead.

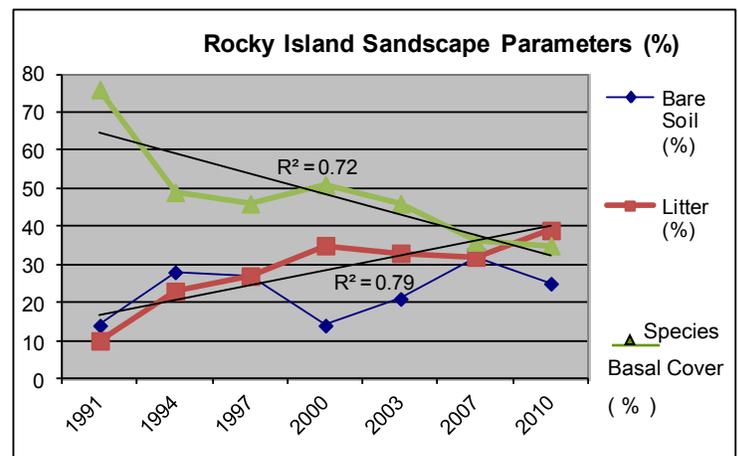


Juniper at Stockton Quarry Bay, Campsite C. Photo by P. Burkman

Status and Trends

Park staff have monitored landscape vegetation since 1988 and data shows that long-term basal cover for all native plant species has decreased, decayed litter has increased, and bare ground has increased for several sandscapes (see graph for an example). Beach grass density is also decreasing over time on numerous sandscapes. Collectively this information suggests that plant cover on sandscapes is decreasing over time. This is occurring on numerous sandscapes and a clear relationship to public use is evident in a few cases, but this does not completely explain what is happening.

Park staff have identified unhealthy juniper on other islands since the first one was found on Stockton. On the Michigan Island landscape almost 70% of the juniper shrubs have sections of dying vegetation. Close investigation revealed caterpillars later identified by plant pathologists at the USDA Forest Service as the exotic species pale juniper webworm (*Aethes rutilana*).



Management Implications

There is cause for concern when native plants are doing poorly, especially ones that are critical to stabilization and form an important component of the landscape ecosystem. Both juniper and beach grass serve to stabilize beach habitats and their loss can result in erosion and blowouts. Unhealthy vegetation can also indicate that a local population is decreasing. In addition, if native species are lost, opportunities for exotic species to invade are greater. On sandscapes, spotted knapweed and the recently discovered winged pigweed at Long Island pose the most significant threats.

One thing we can do is to refine our understanding of what is causing the various problems and plans for 2012 include working with a researcher for this purpose. In addition, we can assess the scope of the pale juniper webworm throughout the park. Options also include vegetation restoration, and the installation of a floating boardwalk to direct foot traffic off beach grass. Finally, we can engage the public in efforts to protect these rare sandscapes that help define the character of the park. Hopefully these various efforts will help us decide if our unique geological features are healthy or not.



Juniper twig with pale juniper webworm frass. Photo by D. McConnell