

Coastal Barriers, Beaches and Dunes

These habitats are very well described and illustrated in the Long Island Sound Habitat Restoration Manual (February 2003) <http://longislandsoundstudy.net/wp-content/uploads/2004/12/Coastal-barriers-and-beaches.pdf>

The maritime beach is the area between mean high tide and the dunes. This is an active area with shifting sands due to wind and storm wave action. Vegetation is often very sparse and may include: American beachgrass (*Ammophila breviligulata*), American searocket (*Cakile edentula*), spear saltbush (*Atriplex patula*), crested saltbush (*Atriplex cristata*), pitseed goosefoot (*Chenopodium berlandieri* var. *macrocalyrium*), Russian thistle (*Salsola kali*), seaside sandmat (*Chamaesyce polygonifolia*), and seabeach knotweed (*Polygonum glaucum*). Seabeach sandwort (*Honckenya peploides*) may be found in areas with a more stable substrate.

Vegetation of the dunes at any given time is dependent upon erosion, deposition and storm events. American beach grass (*A. breviligulata*) is the most common plant of the dunes and plays a critical role in dune stabilization. Other plants that may be found on the dune systems are seaside goldenrod (*Solidago sempervirens*), beach pea (*Lathyrus japonicus*), dusty miller (*Artemisia stelleriana*), Virginia rose (*Rosa virginiana*) and Carolina rose (*Rosa caroliniana*). The commonly seen rugosa rose (*Rosa rugosa*) is listed as a potentially invasive plant in Connecticut.

Further landward, in areas with more stable soils and decreased salt spray, species diversity increases. Here one often finds northern bayberry (*Morella pensylvanica*), beach plum (*Prunus maritima*), seaside goldenrod (*Solidago sempervirens*), switchgrass (*Panicum virgatum*), eastern prickly pear cactus (*Opuntia humifusa*), poison ivy (*Toxicodendron radicans*), and beach heather (*Hudsonia tomentosa*).

The most common management issues for these habitats are coastal erosion due to severe storm events or storm surges and invasive plant colonization.

Erosion is a natural process of beaches and dunes. These are dynamic systems and expected to change over time. Sometimes an area may go years without a major storm event and at other times, may change drastically due to successive nor'easters. In these situations, if possible, it is recommended to allow for the shifting and changing of these dynamic landscape features.

Detailed information is provided in the LISS Habitat Restoration Technical Manual on restoration of damaged dunes including rebuilding with sand, replanting and dune fencing. Depending on beach usage, sand may be purchased and brought in after a major erosion event. The dune is then planted with plugs of American beachgrass. Planting usually takes place in March or April while the plugs are dormant. Plugs are usually spaced 12 inches apart on center. Care should be taken to research and purchase local plant genotypes.

Monitoring of beachgrass plantings is often done through photo-monitoring. Photographs are taken from set locations that can be easily found in subsequent years (such as with a GPS unit) with before and immediately after plantings, and then annually after the growing season.

Invasive, or potentially invasive(*) plant species (in Connecticut and/or New York) to watch for in these areas:

Rugosa rose (*Rosa rugosa*)*

Asiatic bittersweet (*Celastrus orbiculatus*)
Black swallowwort (*Cynanchum louiseae*)
Honeysuckles (*Lonicera* spp.)
Tree of Heaven (*Ailanthus altissima*)
Black locust (*Robinia pseudoacacia*)
Japanese honeysuckle (*Lonicera japonica*)
Japanese sedge (*Carex kobomugi*) – found in the nearby states of Rhode Island and New Jersey
Common reed (*Phragmites australis*)

Numerous management and control fact sheets for each of these species may be found on the internet:

Rugosa rose: www.nobanis.org/files/factsheets/Rosa_rugosa.pdf

Asiatic bittersweet control: <http://www.nps.gov/plants/alien/fact/ceor1.htm>

Black swallowwort: <http://www.nps.gov/plants/alien/fact/cylo1.htm>

Tree of Heaven: <http://www.nps.gov/plants/alien/fact/aial1.htm>

Black locust: <http://www.nps.gov/plants/alien/fact/rops1.htm>

Japanese honeysuckle: <http://www.nps.gov/plants/alien/fact/loja1.htm>

Japanese sedge: <http://www.nps.gov/plants/alien/fact/cako1.htm>

Common reed: <http://www.nps.gov/plants/alien/fact/phau1.htm>

Management of any of these species depends upon which species and the degree of infestation. Remembering that the dunes are very fragile environments, hand cutting and stem application of herbicide may be appropriate. If infestation covers most of the dune, other methods may be necessary, such as foliar spraying, and expert advice should be sought, particularly in the timing of killing the invasive plants and replanting with native vegetation.

It is suggested that monitoring invasive plant management projects on the dune and back dune areas is best done by photomonitoring due to the fragile nature of these environments. A permanent series of locations should be chosen to cover the management area, and photos taken at various angles to cover the area.

Resources:

Link to Connecticut Critical Habitat mapper (CTEco):

<http://ctecoapp1.uconn.edu/advancedviewer/>

Link to New York Environmental Resource mapper:

<http://www.dec.ny.gov/animals/38801.html>