Maritime Grassland Creation and Shoreline Stabilization

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Overview

- Project Background
- Site History
- Design Objectives
- Implementation
- Results & Conclusions
Gateway Estates

~ 56 Acres
Impacted Maritime Grasslands
Maritime Grasslands

• Provide Forage & Shelter for Ground Nesting Birds
• Provide Storm Surge Protection

• Disappearing due to Coastal Development
• Rare Habitat
Compensatory Grassland Mitigation

- Isolated
- Sufficient Size
- Continuous Habitat
- Sandy Substrate
• Dredging & filling activity occurred between 1945 - 1958
• Non-hazardous sanitary landfilling occurred between 1957 - 1962
Shoreline Erosion
Invasive Species
1. Control invasive species
2. Stabilize the degraded shoreline
3. Create diverse grassland habitat for rare or special-status bird species
4. Increase biodiversity
Implementation

Planting Surface Created:

- Invasive Species Control
- Clearing and Grubbing
- Over 150,000 cubic yards of sand delivered to the island to create a substrate free of organics
  - Sand Layer ~ 2 feet in depth installed
Shoreline Stabilization
Targeted Grassland Bird Species

- Savannah Sparrow*
- Henslow’s Sparrow*
- Vesper Sparrow*
- Eastern Meadowlark*
- Northern Harrier*
- Short-Eared Owl
- Grasshopper Sparrow
- Horned Lark
- Bobolink
- Upland Sandpiper
<table>
<thead>
<tr>
<th>Bird Species</th>
<th>Preferred Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horned Lark</td>
<td>Short grass</td>
</tr>
<tr>
<td>Vesper Sparrow</td>
<td>Short grass</td>
</tr>
<tr>
<td>Grasshopper Sparrow</td>
<td>Short to Medium grass</td>
</tr>
<tr>
<td>Upland Sandpiper</td>
<td>Short to Medium grass</td>
</tr>
<tr>
<td>Eastern Meadowlark</td>
<td>Short to Medium grass</td>
</tr>
<tr>
<td>Savannah Sparrow</td>
<td>Short to Medium grass</td>
</tr>
<tr>
<td>Northern Harrier</td>
<td>Medium to Tall grass</td>
</tr>
<tr>
<td>Short-eared owl</td>
<td>Medium to Tall grass</td>
</tr>
<tr>
<td>Henslow's Sparrow</td>
<td>Tall grass</td>
</tr>
<tr>
<td>Bobolink</td>
<td>Tall grass</td>
</tr>
</tbody>
</table>
## Planting Plan

<table>
<thead>
<tr>
<th>Zone</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Marsh</td>
<td><em>Spartina alterniflora</em></td>
</tr>
<tr>
<td>High Marsh</td>
<td><em>Spartina patens, Distichlis spicata, Juncus gerardii</em></td>
</tr>
<tr>
<td>Dune</td>
<td>American Beachgrass &amp; Atlantic Coastal Panic Grass</td>
</tr>
<tr>
<td>Coastal Shrub</td>
<td>Groundsel Bush, Arrow-wood, Inkberry</td>
</tr>
<tr>
<td>Maritime</td>
<td>Little Bluestem, Broomsedge, Sand Dropseed, Indiangrass, Common Hairgrass, Poverty Grass,</td>
</tr>
<tr>
<td>Short Grass</td>
<td>Broomsedge, Little Bluestem, Sand Dropseed, Purple Lovegrass, Common Hairgrass, Poverty Grass,</td>
</tr>
<tr>
<td>Tall Grass</td>
<td>Big Bluestem, Switchgrass, Indiangrass, Purpletop</td>
</tr>
</tbody>
</table>
Habitat Design

Existing Protected Grasslands
Existing Salt Marsh
Dune Planting

Maritime Grasslands
Short Grass Meadow
Tall Grass Meadow
Seeding
Grassland Establishment
Grassland Establishment
Storm Surge

Mean High Water (+ 1.0 ft)

Hurricane Sandy Storm Surge (+ 11.0-15.0 ft)
Questions?