
Wetland Restoration:
Practical Approaches
for Dealing with Thorny Problems

Coastal Wetlands

- Primary cause of loss:
  - Dredging or filling
  - Diking

- Invasives:
  - Spartina alterniflora
  - Spartina anglica


Smooth cord grass
Spartina alterniflora
Photo by Vic Ramey
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- Restoration approaches
  - Dike breaching
  - Benching
  - Planting

- Challenges
  - Not enough space
  - Historically weed-free, but not any more
  - Hydrology change
    - Not enough salt water
  - Geese

Freshwater Wetlands

- Primary cause of loss:
  - Dredging or filling
  - Modification of hydrology
  - Introduction of invasives
  - Modification of neighboring matrix
  - Fragmentation
  - Persistent disturbance

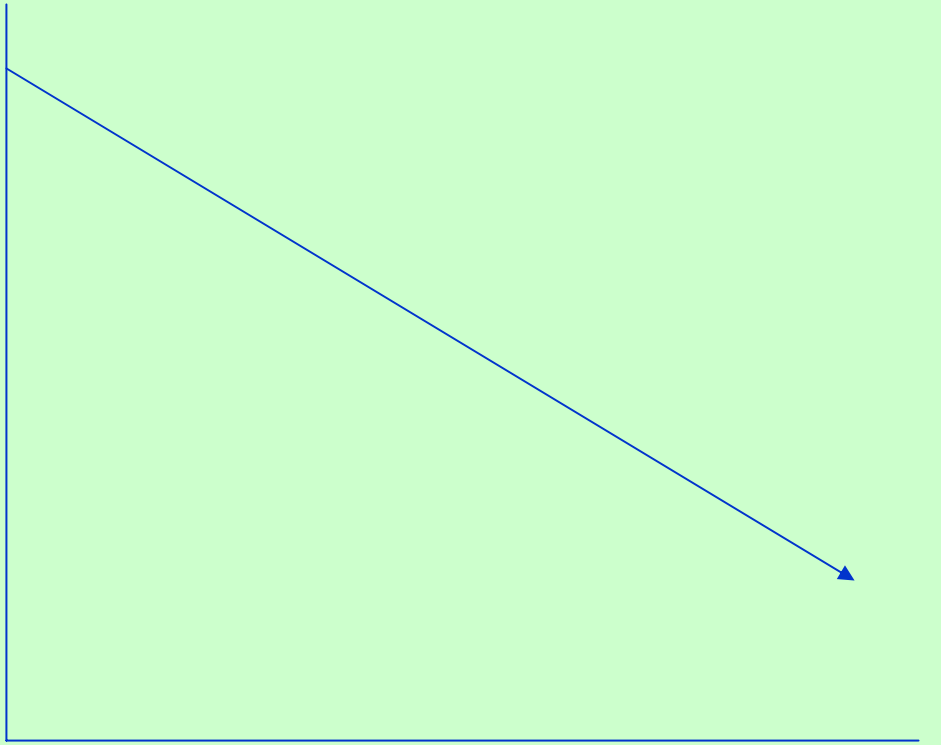
- Invasives:
  - Phalaris arundinacea
  - Rubus armeniacus
  - Polygonum cuspidatum

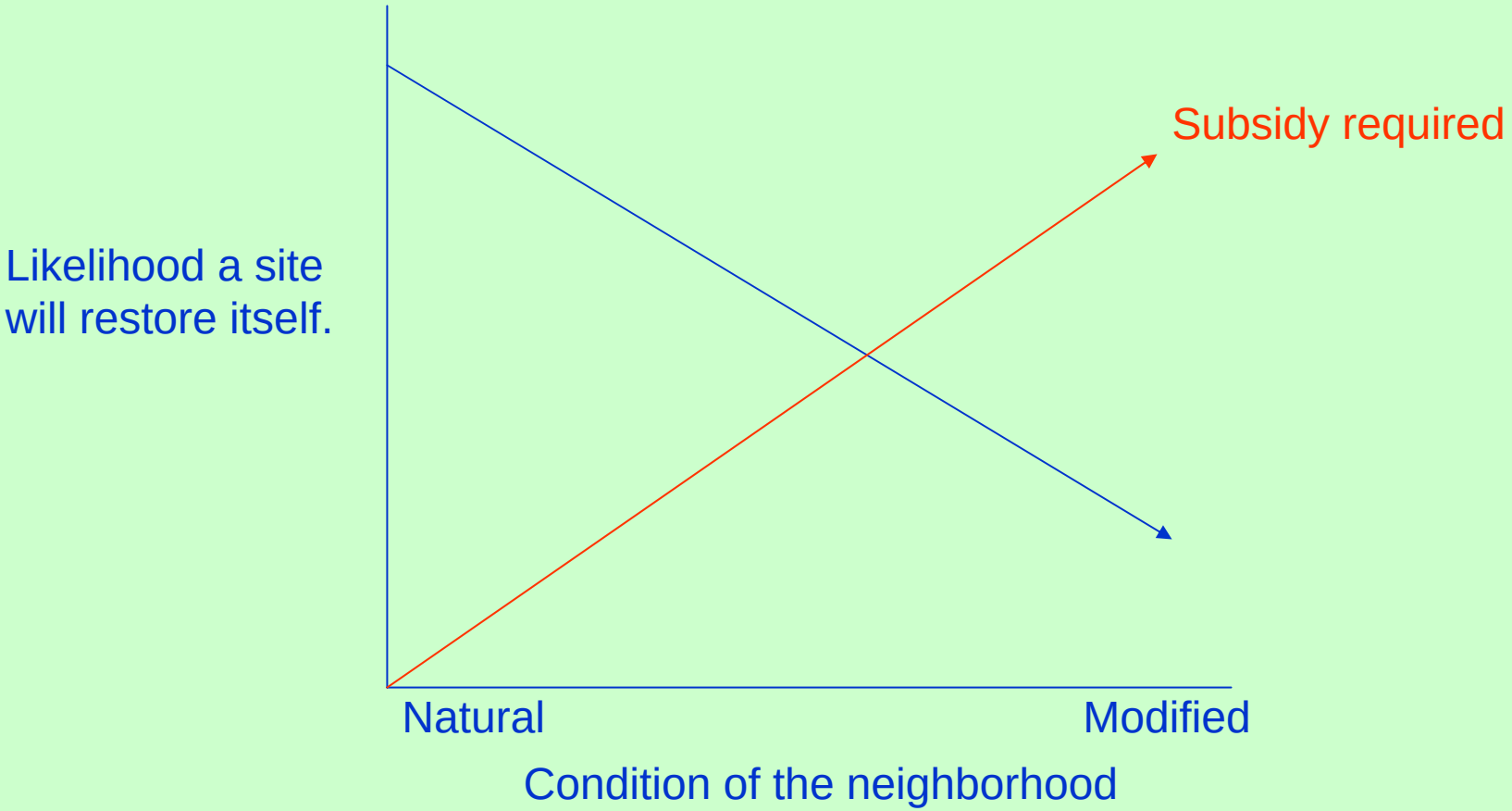
- Restoration Approaches
  - Removing invasives
  - Planting natives
  - Strategies to suppress weed re-growth
    - Mulch
    - Geotextile fabrics
    - Islands
    - Appropriate species

- Challenges
  - Invasives
  - Neighborhood unlike target
  - Disturbance
  - Altered hydrology
  - Herbivory
  - Two year plan, 50 year project

Theoretical Framework for Restoration

Likelihood a site will restore itself.




Subsidy required
Likelihood a site will restore itself.
Natural
Modified
Condition of the neighborhood

Ecosystem Functions and Services

Supporting	
Nutrient Cycling	
Soil Formation	
Primary Production	
Provisioning	**Regulating**
Food	Climate
Fresh Water	Flood
Habitat	Disease
	Water purification

Millennium Ecosystem Assessment

- Succession

- Plant succession is a directional, cumulative change in the species that occupy a give area, over time.

  (Barbour, Burk, Pitts)

- Non-equilibrium response to disturbance

- The species that occur at a site will be the result of:
  - Site availability
  - Species availability
  - Species performance

Site Availability

Species Availability

Species Performance

- Site Conditioning