



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2004NJ72B

Title: Seed Dispersal Dynamics in Restored and Intact Salt Marshes: Implications for Restoration Success

Project Type: Research

Focus Categories: Ecology, Invasive Species, Wetlands

Keywords: seed dispersal, *Spartina alterniflora*, *Phragmites australis*, secondary dispersal, restoration, Harbor Estuary, Meadowlands

Start Date: 03/01/2004

End Date: 03/01/2005

Federal Funds: \$5,000

Non-Federal Matching Funds: \$8,793

Congressional District: 6

Principal Investigators:

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Abstract

Based on seed dispersal and seed bank studies it appears that secondary dispersal of seeds by tides may, under certain conditions, allow for natural colonization of salt marshes. However, in order for restoration practices that rely, even in part, on natural colonization to be successful, secondary dispersal of seeds in a tidal system must be comprehensively studied under a variety of different landscape settings.

In cases where natural colonization is relied upon as the sole means for vegetation re-establishment, lack of appropriate secondary seed dispersal might result in a failed restoration. On the other hand, if active planting is carried out for only one species the overall species diversity within a region may decline if other species cannot naturally colonize restored sites.

6. Specific Objectives of the Study:

The goal of this research is to critically examine natural colonization and the ecological processes that influence its successful implementation. More specifically, I will test the following hypotheses:

- Some secondary dispersal is occurring within restored and intact marshes.
- Species composition of incoming seeds from secondary dispersal processes is primarily determined by adjacent habitats and not the larger estuary.

This research will quantitatively examine seed input, germination and secondary dispersal in restored and intact salt marshes within the New York/New Jersey Harbor Estuary including the Hackensack Meadowlands, and assess how the surrounding community influences the species composition of the seed input. If natural colonization via secondary dispersal is to be successfully applied to restorations, it is insufficient to only determine whether or not secondary dispersal is occurring. One must determine what conditions, such as proximity to sources, enable seeds of desired species to disperse into a restored site. The methodologies developed and information collected in this project can be used by agency personnel and restoration practitioners to improve restoration success.